

Pathological and practical observations on strictures, and some other diseases of the urinary organs / by Francis Rynd.

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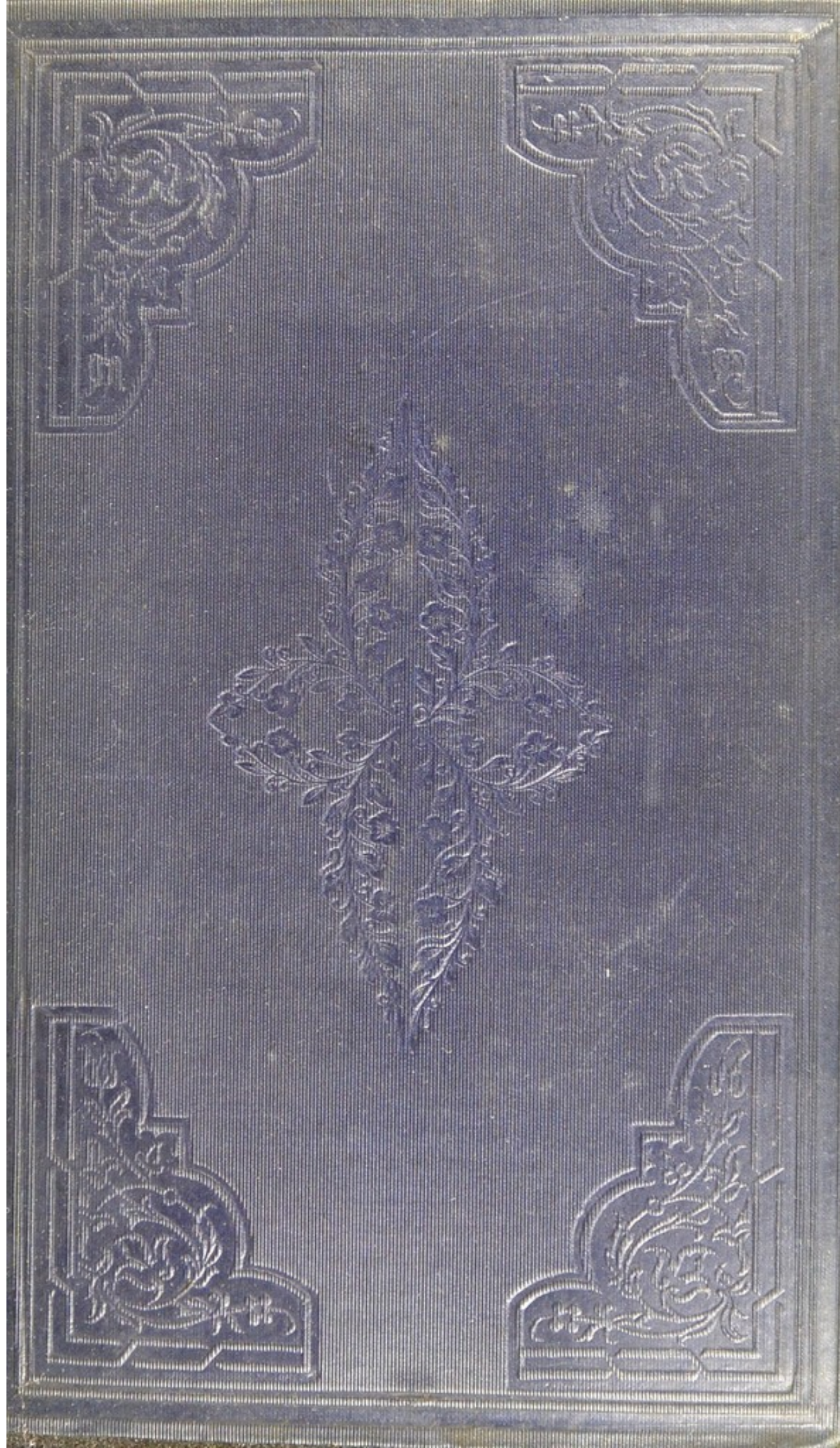
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PATHOLOGICAL
AND
PRACTICAL OBSERVATIONS
ON
STRICTURES,
AND SOME OTHER
DISEASES OF THE URINARY ORGANS.

BY
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FRANCIS H. Y. Y. Y.

TO

SIR PHILIP CRAMPTON, BART.

Surgeon in Ordinary to Her Majesty in Ireland, Surgeon General,

&c. &c.

MY DEAR SIR PHILIP,

I TRUST you will pardon the liberty I have taken in prefixing your name to this volume. The affectionate friendship with which you have honoured me, without the slightest interruption, since I became your pupil, might alone plead my excuse. But, independently of any private feeling of this description, I am anxious to embrace this opportunity of giving my public testimony to the untiring zeal with which you have always sought the advancement of the surgical profession, and to those great talents and varied acquirements which have been uniformly employed in the cultivation and diffusion of scientific

knowledge, and which have confessedly placed you in the distinguished position you so worthily occupy.

With every feeling of esteem and respect,

I am, my dear Sir Philip,

Your obliged and affectionate Friend and Pupil,

FRAS. RYND.

19, ELY PLACE, DUBLIN,

March, 1849.

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ERRATUM.

Page 73, line 27, for "witnessing it even *occur*," read "witnessing it even *once*."

PRACTICAL OBSERVATIONS

ON

STRICTURES,

&c.

CHAPTER I.

Preliminary remarks.—The urethra: its structure and uses dispose it to disease.—Gonorrhœa probably not a cause of stricture.—Physiology and anatomy of the urethra explanatory of some of its diseases: it is frequently affected with stricture.—Supposed causes of this disease: its different forms.

Few diseases present themselves to the practical surgeon in a more interesting point of view than those of the urinary passages. Designed to convey away a fluid, the secretion of which is constant and unceasing, and the presence of which within the body seems to be so injurious that Nature has endowed the organ in which it has but a temporary lodgment with a peculiar degree of sensibility, to give notice of its presence and enforce its evacuation,—any impediment capable of preventing, or even delaying, such evacuation must necessarily occasion great distress. No one, having ever witnessed the physical suffering arising from retention of urine, will require argument or illustration to prove the truth of this remark; but, besides, there is always a high degree of mental sympathy with diseases of the urinary organs, in consequence of the intimate connexion of some of them with the generative system, impressing

them with a feature of constitutional importance that many others do not possess. Farther, it may be observed, that practically they are calculated to awaken a peculiar interest, inasmuch as though tedious, troublesome, and but too often calamitous in their results, they occasionally afford very flattering opportunities for the exercise of surgical skill: for as the misery occasioned by retention is extreme and unremitting, so is the relief from it, when obtained, as gratifying as complete. But obstructions to the escape of the urine are of various kinds: some local—some constitutional—some obviously occasioned by injury—some by irregularities, intemperance, and similar exciting causes; and they may be situated in any portion of the apparatus, from the kidney where the fluid is secreted, to the external orifice of the urethra, where it finally passes away. They thus constitute a very extensive class of diseases, resembling each other in the effect produced, but differing so materially as to cause, situation, and intensity, as to become separable into distinct species, each distinguished by its own pathological characters, and demanding its own peculiar treatment. Of these, the diseased conditions of the urethra become more obviously and more frequently the objects of professional attention, and consequently a correct acquaintance with its pathology appears to be of the last importance; yet has it been remarked by more than one writer, that notwithstanding the abundant opportunities for investigation that seem to exist, there are few subjects on which knowledge of this description is more inadequate and incomplete. Yet is this assertion scarcely borne out, for there is really a vast fund of information scattered throughout the works of surgical writers on the

subject; but the effect of its dispersal is to render it less accessible, and consequently less useful, to the student. This is an evil, the removal of which would involve the expenditure of much time and labour; but it may be partially remedied, by taking any one portion of the apparatus—the urethra, for instance,—examining its pathological conditions as far as they are known, connecting these with the symptoms they give rise to, and founding on both a system of treatment at once rational and scientific.

The urethra in the male subject is, as is well known, subservient to two very important functions in the economy, and hence becomes liable to diseases unknown to that of the female; not that there is necessarily any additional risk arising out of this multiplication of duty, or that because an organ is obliged to perform two separate and distinct acts it must do so but imperfectly, for this very part, as long as it remains healthy, acquits itself of its functions with admirable perfection, but that such an extension of duty demands a corresponding extension of structure, and, by thus rendering the organ more complicated, imparts a greater susceptibility of disease. Thus, for the mere purpose of the expulsion of the urine, nothing more could have been necessary than a canal of the simplest structure, leading by the shortest and straightest route from the neck of the bladder to the surface of the body, corresponding very nearly with that which really exists in the female; but when the other function comes under consideration, numerous and obvious reasons appear to show the insufficiency of an organ so simple, and prove the necessity for a very different apparatus indeed. The male urethra, then, must be of some considerable length, and

the arrangement to accommodate such elongation, without inconvenience, involves the formation of one or more curvatures with corresponding changes of direction: the canal, therefore, not being short, cannot be straight, and moreover is not of equal capacity or calibre throughout its entire extent. It must be surrounded by, or in the immediate vicinity of, glands, muscles, and other tissues, any of which, being irritated or diseased, would be likely to operate unfavourably upon it; it is the seat of very vivid nervous impressions, and therefore exposed to powerful excitement; and, probably to a greater extent than any other canal lined by mucous membrane, it must possess follicular and glandular apparatus, in order to the lubrication and protection of its surface under such varied conditions. Besides, the urethra in the human subject is, during the act of coition, exposed to the contact of infectious matter occasionally, and thereby liable to contract certain diseases which may be and are generally regarded as frequent causes of obstructions in the canal afterwards. Here, then, are a sufficient number of physiological considerations to account for the occurrence of urethral derangements, and occasionally to explain their nature, all arising out of the necessity of the urethra ministering to the process of generation,—yet, as being natural, they may not be regarded as provocatives to disease, but only as predisposing causes, and rendering it more susceptible: they sink to nothing and are lost when brought into comparison with the frequent, irregular, and sometimes unnatural excitements to which the organ is exposed, and by which in the great majority of instances its various ailments are more immediately occasioned. It is a remark more curious than impor-

tant, that the effects of disease are but sparingly exemplified in that particular function from which they take their origin; because, existing not in perfection except during a comparatively limited portion of life, it may even then be dispensed with, whilst they are most painfully and dangerously experienced in that of micturition, which being indispensable to the maintenance of life cannot be interfered with or interrupted without inducing very formidable results.

The urethra being lined by a highly organized mucous membrane, is of course liable to suffer from any or all the morbid affections that occur in that class of membranes;—inflammation and its consequences, various kinds of discharges, ulcerations, hæmorrhages, stricture and spasm, more or less disturbing the process of micturition by pain or difficulty, or absolute obstruction: yet of these, evidently stricture is of most importance, occurring as it does with such frequency as in surgical parlance almost to be referred to it alone. There can be no question that it is met with in the urethra as often as in all the other parts of the body taken together, and therefore it is reasonable to conclude that there must be something in or connected with this canal—some irritation, or some excitement, to which it alone is exposed, or at least exposed with greater intensity and persistence than any other. At once, surgeons discovered, or thought they discovered, this in the virulent gonorrhœa, or in the means adopted for its cure; and hence it is, and almost always has been, a notion prevalent with others as well as with medical men, that persons who have suffered from the one disease are peculiarly liable to the other: a notion which, however insusceptible of proof it may be, is diffi-

cult of removal, for gonorrhœa is of such frequent occurrence, and so many young men contract it, that most strictured patients are found to have suffered from the other complaint previously, and nothing can be more plausible than placing the two diseases in the mutual relation of cause and effect. But this mode of reasoning is illogical, and proves nothing; it is merely a *post hoc propter hoc* fallacy, and the argument if valid in the one direction can be made equally so in the other, for if gonorrhœa be the exciting cause, and is so extremely prevalent, how happens it that the vast majority of those so affected escape stricture, nevertheless? Yet is the fact unquestionably and undeniably true, that not one in fifty,—nay, perhaps not one in the hundred,—of those that contract the venereal affection are ever attacked by the other. This observation is quite sufficient to create a doubt as to the validity of the conclusion sought to be established, and there are others still which must be allowed to possess considerable weight. Gonorrhœa, and chordee—which is the symptom of gonorrhœa supposed to be most influential in the production of stricture,—do not engage the portion of the canal in which the latter is usually situated, and moreover, the two diseases bear no relation to each other in violence or severity—the one may be very acute, and the other proportionably trivial; and, lastly, if it can be shown (as happens every day) that patients suffer from stricture who never contracted gonorrhœa previously, it will satisfactorily prove the latter not to be the only exciting cause, as it certainly appears not the most efficient one. The opinion which refers to the use or abuse of injections may be disposed of by a similar train of reasoning. The injection rarely or never

reaches the part of the urethra in which stricture is commonly situated, and if it did so, there is no satisfactory reason why it should prove irritating to that particular spot, and none other: besides, it is difficult to imagine how a mild and bland application could occasion such injurious effects, and if it is not mild, if it possesses stimulating or irritating properties, the results ought to be inflammatory, acute, and immediately perceptible, but certainly not such a chronic alteration of structure as a stricture, which commences without exciting the slightest suspicion, increases without giving very decided proofs of its presence, and is in general pretty well established before it creates so much distress as to drive the patient to seek relief. How far these influences may act remotely and indirectly on the urethra is not now the question. It is perhaps more irritable and more excitable than other mucous canals, and consequently more prone to disease, and so far as gonorrhœa or any of its consequences can induce a state of irritation, they may be regarded as remote or predisposing causes, and then only in common with other excitements, some of which are probably more influential. It is difficult to offer even a plausible explanation of the etiology of the disease, and every circumstance that can by possibility throw a light upon the subject ought to enter into the investigation,—but particularly that one, so valuable on other occasions, namely, the anatomy of the canal, considered in its connexions and relations to adjacent parts.

Commencing from within, and examined according to the course the urine takes in its escape, the urethra is found passing from its aperture into the bladder downwards and forwards for about an inch or inch and

quarter, through the prostate gland, to the substance of which it is very firmly attached; and therefore in this part of its course, however liable to obstructions from other causes, a true stricture never exists. But the anatomy of this part is most important in a pathological point of view, and deserves to be carefully studied, particularly with reference to its change of direction when the bladder is distended, and the alterations that may be wrought in its length and capacity by enlargement or other morbid condition of the gland. It then passes more directly forwards in somewhat of an arched form (the convexity of the little arch being inferior) through the levator ani muscles, and both laminae of the triangular fascia of the perineum under the pubis for the space of about half an inch; and this part of the canal, though so limited in extent, is on many accounts essentially and practically interesting. For instance, this, with the exception of the bulb, is the most tender and sensitive part of the whole urethra, and consequently the passage of an instrument through it is very sensibly felt, occasioning, even when the part is in perfect health, a disagreeable, unpleasant sensation, sometimes amounting to pain. This is, with the exception of the external orifice, the narrowest part of the entire canal, and is the spot at which a spasmodic constriction is most liable to occur, it being easily compressed and closed by such irregular action of Wilson's muscles—the anterior fibres of the levator ani. Here it is that the most difficult manœuvre of catheterism occurs, by the awkward performance of which great and serious injury is too frequently inflicted, and moreover the portion which lies immediately beneath the pubis is particularly ex-

posed to rupture or bruise by falls or blows on the perineum, giving rise to extravasations of urine, abscesses, and all their distressing consequences. This membranous portion (so called from its appearance when detached from its surrounding connexions) is distant from the external orifice of the penis from six to seven or seven and half inches in different individuals, is encompassed by a loose cellular tissue, and is the most frequent seat of idiopathic stricture. Having cleared the triangular fascia, the urethra seems to expand into a small pouch termed the bulb, which is the most sensitive part of its whole extent, and is covered by an expansion of muscle, the use of which is to compress and empty it of any fluid that may be lodged within it. These muscles, under the influence of any spasmodic contraction, never do, and perhaps never can, occasion a retention of urine, for their action would lead to the very opposite result, but they sometimes become debilitated and lose their tone, and then a condition arises productive of great inconvenience, and possibly of actual disease: the last drops of the urine are not expelled, but dribble off, and soil the patient's clothes; or in the case of more aggravated debility they lodge there, and cause irritation and inflammation—perhaps abscess in perineo—perhaps sabulous deposits; and instances have not unfrequently occurred of this part of the urethra being dilated into a sac containing one or more calculi.

I assisted Sir Philip Crampton at an operation, where he removed seven calculi from this situation, the smallest of them not less in size than a sparrow's egg. The bulb is, perhaps, never the original seat of idiopathic stricture, although the disease may extend to it,

and is chiefly interesting to the practical surgeon, as being the spot at which a false passage is most easily created by an incautious management of the catheter or bougie. From this, the urethra, enveloped by the corpus spongiosum, passes upwards and forwards to the front of the pubis, where it, in common with the rest of the penis, becomes pendulous. In any part of this course a stricture may be formed, but the most usual position is at the second curvature, about four or five inches from the external orifice, and next in order of frequency at or very near the orifice itself. These strictures are generally secondary; that is, they are formed subsequent to and in consequence of an original obstruction at the membranous part; but it would be incorrect to suppose that they are always so. A case of a most intractable nature occurred not very long since in the Meath Hospital, in the person of an American sailor, wherein the stricture was situated just five inches, and another, lately in the same hospital, but two inches from the orifice, and in both instances they were original and solitary; for when the first difficulty was overcome, an instrument could be passed into the bladder with the utmost facility. It is difficult to explain the formation of these secondary strictures, for it is neither scientific or satisfactory to attribute them to sympathy, a vital process of which so very little is known: perhaps they arise from that general law in the animal economy which causes all canals to contract in diameter, and sometimes to close, when the substances they were designed to transmit cease to pass through them freely. However induced, the presence of one or more of them must be regarded as an unfavourable symptom, indicating that the primal

stricture has been long established, and will probably require both time and trouble for its removal. It seems almost paradoxical to make the assertion, but the stricture at the orifice itself, which can be so easily reached, and seems to be so entirely within the scope of surgical agency, is often amongst the most intractable and difficult of cure.

Now, to apply these anatomical and physiological observations to the production of stricture:—First, let it be recollected that the membranous portion of the urethra forms a curve under the firm and resisting ligament of the pubis, which curve will have a tendency to become an angle, according as the bladder becomes distended and rises upwards in front of the abdomen, and the angle so formed will, by flattening and compressing the canal in its transverse direction, render the passage of the urine proportionably difficult through it. Any one who has, in his own person, experienced the delay and trouble of emptying an over-distended bladder, that has seen the water first come by drops, then in a small thread-like stream, and not assume its wonted freedom and size until the discharge is nearly completed, will readily comprehend the effect of this change in the direction of the canal upon it. This may occur in perfect health, even to the extent of producing retention of urine, and perhaps some of the cases attributed to loss of tone in the muscular fibres of the bladder might be as truly explained thus: but in the next place, let it be supposed that from any cause Wilson's muscles should be seized with spasm in any of these cases already affected by the over-distension, and it must so shut up and close the urethra at that angle as to occasion abso-

lute retention. The patient, then, in his efforts to relieve himself, will direct all the force of an excited bladder, aided by that of the abdominal muscles on this very spot, already, probably, in a state of irritation, and disposed to become inflamed and thickened, and resisting; and let it be farther imagined, that this shall happen again and again, at every repetition the mischief will be increased, until a permanent alteration of structure is finally induced. If this explanation of the cause of stricture be even partially applicable, it follows that every habit which leads to an undue retention of the urine within the bladder,—such as inattention, confinement during a long journey, intoxication from malt or spirituous liquors, and that every thing which can excite spasm,—may ultimately tend to the establishment of the organic disease also. It is difficult at present to determine what may directly and immediately occasion spasmodic action in any muscle, probably many causes may contribute to the same effect, and there are few subjects in pathology more intricate and obscure, but practitioners generally regard debility of that muscle in the light of a very influential cause, and particularly if that debility is the result of over-work or excitement; in which case they often call it by a different name, and say that the part has become irritable: but, however theory may fail in explanation of the fact, practically no doubt seems to be entertained that local weakness is a direct and powerful agent in the formation of a stricture,—weakness from habitual intemperance, from long residence in a warm and enervating climate, from stimulating unwholesome food, and above and beyond all, from a forced and almost unnatural indulgence in sexual en-

joyments. The influence of this latter exciting cause will scarcely be denied by men of practical experience, and possibly it may be regarded as one of the cases in which the transgressions of the parent are visited on the offspring; for there are strong grounds for entertaining the opinion, that an hereditary tendency or disposition to the disease may be transmitted. It is true this latter supposition has not been prominently brought forward by writers on the subject, and may therefore appear visionary, but in the present instance it has been suggested by observation; and if it be true that Hunter saw a case of stricture, complicated with fistula in perineo, in a boy of only four years old, it is difficult to imagine how such an occurrence could be otherwise explained.

Again: there is some reason for suspecting that stricture is more frequently the consequence of some violence inflicted on these parts than practitioners are generally willing to acknowledge. Thus, to suppose a case, a patient with irritable urethra has occasional attacks of some spasmodic affection, and passes his urine in an irregularly-sized stream—sometimes small, sometimes large, and is, perhaps, occasionally obliged to wait a minute or two before it commences to flow at all. If this man happens to have heard sufficient of stricture to arouse his fears, he probably applies to a surgeon, who passes an instrument, and finds an obstruction at the usual place (for the mere presence of the catheter or bougie is sufficient to excite the spasm); and now, if the practitioner is wanting in patience, or dexterity, if he is hurried, and employs force, the instrument is pushed into the bladder, but its withdrawal is followed by a discharge of blood, and the

urethra probably is wounded. Doubtless in such a case the injury will be small, and its immediate consequences trivial; but every lesion of surface must be repaired by a cicatrix, and if this is in the slightest degree elevated, the foundation of a stricture will be laid. It may be objected to this supposition that a flow of blood from the urethra is no proof of the infliction of a wound; that mucous membranes in a state of irritation, and still more, if inflamed, pour out blood freely, without any appreciable lesion; and instances have occurred, of large and apparently formidable hæmorrhage, in cases where subsequent dissection failed in discovering a cicatrix, or other traces of violence: such remarks are unquestionably true, and therefore these suggestions must not be understood as implying that every perception of pain on the introduction of an instrument, or every appearance of blood on its withdrawal, is to be adopted as an indication that the canal has been actually wounded, but only that such casualty may happen, and that it has happened perhaps more frequently than is commonly supposed. Let this occurrence take place two or three times in the same individual, and it will not be difficult to imagine how the canal may be thereby affected, and how not only a stricture, but the worst and most intractable form of the disease, may be developed. This accident is not usually enumerated amongst the exciting causes of stricture, because surgeons are slow to acknowledge that mischief can possibly accrue from the use of their instruments; but, nevertheless, urethræ are constantly met with in practice, the degeneration of which from their natural state (for no other expression can be employed) is hardly otherwise intelligible;

so devious and intricate in their course that a bougie can scarcely be guided through them ; so firm and resisting, and cartilaginous in their structure, as effectually to baffle any force. Now if, on inquiry, such a case is found to be old, and of long standing,—if it had been frequently dealt with rather roughly with instruments,—if there had been pain and bleeding, and other symptoms indicative of such treatment experienced on these occasions ; and if, on the whole, it had rather been aggravated than benefitted by it,—there is at least presumptive evidence of that aggravation proceeding from the cause assigned ; and, if so, there is no reason why it should not be as effective in originating disease within a healthy urethra as increasing it within a diseased one. A belief in the possibility of thus creating a stricture will, at all events, prove beneficial if it inculcates the necessity of employing gentleness and caution in the examination of a suspected case : it is the first and most important lesson in the surgical treatment of urinary complaints.

It will be observed now that the causes of stricture are involved in great obscurity—some which have been popularly received and acknowledged being quite insufficient, and others little more than conjectural ; indeed, the circumstance that chiefly seems to baffle speculation is, that whilst intemperance, acts of indiscretion, and even of profligacy, are considered amongst the most efficient, many individuals, actually steeped in debauchery, escape unscathed, others of irreproachable character and conduct suffer severely. It is not improbable, therefore, that a variety of circumstances with which we are but imperfectly acquainted contribute to the development of the disease in different individuals ;

an idea that receives some confirmation from the fact that the pathological effects produced are far from being uniform, or the same in all. There is, doubtless, a semblance of similarity in the morbid appearances observed in the parts engaged, but then it must be recollected that stricture occurs about the middle period of life ; that it then rarely proves fatal, except from the strangest neglect or mismanagement ; that when usually examined it has had ample time to pursue and perfect its course of mischief ; and consequently that most of our pathological specimens exhibit rather its effects and complications than the simple disease itself. To obtain an acquaintance with the appearance and condition of early stricture the bodies of persons who have died of other diseases should be examined, and always with minuteness and care, for in a canal of such limited dimensions a cause of obstruction sufficiently large to have created inquietude during life may easily escape a superficial observation. In this way a number of forms of organic stricture have been discovered, which, however, for practical purposes, may be advantageously arranged under the following heads :—

1. The simple circular, or, according to some practitioners, the packthread stricture (so called because it creates an appearance as if the portion of the urethra in which it is situated had been partially closed by a ligature of fine thread or twine) is thin, and apparently formed by a single duplicature of the mucus membrane : but this appearance is deceptive, for on closer examination it is found harder and firmer than it possibly could be consistently with the idea of so simple a mode of formation. This rigidity extends to some small distance from the contracted centre in both

directions, insomuch that when there are two or more strictures the intermediate portions of the canal are made to assume somewhat of a fusiform appearance, and is probably produced by an effusion of lymph, the result of some chronic inflammation; but what the original cause of such inflammation may have been it is impossible to say, unless some of the explanations already hazarded be accepted. The existence of this lymph should never be forgotten by practical surgeons, and particularly by those who speak familiarly of tearing through a stricture, or otherwise dealing violently with it, as though it was an unresisting fold of membrane: it is occasionally so firm as to resist any force that could be reasonably employed, and offers a ready explanation of the frequent formation of false passages, for a catheter or bougie will take any part of the healthy urethra more easily than through it. Occasionally this stricture is only partial, and occupies but a portion of the circumference of the canal, in which case but a minor degree of inconvenience ought to be experienced: this observation, however, being founded on mechanical principle ought to be received with great caution, for it will be shown hereafter that the sufferings caused by this disease, and even the danger attendant on it, may not always be measured by the quantity of organic change present. The usual position of the circular or pack-thread stricture is at the membranous portion of the urethra.

2. The banded or bridle stricture is when one or more firm and resisting cords, or fibrils, pass across the canal, leaving a passage for the urine at either side, and between them: this must be of exceedingly unfrequent occurrence, for it is rare to meet a speci-

men amongst our pathological collections, and will probably be equally difficult of recognition during life. Its formation can only be explained by supposing that the urethra had been wounded or ulcerated, and an adhesion attempted between its opposite sides, which, yielding to the force of the stream of urine, became at length extended into a fibrilla or band. Accordingly, not originating in any pathological peculiarity of the urethra itself, it observes no particular locality, and may be found in any part of it: the few that have come under my observation were either situated at the bulb, or within an inch or two of the external orifice.

3. The irregular stricture is where the wall of the urethra is converted into a hard substance, almost possessing the firmness of cartilage or ligament, for perhaps an inch or two of its longitudinal extent; the diameter of the canal being thus diminished, and its course turned in different directions. The quantity of surrounding hardness is not the same in every part, and consequently the canal is unequally diminished, and hence becomes so devious and winding as to render the guidance of an instrument through it very difficult, quite independent of the obstruction offered by the diminution of its size. In considering the pathology of this case, a question naturally arises, does it originate in this form, and is it the lengthened and extensive mass of disease from the very commencement, or is it a succession, or rather an aggregation, of strictures that were developed at different times? Without presuming to answer this question too confidently, it may be observed that it is most frequently met with in old cases; in men that have suffered long and severely, been treated by different practitioners, and

had rough usage from instruments ; and that it usually implicates the bulb in some one part or other of its extent,—the very spot most likely to be injured by awkwardness or inattention. Under such circumstances it is not unfair to hazard a conjecture that in any urethra that has sustained sufficient injury to cause a cicatrix, such a condition of the part may be ultimately established, for every successive introduction of an instrument may cause new mischief ; and, as the difficulty of passing it increases, so will the violence used be of more frequent occurrence and severer degree until the number and firmness of the cicatrices impart to that portion of the canal a new character and a new appearance.

CHAPTER II.

Pathology of the effects of stricture—Dilatation of the urethra behind it—Abscesses in the perineum—idiopathic and symptomatic—Ruptures of the urethra—False passages—Fistula—Effects of stricture on the bladder—Hypertrophy—Varicose condition of its vessels—Sacculated bladder—Effects on the kidneys.

IN addition to the actual diminution of the diameter of the canal, other important alterations in it and its vicinity, as consequences of stricture, occur, which are of equal if not of greater importance. The stricture effects no more than an obstruction to the passage of the urine in proportion to its size; and, as long as the stoppage is not complete, and the fluid can escape in ever so small a stream, or admits of being drawn off by a catheter, great as the inconveniences confessedly are which the patient must experience, and the suffering he must occasionally submit to, still his life is not exposed to actual danger. But the sequelæ of the disease are not so harmless; often, when they occur, placing existence in imminent peril, and, even in their less destructive effects, producing symptoms that render the patient offensive to himself and to his friends. But, previous to the consideration of these effects, it might be interesting to inquire why it is they occur in some individuals, and not in all,—why some strictured patients pass through long periods of years'

may, their entire lives, without experiencing greater annoyance than that caused by the mere obstruction, whilst others, with apparently as little provocative cause, suffer from abscess, ulceration, fistula, and a number of other pathological results, rendering life always miserable, and sometimes proceeding to consequences that involve its destruction. Yet is this inquiry not easily satisfied; and, like many other circumstances arising out of, and connected with, the vital principle, however evident the fact may appear, the explanation of the cause must be insufficient, because conjectural. It is familiarly known to every practical surgeon, that the sensibility of the urethra, even in the most perfect state of health, is not equal in all individuals; or perhaps it would be more correct to say, that some are infinitely more irritable in this respect than others. Some, for instance, will endure the introduction of a catheter without the slightest disturbance, while others become pale and cold, and even have fits of shivering or fainting: some experience no pain whatever, except perhaps that sensation of uneasiness which all seem to feel when the instrument is passing over the region of the bulb, while others complain loudly of suffering during every part of its course: and, again, some are so curiously sensitive as to permit the use of only one particular kind of instrument, so that one shall be indifferent to the employment of a gum-elastic catheter who will scarcely tolerate the silver; and another endure the solid bougie who cannot bear a hollow one constructed of a softer material. If, then, this sensibility is so various during health, it is more likely to be so in disease, and even to a greater extent, thus leading to

pathological changes and sympathetic suffering in some patients, from which others are altogether exempt.

The most obvious as well as the most frequent result of stricture is the formation of a pouch, or bag, immediately behind it, apparently caused by the stoppage, and consequent pressure, of the urine dilating the urethra at this particular spot. This occurrence is almost to be expected from mechanical reasons alone; it is met with in all other canals similarly affected, as in the œsophagus and rectum, and is truly very common in the urethra, yet is it sometimes absent in cases of long and protracted duration, and its size, its firmness, its tendency to ulcerate, or other pathological condition, bears no certain or positive relation to the closeness of the stricture, or the severity of the disease in other respects. This dilatation may remain unaltered for any length of time, and in such case contains one or more calculi; it may increase in size until it presents as a soft fluctuating tumor in the perineum, and a retention of urine be thus relieved by the simple puncture of a lancet; or it may inflame and ulcerate, thus giving an opportunity for the escape of the urine, and laying the foundation of a fistula. But fistula in perineo may be occasioned otherwise also, and, as being a subject of the greatest pathological importance, will demand a particular attention.

Everything that can by possibility create a lesion of the urethra to a sufficient depth and extent to permit the escape of the urine from it, will probably give rise to abscess, and subsequently to fistula; and, as wounds and lacerations, and other injuries, are generally inflicted on its inferior surface, where it is most exposed, and as the direction of the urine from that is towards

the perineum, there it is that urinary abscesses and fistulæ principally prevail. But abscess may appear in the perineum without having any necessary connexion with the urethra, and therefore it is important to establish a pathological distinction between the urinary abscess, properly so called, and abscess arising from any other cause,—a distinction the more essential because the symptoms of both are nearly alike, even to the abominable urinous smell of the matter when discharged. Thus inflammation and suppuration may occur from a variety of circumstances in the perineum, as well as in any other locality, and the contents of collections thus formed in the vicinity of mucous canals generally take their characteristic fœtor from that of the material the adjacent canal is designed to transmit; therefore the appearance of an abscess in perineo unattended by any previous urinary distress, by no means implies any more than perhaps a sympathetic connexion with the urethra, although, if neglected, or improperly treated, it may give rise to fistula by bursting into that canal. Thus, then, are there two distinct forms of abscess in perineo; one in which the lesion of the urethra precedes the formation of the matter, and is the cause of it, the other in which the abscess occurs first, and opens the urethra by bursting into it: both terminate in fistula. The former of these is again divisible into two classes; one symptomatic, being the consequence of stricture, or other disease,—the other traumatic, wherein the urethra has sustained some injury or wound.

It has been already stated that the urethra occasionally becomes distended into a pouch or bag immediately behind a stricture, which sac not infrequently

ulcerates and allows the escape of the urine into the perineum ; yet why this unfortunate occurrence should only take place in some cases, and not in all, is not easily determined, for all seem circumstanced pretty nearly alike : in all, this sac must experience the full force of the contracting bladder, and sustain the pressure of the arrested fluid—in all, some portion of the urine will be retained, and if it be the cause of the irritation, all should suffer in the same way, the only difference being in degree or intensity—and in all is there the same opportunity for the reception and lodgment of sabulous deposits or other accumulations ; yet inflammation of the sac, which is the preliminary step, does not occur in all, else must stricture inevitably be followed by fistula in perineo. Hunter says that this ulceration is produced by sympathy, meaning probably thereby (for it is not always easy to understand him correctly), that nature, conscious of the necessity for a free discharge of the urine, and feeling its ordinary channel impeded, establishes a process by which another route may be provided ; others attribute the phenomenon to different agents, but none endeavour to explain why it offers its unsought preference to any one individual rather than to another. It must, therefore, be either attributable to injury, accident, intemperance, or some other acknowledged source of inflammation, or pathologists must rest satisfied with being simply cognizant of the fact, without seeking to explore the cause. By whatever cause occasioned, however, this sac may inflame and ulcerate or slough, giving an opportunity for the urine to escape, which it does, either suddenly and in a gush, diffusing itself extensively throughout the perineum

and occasioning a fearful destruction of parts, or else slowly making its way by degrees to the surface. In the former case the urethra has not been protected by a deposition of lymph around it, or such deposit having been formed has been broken through by the impetus of the stream of urine, which thus, without impediment, reaches the cellular tissue, and passes in every direction through it: in the latter there has been a deposition of lymph, into and through which it makes its way, and by which it is circumscribed until, having reached the surface, generally by a circuitous route, it occasions the formation of a small painful abscess, which bursts, and the fistula in perineo is established. This is the usual course of events, and fortunate it is so, for the subjects of old strictures are ill calculated to bear the distress and danger attendant on an extensively diffused abscess, whilst the bursting of the small one rather gives relief than otherwise by providing a passage for the urine.

Rupture or laceration of the urethra does not necessarily occasion abscess, but when it does, it is extensive and diffused, because there has been no previous inflammation to circumscribe the extravasated urine, and restrict it within the limits of a cyst: thus, when ruptured by a fall on the perineum, a blow, bruise, or kick, the wound will probably be extensive, the effusion of urine rapid and profuse, the abscess large, and the danger urgent; the situation of the lesion being generally in the portion of the canal which passes immediately beneath the triangular ligament of the pubis. But the urethra is very frequently torn by the misdirection of the catheter, and the wound, in this instance, is termed a false passage: this may occur in

any part of its course from the external orifice, or near it, to the prostate gland, and the situation of the rent will be greatly influenced by the pathological condition of the canal. Thus, when the urethra is healthy, the wound is caused by ignorance or awkwardness, and the instrument is pushed through the bulb: when there is stricture present, offering a resistance that cannot be easily surmounted, it is forced out close to, and anterior to, the impediment; and through the substance of the prostate gland, when there is disease in that organ. The consequences of these injuries are various, and by no means necessarily of a serious character, extravasation not being likely to occur in any but the first case, and then not necessarily, for the direction of the wound being from before backwards, the passage of the urine over it has a tendency to close its lips like those of a valve, and prevent any escape from the cellular tissue: a diffused abscess sometimes occurs, but then probably the rent is unusually large, or placed in a favourable position for receiving the passing stream. When a stricture happens to be present, the security is even much greater, for, besides that derived from the direction of the wound, the obstruction placed between it and the bladder weakens or removes the impetus communicated to the fluid by the latter, and only permits it to trickle over the injured surface, irritating it perhaps, and delaying its cicatrisation, but having no tendency to force an entrance through it. Abscesses and fistulæ seldom or never arise from injury inflicted on the prostate gland, particularly by instruments: there are pathological conditions of this organ most important in another point of view, but they come not legitimately under consideration here.

Fistula in perineo may have its origin in inflammation external to the urethra, and the possibility of its occurrence in this manner is practically well worthy of attention. It is easy of comprehension, if it be admitted that an abscess may form in the perineum or its immediate neighbourhood just as in any other situation, and without any connexion with an aperture in the urethra—that it may be either acute or chronic, following the laws that govern such collections elsewhere—and tending, like them, towards the surface of the body, or to the canal in the vicinity of which it happens to be placed. But all collections in the perineum, of whatsoever nature, must experience delay and difficulty in their approach to the surface: the fascia there is dense and firm, and resisting, and a long time will elapse ere it gives way, whilst there is no impediment offered in the direction of the urethra to prevent its bursting there. Strange as it may appear, this event is of far more probable occurrence in the chronic abscess than in the acute, for the latter is too painful, too distressing, too alarming, for the patient not to pay immediate attention to it; its symptoms are too marked to be possibly mistaken, and its formidable consequences too well known to admit of delay: it is opened at a very early period, and therefore is there less probability of its communicating with the urethra; but the former is not so favourably circumstanced, for it often remains so long without occasioning urgent or pressing distress, that the mischief is completed before attention is actively directed to it. An irritable condition of the urethra very often appears to be a sympathetic cause of the occurrence of such abscesses, and accordingly they occasionally appear as the concomitants or consequences

of gonorrhœa, sometimes as a number of small indolent tumours in the neighbourhood of the canal—sometimes as a single kernel-like hardness in the perineum, occasioning little or no pain, and scarcely more than an uncomfortable sensation when the patient sits upon a hard seat or attempts to take exercise on horseback. However slow in bringing the process to completion, the tumours have a strong tendency to suppuration and to burst into the urethra, thereby giving admission to a small quantity of urine into the sac, which then assumes a more acute form of inflammation, and is opened in the hope of anticipating the occurrence that had already taken place, and been actually the cause of the aggravated symptoms. A fistulous sore is the inevitable consequence, and surgeons should be well aware of the possibility of the formation in this manner, for more than one has incurred the blame of having thrust his lancet or knife too deeply into the urethra, and thus created a disease the foundation of which had been already too surely laid. In bad and broken constitutions abscesses form in the perineum, terminating in fistula having the same relation to the general state of the system that the fistula in ano has in similar subjects; the connexion, however, (if any), that exists between them, and stricture or other diseased condition of the urethra, cannot well be determined, for they occur occasionally where there had never been such. They are principally interesting in a practical point of view, in that, like similar abscesses situated elsewhere, they should not be interfered with under such unpromising circumstances; for if made the subjects of operation the wounds do not heal—they remain open, large and flabby, discharging a prodigious

quantity of matter, and rendering the patient's state infinitely worse than it previously had been.

It has not been satisfactorily proved that any relation exists between a diseased condition of the prostate gland and of the urethra. Home states that strictures occur as secondary to, and sympathetic with, affections of that organ; and it may be so, for the two diseases are frequently combined, but no case has fallen within my observation in which such connexion could be distinctly made out: and in general, the history of these affections is given by the patients in so confused and imperfect a manner that little reliance can be placed upon them. But, on the other hand, there are some grounds for suspecting that the gland sometimes suffers from inflammatory affections of quite a different nature and tendency, from the ordinary chronic affections to which men advanced in life are subject, and which at least appear to be in some wise connected with the irritable and unhealthy condition of the urethra induced by stricture. Again, in some cases it is found enlarged and softened, and when cut into exhibits specks of an unorganised deposit, not unlike the true tubercular infiltration; sometimes its structure is studded throughout with small abscesses, which have a tendency to open and discharge themselves through the natural ducts; and finally, although more infrequently, the whole extent of the gland seems to be occupied by one immense abscess. This latter affection is of the greatest importance, partly because it renders the introduction of an instrument into the bladder extremely difficult, if not impossible, and partly because, having a tendency to burst not only into the urethra or neck of the bladder, but also into the rectum, a

complication of disease may thus be created equally formidable and difficult of cure. All these pathological appearances have been observed in strictured patients, it is true, and specimens may be seen in our collections exhibiting such apparent connexion, but they have been met with where no such disease existed, and therefore their mutual dependence, however probable, cannot be sufficiently demonstrated. The peculiar disease of the prostate, as it appears in old persons, shall be noticed hereafter.

The pathological effects produced by stricture or other obstruction are not confined to the passage through which the urine flows from the bladder, but, as might be anticipated from a consideration of the natural functions of these parts, most seriously implicate the structure of that viscus itself. As the stricture increases the closure of the canal, the bladder, finding as it were that its ordinary contractions are not sufficiently powerful to expel the urine with the wonted facility, is obliged to augment its exertions, and the obstruction being permanent, or perhaps daily becoming more difficult to be overcome, these exertions can never know remission; hence its muscular coat becomes hypertrophied, and its walls so thickened, that the internal surface is columnar, and bears some faint resemblance to the muscoli pectinati of the heart. The cavity of the bladder is thus actually diminished in its capacity, and of course feels the stimulus of distension more frequently than in its ordinary and healthy condition, and the necessity for emptying it occurs just in the same proportion. But besides the physical change in the size of the bladder, there is probably a more important effect wrought on the sensibility of its lining

membrane, which renders it more irritable and less able to endure the presence of the urine : the calls are thus rendered not only more frequent but more urgent, and the quantity discharged at a time is often surprisingly small. This urgency is experienced in a far more troublesome degree during the night than in the day ; not because of its greater frequency, although persons usually drink more in the evening, but because the attention is more directed to it, in consequence of the disturbance and loss of sleep it occasions. When this pathological condition of parts is fairly established a patient's life may be said to be truly miserable, for the mind exercises a decided influence on urinary affections, and whenever any difficulty is interposed to the free discharge of the urine, when and where the patient pleases, he is certain to experience the desire, and to suffer great distress from being unable to comply with it. In this way a man may fall into a state of most pressing anxiety, and sometimes of danger, from travelling, sitting in the society of females, and many other of the ordinary occurrences of life ; as was evidenced in the case of a particular friend and patient of my own, who was thrown into such a state of irritation and misery by a long journey on a railway as for a long period not to have recovered the effects. It is worthy of remark, that this thickened columnar condition of the bladder, although a frequent consequence of stricture, is not universally so : in some severe cases the viscus has been found unaltered, and in a few its capacity was rather increased, and its walls rendered more thin. It must be confessed that this latter occurrence is difficult of explanation.

Another very important alteration in the state of

the bladder, in connexion with difficulty of passing the urine, from any cause of obstruction, and of course from stricture, has reference to its own blood-vessels, and some others in its immediate neighbourhood, for in such case the veins on the anterior and inferior surface, those situate about its neck and the prostatic veins, become enlarged, knotted, and varicose, capable of being injured, of pouring out a vast quantity of blood, the flow of which cannot be easily restrained. This condition of the bladder seems scarcely to have attracted the attention its importance deserves, as furnishing an explanation of some phenomena not otherwise very intelligible ;—why, for instance, large and fearful discharges of blood occasionally pass through the catheter, even although no perceptible violence had been employed—why hæmorrhage into the bladder occurs in old persons after the use of an instrument—and above all, why the operation of cutting into the bladder from the perineum is so extremely perilous in such patients. We operate with boldness and confidence about these parts in the young and middle-aged, but in old persons, and particularly those who have suffered from ischuria, such incisions are always attended with the greatest danger.

One other alteration in the structural condition of the bladder produced by an obstruction in the urethra remains to be noticed ; fortunately it is of rare occurrence, as it is of more importance than any of the changes hitherto described. When the flow of the urine is retarded or stopped, the bladder (as has been stated) contracts and strains violently to overcome the impediment, and under such efforts it is possible that a small portion of its mucous coat may be pushed out

between some of the muscular fibres, and thus a pouch or bag be formed, consisting of a true hernia or protrusion of the mucous membrane: this is the sacculated bladder, and the gradual enlargement of the sac may be as easily understood as the mode of its original formation. For as this hernia possesses no muscular coat, the urine cannot be expelled from it by the ordinary method, and probably, unless under accidental circumstances, remains within it, and as the bladder fills again, and again requires to be emptied, its contraction may direct the stream as forcibly to this sac as to the urethra, and in this manner a constant provision for its distension is maintained. When such condition of parts is established, the patient must experience great distress, for the sac is not emptied—perhaps it is rather filled on each effort to expel the urine, the desire continues, and the exertions and strainings are most painful. Sometimes a patient may relieve himself by lying on one side, or adopting such other position as experience shall have taught him to be favourable to the escape of the urine into the bladder, and endeavouring to expel it while thus circumstanced. Some cases are recorded of persons having thus contrived to keep themselves in a comparative degree of comfort, but generally it is otherwise, and even the nature of the disease remains unknown and unsuspected until pointed out by dissection after death. There may be grounds for suspicion if on the introduction of an instrument only a small portion of urine flows through it, leaving the patient's desire for its evacuation as strong as ever; but, even so, very little will have been gained; for allowing the condition of the parts to be accurately known, no one can say how it may be relieved,—possibly it

may occasionally be palliated in the manner above suggested, but a cure is out of the question, for the injured bladder never can be restored to its original integrity. The sac thus formed is thin and quite pellucid, when the bladder has been removed from the body and distended with air; but there are other sacculi differently circumstanced, the formation of which cannot be so satisfactorily explained. A patient died lately in the Meath Hospital, from whose bladder a sac sprung of sufficient size to contain a small orange, the walls of which were thicker than those of the bladder itself, and evidently consisted of muscular fibres as closely set, and as firm, as those of the heart. Another case occurred in the same hospital some years since, in which the sac was more than twice the size of the original bladder, and nearly a quarter of an inch thick. Neither of these cases could have originated in a hernial protrusion of the mucous membrane, and probably both might have been congenital malformations. The preparations are preserved in the hospital.

As a consequence of long-continued urinary obstructions, the kidneys and ureters very frequently fall into a state of disease; a circumstance that should always be taken into account, as forming an important element in estimating the probable result of any given case, yet it is a point of great obscurity, on which it is most difficult to arrive at any practical conclusion. First, it may be observed that pains or uneasiness in the lumbar regions form no proof of the existence of any organic change within, for all parts of the urinary system sympathise with each other, and nothing is more common than that patients suffering from irritation of the bladder, or even in the urethra, should complain of

distress more or less in the loins. Secondly, the examination of the urine, generally so valuable in renal affections, may possibly afford very little assistance in these particular cases, for here the fluid is so constantly mixed with blood, or serum, or pus, and there are so many sources from which such admixtures can be furnished, that the examination must be confused and uncertain, and the results rarely to be relied on. And lastly, although it must be admitted that these organs are generally diseased, yet there is no pathological change consequent on or referable to retention of urine: on the contrary, a variety of morbid affections have been observed occurring so arbitrarily as not to be easily explained. Thus the ureter may be distended, sometimes to an extent so enormous as to cause it to resemble an intestine; or the pelvis of the kidney may be enlarged, and the seat of calculous or sabulous deposit; the kidney itself may be smaller and firmer than usual, or it may be swollen and soft; it may have tubercular or fatty deposits laid down within its substance, or small abscesses dispersed throughout its structure, or it may be apparently converted into one enormous cyst of matter. All these, and numerous other forms of diseased and degenerated structure, have been observed, which it is needless to dwell on to any farther extent, inasmuch as they can rarely be recognised during life,—and if they were so, could as rarely admit of remedy.

CHAPTER III.

Pathology of Retention of Urine.—Symptoms.—Local Consequences.—
Constitutional Results.

THE subject of stricture, or other urethral obstruction, when practically considered, presents itself under two very different aspects, both perhaps of equally pressing importance, but nevertheless requiring, with respect to their treatment, a distinct and separate investigation. When a man applies for relief, writhing under the agony of an over-distended bladder, that is no time for arranging or adopting measures by which a permanent and organic impediment may be removed, nor, on the other hand, whilst the patient can pass his urine—slowly and imperfectly, it may be, but still can pass it—will it be necessary to employ the same line of treatment, or adopt the energetic measures that in the former case would have been indispensable. But separate as these cases apparently are, and requiring each a separate examination, there is a time in which they are combined, when the bladder is overloaded, and the patient suffering all the misery of perfect and permanent retention, while the cause of such retention is, or appears to be, a mechanical obstruction in the urethra not only precluding the urine from a possibility of escape, but preventing the passage of an instrument for the purpose of drawing

it off. It is difficult, therefore, to disconnect the elements of this one important case—it is travelling out of the course hitherto trodden to attempt to separate the symptoms of retention of urine from those of its exciting cause, or refer to the treatment of one, without a frequent and perhaps close attention to the other: nevertheless, such an arrangement may not be destitute of advantage if it enables the young practitioner to take a simple yet comprehensive view of a difficult and complicated subject. For this reason a few observations on retention of urine generally, and on the pathological consequences that thence ensue, may possibly find a fitting place here, previous to a consideration of the symptoms and treatment of stricture.

Retention of urine, considered in the abstract, is the same in every case. No matter what the cause of the obstruction may be, or the situation in which it is placed, in the ureter, the bladder itself, the urethra, or in the prepuce, so far as the urine is concerned, the affections are identical—the retention is the same, and the mischievous consequences resulting from its presence within the system must be alike in all. Doubtless, when the disease is analysed, and this identity of symptom and of suffering found to proceed from a vast variety of causes, and when practically it is necessary to direct the remedial agent to the removal or diminution of one particular exciting cause or another, it is easy to resolve the generic character of retention into a number of species of distinct and different disease, each exhibiting its own peculiar characters, and demanding its own appropriate treatment. Thus stricture, prostatic disease, calculus within the bladder, and

a host of other affections, are usually regarded and treated by systematic writers as insulated and separate diseases—as in truth they are, when practically considered; but however necessary it may be to investigate each of these by itself, and to be familiar with the guiding marks that serve to distinguish one from another—and however, substantively, such necessity will be acknowledged in the course of these observations, it may (as has been said) be more advantageous at present to take the comprehensive view of the subject—to place them all under the one great head, as bearing the closest affinity and relationship to each other; to consider them as engaging different parts, but still the same system; and as tending to produce the one great inconvenience, namely, retention, but in different forms and degrees of severity. The subject will thus naturally resolve itself into three divisions, viz. :—

1. The local distress and inconvenience that must result from the accumulation of urine within the bladder.

2. The consequences that ensue to the bladder and the parts in its vicinity if such accumulation be permitted to continue and increase.

3. The general and constitutional effects produced on the entire system by the retention within it of those noxious materials which the urine was designed to convey away.

1. A bladder distended with urine expands itself in every direction, and increases in all its dimensions, though perhaps not to an equal extent. Restrained below by the resisting walls of the pelvis, it can there enlarge but very slightly, and the tendency of its

growth is towards the rectum, where, if the intestine is empty, it may be felt as a broad soft tumour compressing the gut. The chief direction of its enlargement, then, is upwards and forwards, where it rises out of the pelvis, behind the abdominal muscles and before the peritoneum, which it pushes out of its way, changing the course of the urethra anteriorly, as already mentioned, and altering the shape of the reflected portion of the peritoneum posteriorly from a crescent to a horizontal line. Above the pubis, in the abdomen, and occasionally reaching to the umbilicus, or even beyond it at either side, it may be felt, and sometimes seen, as a firm, circumscribed, but compressible tumour, pressure on which will greatly increase the desire to pass the urine, or, perhaps, squeeze out a few drops from the orifice of the urethra. But the sensible evidences of retention are not always so clearly perceptible, for in aged persons, whose abdominal parietes are loaded with fat, the tumefaction caused by the bladder may be very indistinct, and not recognisable except by passing the fingers into the rectum, when by alternate pressure backwards and forwards an obvious fluctuation can be felt: or it is possible that in consequence of some antecedent complication the bladder may be thickened in its substance, diminished in its capacity, and incapable of rising above the pubis, or, indeed, of containing more than a few spoonfuls of fluid; in which case these evidences will be still more imperfect. But there is seldom doubt or difficulty about these cases, provided the patient is competent to explain his own feelings, for he is well aware of his own condition, and, probably, has a long catalogue of symptoms to relate which will

explain both the retention and its cause, which with the constant and anxious desire to expel the urine—the painful, almost involuntary, yet fruitless straining—the red and swollen face—the turgid and prominent veins of the forehead—and the incessant writhing and twisting of the body in search of some posture that can afford relief, will give distressing but satisfactory evidence of the nature and extent of the malady. Yet although the proofs of the existence of a retention appear so numerous and so plain, there are cases of such obscurity that nothing but the introduction of the catheter can furnish a convincing diagnosis: a man may have sustained an injury of the head, or have suffered a stroke of apoplexy, or be in a state of intoxication, and so far incapable of expressing himself either by words or actions—nay, the very circumstance of a protracted retention will often induce a state of stupidity and coma. It is true that in numerous instances the introduction of an instrument is difficult, if not impossible; but when it can be done it forms at once the diagnostic and the mode of relief. Another important circumstance that may deceive the young practitioner remains to be noticed. The excessive violence of the attack usually occurs in paroxysms, and whilst the straining and forcing continue not a drop flows; but if the patient can be soothed, and kept quietly in bed, it often happens that the sensation of urgency abates, and perhaps the urine flows off involuntarily by the urethra: he now imagines himself relieved, but the desire remains, although not to so great an extent, and the water trickling off renders him wet and soiled, and most uncomfortable. It will be well if the surgeon does not mistake this result of

over-distension for the natural evacuation of the bladder.

Such are the first and earliest symptoms of a retention of urine, but it must not be understood that they occur with equal severity in every case; on the contrary, there are obvious and important varieties which not only influence the appropriate treatment, but manifestly, if neglected and allowed to pursue their own career, lead to different pathological results. It is difficult to say whether such a distinction can be established between acute and chronic forms of retention as to warrant the employment of these terms in their strictest sense, but with reference to the unfortunate occurrences that occasionally ensue, there can be no doubt that an attempt to consider them under such arrangement will be most simple, and, therefore, probably most useful. Thus, in every case of retention, the symptoms, both local and constitutional, must bear a strong resemblance to each other, but still be not exactly the same, and a marked difference will be observed in their intensity and violence; in every case, for instance, the fever will assume the same type and character, but assuredly not the same violence—in every case important lesions, both of structure and function, take place, but not equally attended with suffering or followed by danger. In the very acute attack, which has probably occurred suddenly from intemperance or other indiscretion, in an otherwise healthy man, in which the bladder is free from organic disease, but, nevertheless, unable to expel a drop of urine, and from which there is no involuntary escape, the first local pathological mischief to be apprehended is a loss of tone and capability of contraction in the viscus,

an evil that must go on increasing if not relieved by the catheter, or by the dribbling away of the fluid, until it terminates in the second—a laceration or rupture of the bladder: and the first constitutional derangement will be a fever arising from the dreadful irritation and pain produced by the retention, to be followed by that sinking and depression of the system (if it can be called a fever) uniformly attendant on the inflammation that ensues on an extravasation of urine. But the form of retention generally met with is of a less acute character, the urine flowing off by the urethra to a certain extent, but always leaving the bladder full, nevertheless: in this case the pathological effects are various, the patient sometimes enduring such a state for months without serious or incurable injury; but in general it is not so, and some morbid change takes place, the most usual of which is inflammation of the bladder, terminating in suppuration, or sloughing, or catarrh of its mucous membrane. A most interesting case of this description occurred recently in the Meath Hospital: the man had suffered partial amputation of the penis, and the cause of the retention was situated in the cicatrix at the extremity of the stump; it never was complete, for he used to force the urine in a stream sufficiently full up to the strictured spot, from which it was almost constantly dropping. He died in a very short time, and the mucous membrane of the bladder was found highly injected and red; its surface covered by a thick tenacious pus, which adhered very closely, and there were small fringes or flocculi of the membrane floating loosely, as if detached by ulceration. In such cases the patient is generally lost by that irritative fever which is, or appears to be, the

result of the resorption of the urine into the circulation again, and its being deposited on other organs. Lastly, when the disease is chronic, that is, when the patient has had protracted urinary disease, and experienced constant difficulty rather than absolute incapability of expelling the fluid, there arise those various changes of shape, condition, and structure, that have been already noticed as the sequelæ of stricture: thus these more chronic affections produce most of the numerous and important changes which enrich our museums with their most valuable preparations, but having little or no reference to retention, considered in the abstract, do not destroy existence rapidly or at once—do not render the evacuation of the bladder more urgent or imperative at one time than another; and when death ensues, it is usually the consequence of the irritation, wet, fœtor, and pain that always attend on urinary disease, and which, wasting and exhausting their wretched victim, render him an easy prey to the fever already spoken of, which very generally closes the scene.

2. The pathology of rupture of the bladder is a subject of great obscurity. Does it ever happen that disease shall have so altered and spoiled the structure of the viscus that it readily gives way to a slight or trifling violence, or even to the distending force of the urine alone, thus making the actual effect of disease appear to be the result of over-distension? Again: where the bladder is confessedly healthy, can it happen that it can burst under the force of the constantly accumulating urine, or does it in every instance require some violence in order to cause the accident? It is difficult to give an answer to these questions, probably

because the subject has not been examined with reference to them, but that occasions may arise in which the solution would be most desirable, the following case will prove. In the beginning of the month of October 1848, a man was brought to the Meath Hospital in a state of the most stupid intoxication : he had been found in the street by the police, almost incapable of speech, and of course unable to give any account of himself ; but, being in a state of great debility, and giving signs of being in pain, he was conveyed to the hospital. On the day after admission he had so far recovered as to be able to answer questions, but still knew nothing of the cause of his illness, nor could any information be had from any quarter as to whether he had received injury or not : all that could be learned was, that he was an habitual drunkard, and excessively prone to quarrel. He had no mark of violence on his person. He lay in bed with his legs drawn up, constantly straining to pass his urine, without effect ; his face very pale, and with an expression of great distress ; his body covered with a cold clammy sweat ; his pulse was low, weak, and faltering ; he moaned incessantly, and said he was dying with thirst. A catheter was twice introduced, but without removing a drop of urine, and, on withdrawal, was extensively stained with blood, as if it had been plunged into a large clot. He died in thirty-seven hours after being brought to hospital. On dissection, an aperture of an inch and half in length was found in the centre of the portion of the bladder covered by peritoneum : it was ragged, and like a rent, and through it the urine had escaped into the cavity of the abdomen. But the bladder, for more

than two inches around the rupture, was more than an inch in thickness, hard, firm, and hypertrophied, whilst at the rent itself it was soft, dark coloured, and evidently in a state of slough. That the man died of extravasation of urine into the peritoneal cavity, which had passed through this sloughy wound, was sufficiently plain; but was the diseased condition of the bladder antecedent or subsequent to the extravasation? Was it in consequence of the mortification that the spot gave way, or was the inflammation and mortification induced by the injury that ruptured the viscus? There was some difference of opinion amongst those who witnessed the dissection, but the prevailing idea was in favour of the existence of some previous disease, and the question could not be decided for want of some history of the case before its admission into hospital. Another point may be raised, as to whether an accumulation of urine ever occasions inflammation and sloughing of the bladder, through which the fluid may become extravasated; and dissection seems to decide it in the affirmative, for the rent is very frequently found in a sloughy condition; but, in these cases, the patient has always lived for several days after the accident, and thus abundant time had been afforded for the establishment of a consequent inflammation. From a consideration of the structure and functions of the bladder, and a comparison with other organs similarly circumstanced, it seems doubtful whether a rupture ever occurs as a consequence of mere mechanical over-distension by urine; for this cannot happen if the walls of the viscus are thickened and indurated by previous dysuria; and, if they are not, the urethra is probably healthy, offering no insur-

mountable obstacle to the spontaneous flow of the fluid, and no difficulty in the introduction of the catheter—an operation that will be eagerly sought for, as the patient's sufferings are too acute not to compel his utmost exertions to obtain relief. It is not easy to imagine the possibility of the occurrence unless in some instance where the sensibility of the parts is impaired by intoxication, apoplexy, or injuries of the head and spine; and even then there must be sad and culpable neglect: but, although the distended bladder breaks not of itself, it must be acknowledged that it is placed in a most favourable condition for being broken by external violence, and that possibly of so slight a character as to be sometimes overlooked or forgotten. The accident, as thus viewed, is sufficiently frequent of occurrence to demand attention, and sufficiently formidable to render an inquiry into its pathology interesting. The bladder (as is well known) is only in part invested by peritoneum, all its inferior and posterior part being thus left unprotected: reasoning mechanically, then, on the subject, it ought not to be equally strong in every direction, and equally capable of resisting the effects of a distending force; if there is any spot weaker than another, there it should give way, and break. Many writers, therefore, and amongst them the celebrated Dessault, speak of the occurrence of the rupture at the inferior fundus, and of the consequent effusion being poured into the adjacent cellular tissue, whence it spreads in every direction. As a curious illustration, however, of the futility of entering into calculations of the relative powers of resistance possessed by living structures, it may be observed that the rent takes place in the portion covered by

peritoneum much more frequently than in that which is less protected : according to my experience, it is always so, and the effusion is always poured out into the proper abdominal cavity. This is a pathological point of some importance to be determined, because it will explain the symptoms and progress of the case, and the exceeding fatality that attends it : the result of my limited experience, and of my inquiries from others, being, therefore, fairly stated, it will be well if it can be confirmed or authoritatively contradicted by others. The urine being thrown into the peritoneal cavity, the consequences of its effusion are various ; the patient sometimes sinking and dying within a few hours after the accident, sometimes surviving until the eighth or tenth day, and sometimes, although it must be confessed very rarely, recovering after an accident so frightful. There seems to be a striking analogy between the effects of a ruptured intestine and those of a ruptured bladder, the differences being easily explained by the greater quantity and fluidity of the contents of the latter. In either case, if the extravasated matter is diffused extensively and without limit throughout the cavity, smearing over the intestines and lodged among their convolutions, the patient sinks and dies rapidly, without exhibiting any of the marked characters of peritoneal inflammation, except the swollen and tender belly, the burning unassuageable thirst, and the dreadful hacking and sawing pain, the prevailing symptom during life being utter and helpless debility ; dissection afterwards, although it may exhibit some faint traces of incipient inflammation, showing nothing of an intensity sufficient to explain the fatal event. But, on the other hand, if the extra-

vasation, whether of fæces or urine, can be confined to one locality,—if it can be circumscribed, or even an attempt made to effect such circumscription,—then the patient has to undergo all the perils and all the horrible tortures of peritoneal inflammation, which may endure for several days, in all probability to have a fatal termination at last. Yet, strange as it may appear, a recovery in either case is not impossible, provided the foreign substance is surrounded by coagulable lymph, and its extension thus prevented; and such an event is, for the reasons already stated, certainly more likely to happen in the instance of wounded or ruptured intestine, numerous cases of which are recorded, and even a line of treatment suggested to ensure it: but that, even where the bladder has given way, and a quantity of urine been suddenly and perhaps forcibly extravasated, a recovery is not utterly impossible, the following case will prove:—

A boy about ten years of age, standing on a dray or float on which there was a cask of sugar very imperfectly secured, unfortunately occupied the space between the front of the cart and its lading, when the horse accidentally fell, and the cask rolling forward jammed him against the cart and crushed him frightfully. He was brought to hospital with his pelvis extensively shattered, his left thigh broken just below the trochanter, and, as very shortly appeared, his bladder ruptured also. He suffered intense pain, especially in the abdomen, which he could scarcely allow to be touched, but as the obvious injuries were so extensive the pain was chiefly attributed to them; and he was placed in bed, and had some warm drink and other restoratives administered, previous to being dressed.

He very soon expressed a desire to pass his urine, but could not void a drop, and a catheter was then introduced, which drew off a very small quantity deeply tinged with blood, but afforded no relief. These symptoms continued with great severity for several hours, except that sometimes urine flowed through the catheter, as if on these occasions its beak had been pushed through the rent into the depôt beyond it; but generally it did not, and in either case there was little or no alleviation of the distress. After the first twelve hours the instrument always came out stained and blackened by sulphuretted hydrogen; and my colleague, Mr. Porter, under whose care he was, remarked this as being a fatal symptom, having never seen recovery after it,—a prognostic in which he was most agreeably disappointed. At the end of about forty-eight hours a small abscess pointed at the left side of the navel, which being opened gave exit to an immense quantity of foetid pus and urine: this aperture became fistulous afterwards, and discharged clear and healthy urine whilst he remained in the hospital, which was more than three months. This boy recovered, and was seen and examined by several surgeons more than a year afterwards; the wound in the abdomen healed, and the water passed by the natural canal—but of the pathological process by which so fortunate a termination was obtained, no one could form a conclusive opinion. It may be surmised that the extravasated urine had been more or less circumscribed—that it had induced inflammation which poured out coagulable lymph, and thus formed a cyst within which the fluid was completely insulated; but how it came to be regularly expelled afterwards, or what contractile

force was exerted on it—in a word, how this newly-formed sac came to perform the functions of a bladder, as it seemed to do, is a problem the solution of which surpasses my ingenuity.

3. It will have been observed now, that derangements of the urinary system are attended with fevers of various kinds and denominations, sometimes assuming a sthenic inflammatory type, more frequently a low asthenic typhoid character, and occasionally merging into hectic; but these on examination seem to arise out of the effects or consequences of the derangement, whatever it may have been, rather than to have any relation to the urine itself, and would be accompaniments of the same degree and kind of inflammation produced by any other cause. There is, however, one kind of fever which accompanies every form of retention of urine, into which all the others ultimately merge, and which must have some peculiar relation to this fluid independent of the cause that may have originated the derangement, or the consequences that ensued on it. If this position be true, then it is essential to determine the type and form of this fever, together with its exciting cause, in order to separate it from other affections, some of which have been called by its name, and regarded and treated as such, and others which have been mistaken for it, although of a totally distinct and different nature. There are, indeed, few subjects in surgery on which the ideas of practitioners are more confused and indefinite: thus whenever there is retention of urine the patient suffers considerable constitutional excitement, arising from the pain he endures, and the efforts he makes to relieve himself: he has accelerated pulse, great thirst, heat of

skin, constipation of bowels, headache, and disordered respiration, all of which subside and disappear rapidly on the removal of the contents of the bladder: this is not urinary fever,—it is inflammatory, produced by a certain irritation, and relieved on its disappearance. When the urine has been extravasated, or any similar derangement occurred, there is generally great prostration of strength, anxiety about the precordia, yellow skin, black and hardened tongue, and a small, quick, but weak and fluttering pulse: neither is this the urinary fever, but a low typhoid disease indicative of great danger. Again, it is familiarly known that many persons cannot endure the introduction of an instrument into the urethra without experiencing more or less of constitutional derangement, exemplified by paleness, tendency to faint, dizziness, sickness of stomach, and shivering, these symptoms being more prominently developed on the first use of the catheter, and subsiding and becoming mitigated as the passage is familiarised with the operation: but in some instances they do not subside—on the contrary, they recur with increased violence after each interval, and continue a considerable time, or they run into a tolerably well-marked irritative fever, bearing some resemblance to traumatic delirium—an occurrence more likely to happen if the urethra has been torn or injured. These symptoms have been looked on as constituting urinary fever, or at least the commencement of it, certainly without sufficient foundation. Whether correctly or not, the true urinary fever has always appeared to me as having but one origin, the vitiation of the blood by the retention within the system of the deleterious substances the urine was intended to remove. Either

when this fluid is secreted and held too long in the bladder, the absorbents take back these injurious materials, which are thus reconveyed into the circulation, and by it throughout the entire body ; or else, the kidneys finding, as it were, that they are working to no useful purpose, and that their secretion is not carried away, cease their operations altogether, and thus certain elements so pernicious that there is a provision and an apparatus for their removal unceasingly employed, are kept within the system, and become the cause of that febrile excitement which seems to be in a great measure an effort of Nature to be rid of them. Every symptom connected with its origin, progress, and termination, fixes its relation to retention of urine, and to it alone ; and dissection after death, where every cavity and every organ exhale the urinous foetor, and sometimes seem bathed in the fluid itself, seems to point with certainty to the same conclusion.

This fever is of the remittent type, though irregular, consisting of paroxysms or exacerbations well marked, but occurring at uncertain intervals, and continuing for ill-defined periods. The cold or shivering fit is best developed and most easily observable at the commencement of the first paroxysm, when it often seems to usher in the disease by a rigor of great severity. The hot fit is also remarked about the same period, but in both these features there is great irregularity and incertitude, and occasionally neither of them attracts attention, or is ever complained of. Not so, however, with the sweating stage, which is never deficient, and forms the great and characteristic feature of the disease. The perspiration is most abundantly profuse, and of long continuance ; the patient is absolutely

bathed, and his clothes soaked in it : when the bed-coverings are turned down the steam rises from his body in a vapour ; and withal there is a urinous foetor exhaled from the patient so overpowering, so sickening, that many supposing it impossible such could proceed from the sweat, have rather attributed it to the urine with which the bed is so constantly saturated. With other febrile symptoms there is always acceleration of pulse, nausea, indisposition to food, and sometimes vomiting ; and the contents of the stomach when expelled have the same urinous smell that was noticed as proceeding from the perspiration. There is hiccup also, but the great and important symptom is coma. The resemblance between this and ordinary hectic fever will be recognised at once, and many practitioners call it by that name : like hectic, it is purely symptomatic, and its existence depends on the presence of another disease, which being removed or cured the symptom is removed also : like hectic, it is remittent, though irregular in its attacks, variable in severity, and uncertain in duration ; and like it, the character it assumes bears a given relation to the cause from which it springs. When the urinary disease is comparatively mild, and the patient is harassed rather by a difficulty of making water than actual retention, the constitutional symptoms will probably alternate in their features of severity or mildness—at one time better, at another worse, according to the prevailing character of the local affection, until at length, worn out with irritation and pain, and various kinds of suffering, the poor victim sinks, and dies completely exhausted. When, on the other hand, the complaint is acute, the retention not relieved, or so partially that the system re-

mains loaded and oppressed with the over-animalized urine, the fever assumes a form of great intensity; coma supervenes, and it is in this melancholy condition the patient dies, usually about the fifth or sixth day from the commencement of the attack.

If it be true, then, that there is one exciting cause which must always be present, and without which there can be no urinary fever, it seems difficult to understand how its presence or absence can be so far overlooked as to permit of any other fever being mistaken for or confounded with it; yet nothing can be better established than that such errors have occurred, not only frequently but fatally, and the explanation of the mistake will be found in the different degrees of intensity this fever may exhibit. If the symptoms are well developed and their character defined, it must be from negligence they fail to be recognised; but they are not always so—they are often neither very obvious or very tangible; nay, they may be so mild that the patient himself, generally so sensitively alive to every thing connected with the urinary organs and their functions, shall fail in perceiving any relation between them and the ailment he complains of, and which probably he attributes to some other source. Of all affections whatever, it is most liable to be confounded with intermittent fever or ague, probably by reason of the febrile paroxysm; and two cases of aged gentlemen have come within my own knowledge, who were plentifully dosed with quinine unto the death—the real complaint from which they suffered being dysuria, from hæmorrhage into the bladder; but with a little precaution such a grievous error may be easily avoided. Ague is an intermittent—urinary fever is a remittent,

allowing of no total cessation of disease, and in which, notwithstanding the subsidence of the paroxysm, there is always some acceleration of pulse or other febrile symptom present. In ague the paroxysms occur at regular intervals—it may be every day, or every third or fourth, but still they come not except at their stated times, and last their stated periods: not so those of urinary fever, which are in every possible respect of access, duration, and severity, irregular and uncertain. In urinary fever the great and prominent symptom is the sweat: profuse, abundant, steaming as it is, it is in nowise critical, and brings no relief as does the perspiration in ague: on the contrary, it leaves the patient languid, exhausted, and unrefreshed. The horrible urinous smell, if present, ought of itself to prove a sufficient diagnostic. Lastly, even on the supposition that these rational symptoms are but imperfectly developed, and fail of affording that conviction on which a practitioner can safely and satisfactorily rely, there is still the sensible evidence afforded by the catheter. A man not very familiar with surgical disease, unacquainted with instruments, or unaccustomed to their use, might commit an error in a case of difficulty, but a surgeon, aware that a fever resembling ague arises from a particular pathological condition of the bladder, and at the same time possessing the means of exploring it and evacuating its contents, will not commit the mistake.

CHAPTER IV.

Treatment of retention of urine—principally as it occurs in strictures.—

1. Means by which it is made to flow through its own natural canal, the urethra.—Means by which it is drawn off through the urethra.—Remarks on forcible catheterism.—Means by which it is drawn off through some other channel.—Puncture of the bladder—different operations.

WHEN retention of urine is fairly established, the bladder must be evacuated, or the patient dies. Here there can be no doubt—no compromise. It is true that one patient may endure longer than another, and that the pathological consequences of the retention may not be equally severe in all; still it is equally true that the bladder must be relieved, or the case is inevitably lost. This will be readily admitted on consideration of the facts hitherto detailed, and leads directly to a review of the means that surgery presents for the accomplishment of the desired object. The treatment of the affection, therefore, forms the next subject for examination, but with one limitation, that as retention may be produced by a variety of causes, each to a certain extent requiring a peculiar management, and as a discussion of all these would be too prolix, and lead to useless repetition, it will be more advantageous to select that one which, being most frequent and most important, possesses the greatest interest—namely, stricture of the urethra. In prosecuting this inquiry,

the first thing that attracts attention is the multiplicity of methods recommended, even for dealing with the urethra and passing an instrument through it,—one practitioner giving a preference to a large-sized catheter, another to a small: one man, again, to the metallic, another to the soft and flexible, and each advising some particular sleight or manœuvre by which the obstacle can be eluded or overcome. It seems as if each surgeon, having disciplined his own hand to the requisite degree of dexterity, thought he could impart to others a similar facility by a mere description of his method of proceeding. Again, a striking discrepancy exists as to the reliance placed on what may be termed occasional or ancillary measures,—some counselling a resort to the instrument without delay, while others advise the warm bath, bleeding, or the administration of various medicines, if not previously to, at least concurrently with, the manual operation; thus proving that the doctrine of spasm holds a very unequal position in the estimation of the profession. Lastly, it may be observed, that practitioners differ widely as to the freedom with which instruments may be used,—some inculcating the utmost mildness and delicacy in their employment, while others speak of tearing through a stricture, and otherwise dealing roughly with these parts, as if such proceedings were wholly unattended with danger. But the real lesson to be gathered from these facts is, that stricture presents a variety of phases and characters, and occurs in different constitutions—that some not only endure, but require a degree of rudeness in their management, that would be prejudicial if not destructive to others; and again, that there are temperaments wherein the judicious assistance of

medicine will enable us to diminish the resistance of an impediment that may not be overcome by force. There is, truly, in every case of stricture, something that imprints the stamp of individuality upon it—something proper and peculiar to itself, which must be sought out, and which, when discovered, will reward the inquiry by giving a facility of treatment not otherwise attainable. It will not answer, then, to adopt any one line of practice exclusively, or even to give a preference to one instrument or one operation over others,—the age, the habits, the constitution of the patient, the kind of stricture, the length of time it has existed, the fact of the patient having been under previous treatment, of his urethra being accustomed to instruments, and the manner it endured them, nay, the accidental circumstances in which he may be placed at the time, and the extent to which medical resources can be made available, will each and all impart a character to the case that must be influential in determining the line of treatment. The difficulty of laying down more than general rules for the treatment of this formidable affection must now be already apparent, together with the impossibility of adapting any one precept or any one operation to every possible case; and always bearing these in view, as calculated to render any arrangement defective, our curative measures,—that is, the means by which we endeavour to relieve an overloaded bladder,—may be advantageously examined under three heads.

1. The means by which the urine can be made to flow through its own natural canal—the urethra.

2. By which it is drawn off through or by an instrument introduced into that canal.

3. By which it is removed through an artificial opening practised somewhere in the vicinity, constituting the severe and serious operation of tapping or puncturing the bladder.

1. Strictures in the urethra have been long since systematically divided into the organic or permanent, and the spasmodic or temporary ; and that these are frequently united in the same case,—that is, that a urethra partially closed by some permanent change of structure may be completely shut up by spasm,—will scarcely be denied, unless by those who refuse to believe in the existence, or rather the possibility, of spasmodic stricture at all. And if it is denied, it may not be very difficult to prove not only its occasional presence, but its almost universal influence—that in most cases it is the effect of spasm that most fearfully arouses the patient's attention, that actually induces the retention of urine, and that the surgeon is called on most actively to combat. The organic stricture—the absolute change of structure—is not thus easily susceptible of change, either of size, of shape, or of dimensions : it may go on gradually increasing, and gradually encroaching on the passage, but the closure so effected progresses step by step, and very slowly ; it is never sudden, and perhaps never, even in the oldest and most unpromising cases, occasions a complete retention. The canal may be, and often is, so constricted as scarcely to admit more than a bristle ; the urine may trickle off in the smallest conceivable stream, or only come drop by drop, with tediousness and with difficulty, but an absolute occlusion of the passage seems most unlikely, if not impossible, inasmuch as the frequent discharge of the fluid would, in itself, be sufficient to maintain and

preserve some kind of channel in which to run. When, therefore, there is complete retention of urine—when a patient applies, writhing and straining with painful and continued efforts to discharge his bladder, and yet not a drop appears, no matter what his other maladies may be—the presumption is, that he is now suffering from spasm. He may have an organic stricture; he may tell you that he has long laboured under suppression of urine, as he calls it; he may detail a history of symptoms quite sufficient to prove that the calibre of the canal is sorely straitened: but still the same opening that permitted a passage on one day should do the same on the next, or nearly so, and probably would but for the superaddition of some spasmodic action. And, to press the argument a little further,—why, of all the canals in the body that possess a mucous covering, should the urethra alone be exempt from this distressing accident? All, except those which are fixed and fastened in bony sheaths, are liable to those irregular contractions, and so is the urethra also—all are subject to be brought into sudden and violent action by stimuli—some directly applied, some remote, some immediately, some sympathetically influential, and there can be no reason advanced why the same or similar irritations that occasion spasm elsewhere should be powerless in the urethra, and in it alone. But the existence and effects of spasm may be best appreciated by observing the phenomena of retention where there is no stricture or organic obstruction of any kind or description. It happens, for instance, very frequently, that persons suffering from gonorrhœa, or other irritation in the urethra, and who have indulged too freely in drink, feel the consequences

of their irregularities in this manner; and in these cases it is often difficult, if not impossible, to introduce any instrument without employing a degree of force that would be just as likely to injure the part, or create a false passage, as to guide it into the bladder. If such patient is young and strong, and plethoric, let him be bled to syncope, and the instrument may be passed with the greatest facility; thus proving that the obstruction was not caused by any permanent or organic obstacle, nor even by any flexure or change of direction of the urethra, for the bleeding could not have rectified that, but by something vital, which the fainting and the depression of the powers of life were calculated to remove. If he is of less phlogistic temperament, let some purgative medicine be prescribed, and the probability is, that, on its operation, the water will flow also: or let him be placed under the influence of a full opiate, and the catheter may be resorted to with every expectation of advantage: in short, let a treatment directed to the alleviation of spasm be adopted, and the pathology of the case will be established by its success. I once saw a patient obliged to submit to the operation of paracentesis vesicæ, and incur great peril of his life, with whom the catheter was used on the following day with considerable ease and freedom: there was certainly no stricture, no obstruction of any description; nothing but the change of direction wrought on the urethra by the distension of the bladder, and its more perfect occlusion by spasm; yet that urethra resisted the skill and dexterity of some experienced surgeons, and a painful and perilous operation became the only resource. The case

was calculated to leave an impression not easily to be effaced.

These observations, and the arguments founded upon them, may appear equally useless and prolix at the present day, when the existence or the influence of spasm is not denied: the systematic division of the disease is an acknowledgment of it, and all the medicines that enjoy any celebrity being evidently directed to alleviate this distressing complication, tends farther to its confirmation. It has not been for the purpose of proving the fact, that these remarks have been made, but of placing it in a more prominent position than, practically, it seems to hold; neither is it their object to supersede, or even to postpone, the employment of the catheter in favour of antispasmodic measures; but to insist on the advantage, if not the necessity, of combining them. It is to be apprehended this principle is not as generally reduced to practice as it deserves. A man is brought to hospital in the morning, who had drank to excess, and been intoxicated, the previous evening; had slept heavily, and awoke in all the misery consequent on retention of urine, yet unable to expel a drop: the first measure resorted to is the introduction of the catheter—perhaps, nay, probably, it fails, and if it does so, it is needless to attempt to describe his mental disappointment at each abortive attempt, or his physical suffering, with his urethra torn and bleeding, superadded to his other misfortunes. Now, let me not be misunderstood as objecting to the use of instruments; they are indispensable—it is by them that the patient is to be relieved, and sometimes the benefit derived from them is as immediate as it is complete. There can be no

objection to the passing of a catheter, or a bougie, provided it can be done with facility, and, of course, without inflicting injury,—perhaps it is the duty of every surgeon, in the first instance, to try what can be thus effected,—but there are objections to the rash, and hasty, and indiscriminate manner in which they are too often employed; one catheter changed for another in successive and abortive trials, one surgeon following another in efforts to force an obstruction which could be made to yield easily by the adoption of gentle accessorial means.

When a man is brought to hospital suffering from retention, it is most essential to soothe and tranquillize his mind, by assuring him that he shall be shortly relieved, and persuade him, if possible, to desist from those violent strainings and exertions which, besides being useless in affording relief, add materially to the difficulty of introducing an instrument. A large-sized catheter may then be passed down to the stricture, and pressed firmly but gently against it for some minutes: this is of great utility in calming the patient, by letting him see that some effort is really about being made to relieve him: it also informs the surgeon of the exact situation of the obstruction, and if it be withdrawn slowly and gradually (the patient making no very violent exertion at the time) the urine very frequently follows it and begins to flow away. This, however, may not prove successful, and then, before having recourse to force, it will be well to examine how far antispasmodic remedies can be made available, or adapted to the exigencies of the case. Having inquired as to the usual size of the stream previous to the occurrence of the reten-

tion, a flexible catheter of corresponding dimensions should be selected and passed down to the stricture, which, probably, nay almost certainly, it will not enter, but it must be held there whilst additional measures are adopted. If the patient is young and vigorous, and plethoric, bleeding is sometimes employed with the best success; but in order to its producing the desired effect, the operation should be performed while the patient is in the erect posture, and the opening in the vein should be large, or he may be bled from both arms at the same time: this will probably induce syncope, and the instrument may then, in most instances, be pushed onwards into the bladder. If the subject is apparently unable to sustain such treatment, and a hot bath is easily attainable, it may be tried, but then it must be of sufficient temperature, and the patient remain in it a sufficient time to induce a disposition to faintness, when, possibly, the urine may flow off spontaneously, or be easily removed by the catheter. Generally, the hot bath is a remedy of great value, but it also has its disadvantages; it is, for instance, often difficult to be obtained, and much time may be lost in the preparation; it sometimes, in old and weakly persons, causes a determination of blood to the head, that might be attended with serious consequences, and where it fails, that is when the retention is not relieved during the time the patient is actually under its influence, his very removal from it, and the exposure consequent thereon, induces a degree of reaction quite incompatible with the subsidence or relaxation of spasm. In other cases the administration of an opiate enema, or of a full dose of opium, in combination with some antispasmodic by

the mouth, may be desirable, provided some little time be allowed to elapse between the taking of the medicine and the next attempt to pass the instrument, for the unsuccessful poking of the urethra is calculated to create and maintain spasm quite sufficiently to counteract the effect of any sedative. In like manner, and on nearly the same principle, the muriated tincture of iron has been prescribed in doses of fifteen drops every quarter of an hour: the operation of this medicine, when effective, is very sickening, and under its influence the urine trickles off almost without the patient's consciousness. The tobacco enema has been, it is said, prescribed under similar circumstances, and doubtless it is a most powerful antispasmodic, but it is a hazardous remedy, and the general class of strictured patients is not such as to warrant the frequent, much less the indiscriminate use of an agent so active and so uncertain. Purgatives should never be omitted, and it often happens that under their operation the water passes off at the same time, the only objection to them being the slowness with which their effects are produced: this, however, does not apply to enemata, and it is decidedly beneficial thus to clear out the rectum, even preparatory to the use of an opiate injection, were there no other advantage to be expected from it.

2. Hitherto, it will be observed, our attention has been mainly directed to an irritable and spasmodic condition of the urethra, and cases have been supposed susceptible of relief almost by the removal of this unhealthy disposition alone, but it must be acknowledged that there often remain other and more obstinate evils to be encountered; that sedative and

soothing measures can effect nothing in removing the organic stricture, or enabling us to guide an instrument through a devious urethra; and that however important these ancillary measures may be (so important that they should never be omitted), it will, indeed, be a happy and fortunate case in which they entirely supersede the necessity of manual operation. In conjunction with them, every attempt should be made to pass an instrument into the bladder, a catheter, if possible, but if not a bougie, for the water will either course along the side of the latter, and thus escape, or follow on its withdrawal; but these attempts should be made patiently, and with perseverance, and not with force or violence. I leave the selection of the instrument to the surgeon himself, who must be supposed to be acquainted with the circumstances of the case, and competent to arrange his measures accordingly; I forbear even to allude to the various manipulations and *tours de main* recommended by different practitioners as giving a facility to particular parts and steps of the operation, because all these must be fully discussed when treating more particularly of stricture, and because I believe that what would be successful in the hands of one man might prove eminently the reverse in those of another, and I pass from this part of the subject for the present with but one remark, viz., where a surgeon has been for a long time ineffectually endeavouring to introduce an instrument, he rarely succeeds at last. Whether it is that the hand, accustomed to one manœuvre, is unable at a moment to change it for a new, or that the operator becomes fatigued as well as dispirited by successive disappointments, it may be

difficult to determine, but, practically, I feel convinced of its being advisable under such circumstances to desist for a time, or, if another surgeon happens to be present, let him essay the introduction. I remember, when a pupil, to have passed a catheter in a case of retention from prostatic disease that had baffled the best efforts of two able and experienced surgeons for more than three hours, yet, to my astonishment, as much as theirs, it glided into the bladder with the utmost apparent facility. There can be no disgrace attachable to these seeming failures, for they occasionally happen to the wisest and the best, but there is disgrace, and criminality too, if, through loss of temper, or a worse motive, a wish to maintain a reputation for dexterity, the patient should sustain an injury that might bring his life into peril.

A consideration of this part of the subject offers an opportunity for some observations on what may be termed catheterism by force,—the violent pushing of an instrument through a stricture, or other obstruction, into the bladder. This operation has been lightly spoken of as to its attendant danger and the difficulty of its performance ; it is right, therefore, to inquire into the validity of these assertions, and as its advocacy is supported by the urgent necessity of the case, it is the more requisite to understand when the attempt is justifiable. The patient is not only writhing under present agony, but in imminent peril of his life : every thing that skill could suggest, and dexterity perform, consistently with gentleness, has been tried—and tried in vain : he must have the bladder evacuated, or he dies a painful death ; and that bladder is so circumstanced, that no mild or palliative treat-

ment affords a prospect of relief: he must submit to some operation, and incur some risk; and assuredly that operation is least open to objection which conveys, or seems to convey, away the urine by its own natural canal. Again, if a surgeon is intimately acquainted with the anatomy of these parts, and possesses such a correctness and delicacy of touch that he can feel whether his instrument is still within the urethra or straying out of it, where can be the difficulty of passing a canula to the stricture, and pushing a stilette through it, or forcibly breaking it up with the beak of the catheter itself? And lastly, to decide the question by the result of experience, how can that operation be regarded as so very dangerous, that has been so frequently performed with success? Admit but the truth of these premises, and the conclusion becomes inevitable; but then the question naturally arises, are they really true? Most surgeons, at least most of those deserving of the name, are good anatomists, and so far as an intimate acquaintance with the structure and position of these parts can assist them, fully qualified to undertake any operation in which they are implicated; but it is a matter of doubt how far any knowledge of anatomy can be made available in guiding an instrument, which, if passed at all, must be driven by force among deep and distant organs, that are altered by disease from their natural shape and direction: it may possibly give notice that the instrument has slipped, and taken a wrong direction—it may tell when the mischief has been wrought, and help to explain its nature and extent; but then the information comes too late. As for that excessive sensibility of finger which will enable a man to say with

accuracy where the beak of his instrument is, it may not be courteous to deny it when claimed, but it has never been my fortune to witness its undoubted exhibition. Men of experience derive from that source a certain degree of tact in dealing with difficult cases, which, by imparting confidence, constitutes an important element of success; and in this respect there always must be a remarkable difference among practitioners; but this is the fruit of a number of qualifications, not of any one in particular; and, least of all, one the existence of which is more than doubted. But the operation has succeeded, and patients have been saved, that, under a timid indecisive hand, must have either perished, or submitted to a proceeding still more perilous and painful. Be it so: the operation has succeeded, and our pathological museums furnish examples of artificial urethræ that served the purposes of the natural ones for years,—they shew where a catheter had passed out of the urethra at one spot and luckily entered it again at another farther back, thus forming an adventitious but useful canal in the intermediate space; they exhibit abundance of evidence that Nature is capable of making stupendous exertions for the preservation of life, which surgery has no right to call her own, or appropriate among her resources. And these collections can afford other and different information also, for on the same shelves, and side by side with these triumphant exhibitions of fortunate practice, may be seen the infiltrations, the abscesses, the false passages, and other numerous results of carelessness or violence,—formidable and fatal evidences that the operation is not so devoid of danger, and that the urethra may not always be lacerated with impu-

nity. No ; the real advocacy of the operation rests on the critical condition of the patient ; he must be relieved at every hazard, and if the bladder cannot be reached by gentler means, no alternative presents itself but the use of the catheter, just alluded to, or of the knife. But paracentesis vesica is painful to undergo, and eminently dangerous in its consequences : it perhaps never should be performed except as a last resource ; and, besides, there are numerous cases in which it might be injudicious to attempt it, and some in which its successful performance would be impracticable ; and in these, or such as these, an effort must be made to traverse the urethra at any cost. If these observations are correct, then they present a laceration of a stricture as merely a choice of evils, and perhaps it never should be regarded in any other light, or spoken of in other terms : it never should be considered otherwise than as an adventure,—an experiment that may be made in a difficult and desperate case, that has succeeded occasionally in preserving life, but is far more likely to lead to an opposite result. It must be recollected, also, that these remarks apply to the operation as a remedy for retention of urine : considered as a means of removing a stricture, there will be an opportunity for examining it hereafter.

3. When every attempt to introduce an instrument by the urethra has proved abortive, and the retention still continues urgent and pressing, the patient must submit to the painful and dangerous operation of puncturing the bladder : it offers now the only chance of prolonging existence, and if that chance was even more weak and slender than it is, he is entitled to the benefit of it. Still it is an expedient fraught with

hazard, and, as just now insisted on, not to be contemplated but as a last resource. Perhaps it may not be perfectly correct thus to use language with respect to this operation so different from that which is generally employed,—perhaps it has not proved so formidable in the experience of others as in mine; it may be that its danger is somewhat overrated here; but nevertheless, entertaining such opinions, I am compelled to state them truly. The experience of any one individual, however extensive, can never be sufficient to establish a principle, but is nevertheless valuable as a contribution to the mass of general information; for, by collecting many of these, and comparing them with each other, the inquirer will most probably arrive at truth. I feel principally interested for the young practitioner, and nothing can be more injurious, or, it might be added, unfair, than to let him suppose he might perform such an operation, without telling him at the same time the degree of success he might expect, and more particularly in a case like this, where there are so many circumstances calculated to create erroneous notions. It is most familiarly known, that the bladder may possibly be wounded, or otherwise injured, involving such terrible consequences,—that it is often the subject of our surgical operations, and the results not so very unfortunate as to cause them to be regarded with peculiar apprehension: why, then, should a simple puncture with a trochar be considered in so perilous a light? But all wounds of the bladder are dangerous, and if a surgeon is obliged occasionally to make it the seat of operation, he certainly does not select his subjects from the aged and infirm, and broken down, as those who have suffered long from

stricture generally are, nor from those who have previously gone through hours and days of misery from retention, as well as from the efforts ineffectually made to relieve it; and above all things, he desires to have the viscus itself, as well as every other portion of the urinary apparatus, perfectly free from disease. It is on these conditions only that he willingly undertakes this class of operations; and even with all these precautions he must submit to occasional disappointment: how much less ground for sanguine expectations when not one of them can be fulfilled! It is quite true that paracentesis vesicæ is not uniformly fatal,—if it were so, it would be better to let a patient die of the disease than add to his tortures under the pretext of a remedy; and it would be absurd to argue for a moment on such a proposition. I have myself performed the operation with a favourable result, and occasionally seen it successful in the hands of others; but I may not here state where and how often I have seen it otherwise, and I cannot conscientiously enter upon a description of it without insisting on its danger being so great, that nothing but the pressing urgency of the case can justify its adoption.

There are three different situations in which the bladder may be punctured; viz. through the rectum, above the pubis, and by the perineum; and nothing can be easier than to reach the viscus by any of these routes, provided only that the parts are healthy; but no two things can be more different than the anatomy of the dissecting room and the operation theatre, and what is readily feasible with the one may be nearly impracticable with the other. In this case the parts are *not* healthy, for it must be in consequence of a

diseased condition of the bladder that the exigency of the case arises; and hence, as in other affections of the urinary system, the peculiar nature of the derangement determines the line of treatment to be adopted. The question is, not how the bladder may be punctured and the urine evacuated, for that can be easily effected by any one of the proposed methods, but how it can be done most advantageously in any particular case, having due regard to the patient's immediate safety, his endurance of the consequences of the operation, and his future recovery. It is obvious that had any one of these possessed a marked and universally applicable advantage, it would have been selected long since, and have always retained its pre-eminence; but there are still three methods suggested for the accomplishment of the one object, and therefore there must be some reason to determine a choice,—some circumstances to create a preference for one over the others in any given case. The puncture by the rectum appears to be safe, simple, and easy of performance: if an opinion may be formed from the works of English surgeons, it seems to be that usually preferred and performed by them, and yet, through some cause or other, it unquestionably is not a favourite with the Irish practitioner: there are several hospital surgeons here, of great experience, who have never had an opportunity of witnessing it even occur. It consists in introducing the two fore fingers of the left hand into the rectum until their extremities rest against the soft and prominent bladder above and beyond the prostate gland, and if there is difficulty in ascertaining this spot precisely, an assistant should make gentle pressure on the abdomen, which will direct the viscus

backwards at the same time that it tends to fix it. The canula of a long curved trochar, particularly designed for the purpose, is then passed along the groove formed by these fingers, until it reaches and can be pressed against the same part, when the stilette is introduced, and pushed along with the canula into the bladder: the stilette is then withdrawn, and the urine follows it in a gushing stream. There certainly is no difficulty in this, provided only that the bladder can be distinctly felt, and the surgeon's fingers are of sufficient length to guide the instrument to it; but the facility of an operation cannot alone be a reason for its general adoption, and there are obvious and striking objections that more than counterbalance that one advantage. In cases of disease of the prostate gland, and particularly where the third lobe is enlarged, it is clearly inadmissible, yet such form a very large proportion of the cases in which the operation is called for; and where an additional object is to be gained, in the removal of some offending substance which perhaps had caused the retention, it is totally inadequate to the purpose. But even in cases to which it is apparently applicable, there are still several points of importance well entitled to consideration. The operation, even on the dead subject, is by no means so easy of performance as might be inferred from its description only, and in the living its difficulties are certainly not diminished. In aged persons the perineum very frequently is so deep, that few surgeons can reach the bladder in the proper situation with the fingers, and at the same time retain the sense of touch so accurately as to be satisfied of the exact spot they rest upon, for the contraction of the sphincter around them materially im-

pairs their sensibility, and therefore are there some grounds for suspecting that the operation is more frequently performed by a plunge at hazard than by any distinctly regulated proceeding. Now the place at which the trochar ought to enter the bladder is of no very great extent,—that triangle, the base of which is marked off externally by the reflection of the peritoneum from the rectum on it, and its sides by the vasa deferentia, converging in their course towards the prostate gland, and of which important parts may be injured, and the wound thus rendered complicated if not dangerous. No objection need be raised on the possibility of the *fæces* finding admission into the bladder, or the urine into the intestine, because such communication is not, and perhaps cannot, be established, inasmuch as the moment the trochar is withdrawn the continuity of the wound is lost by the contraction of the bladder, and the apertures effected in the two organs no longer correspond: neither does any very strong objection arise from the risk of the urine becoming infiltrated, for this may occur with any operation, and although extremely dangerous, scarcely forms a reason for the preference of one over another. There is, however, with respect to this one, a manifest disadvantage, in that the canula cannot be retained in the bladder for any length of time, nor when withdrawn can it be readily replaced; consequently in all cases where it may be necessary not only to evacuate the bladder, but to draw off the urine from time to time, this operation appears to be unsuitable. Any of these observations, considered by itself, may not possess particular force; but taken together, they reduce the cases to which it may be applicable to

a very limited number, and will probably furnish some explanation of the cause why it has met so little favour in the estimation of Irish surgeons.

The operation of puncturing the bladder by the perineum requires a careful consideration, for it appears to have been performed when in reality the viscus has not been reached; the retention being relieved by some portion of the urethra behind the obstruction having been cut into. Under these circumstances it often appears to be most easy of performance, most fortunate in result; and yet, after considerable experience and anxious reflection, my mind cannot be divested of the idea of its being generally attended with immense difficulty, and followed by very great danger. This may appear a startling assertion to many who, taking their notions of operation from the anatomy of the dissecting room, must wonder how there can be difficulty in guiding a knife through parts so accurately described and so intimately known; but independent of the fact that nothing can be distinguished in incisions carried so deeply, and where the structures are all obscured by blood, it must also be recollected that the very disease which may have rendered the operation imperative has not only spoiled the anatomical relations of these organs, but deprived the surgeon of the assistance and guidance of a staff, which he finds so valuable in other cases. The urethra is probably diseased; the prostate gland may be also engaged; the course of the canal and its relative position towards other parts are considerably changed: the perineum of such a patient no longer resembles that of the healthy subject, and he that attempts to deal with it according to ordinary rules

will be likely to meet bitter disappointment. For the performance of this operation the patient ought to be placed in the same position, and secured in the same manner, as for lithotomy : this precaution is sometimes disregarded, but if it be of importance that he should be as immoveable as possible, and his pelvis perfectly straight, in the case where the parts to be divided are unaltered by disease, where the surgeon has the advantage of being guided by a staff, and where the cutting part of the operation occupies but a few minutes, it appears to be infinitely more so when not one of these conditions can be obtained. A staff should then be introduced if the condition of the urethra will allow it to pass to the usual seat of stricture, and an incision being made along the raphe or central line of the perineum, the extremity of the staff should be cut down upon and set free at the bottom of the wound. But this is not *paracentesis vesicæ*, an operation seldom required in a case so simple, or where the deeper organs are not engaged ; and if, as sometimes happens, in favourable or rather fortunate cases the stricture so divided has been the cause of the retention, and the distress has been thus suddenly and unexpectedly relieved, the facility of the one operation should not be brought forward in advocacy of the other. If, however, the urine does not flow at this stage of the operation, the surgeon must proceed without artificial guidance or assistance except what may be gained by the introduction of the fingers into the rectum, and trust to his conception of the nature and situation of the obstruction, and his own dexterity, for its success. It is fearful to witness the successive strokes of the knife in a cavity the depth of which

was not probably contemplated by the operator, and still more frightful to see the plunge of the bistoury at the bottom with the intention of reaching the bladder, a consummation which few surgeons fail of when the attempt is made (yet such a failure is possible), although it may be doubted that many succeed in opening it in the place or manner they desire, or are perfectly aware of the line of their incisions until peradventure the post-mortem examination points it out. And it is seldom the operation can be performed so easily as that described; for in most cases there are either numerous strictures, or one of considerable length or hardness, preventing the introduction of the staff to any useful extent, or perhaps at all; or the perineum is hard, callous, almost cartilaginous, the seat of one or more fistulæ, with all its structures matted together and united together by previous inflammation. In a subject so constituted the only chance a surgeon has of reaching the urethra is by observing accurately, and strictly adhering to, the central line of the perineum, and after the first incision or two this guidance ceases to be of much advantage. It is not too much to say, then, that this operation is difficult, and certainly it is imminently dangerous; at least, according to my experience it has proved so, and perhaps the circumstances now detailed may furnish some explanation of the fatality: but besides those risks which all can understand as arising from deep and extensive incisions, practised with more or less uncertainty, amidst such delicate and important organs, and generally on subjects but ill fitted to endure them,—besides those accruing from inflammation, infiltration of urine, and similar accidents, the effects of which are somewhat

remote,—there are others which occur at an earlier period. I have seen patients die of hæmorrhage within a few hours of the operation. This is a termination not likely to be anticipated or dreaded by the mere anatomist, for he knows that the central line of the body covers few blood-vessels of any size or importance, and one of the reasons for observing this particular direction is the avoidance of bleeding; but it must be recollected that if the divided structures are hard and callous, the blood-vessels within them cannot retract, and are in every respect unfavourable to the spontaneous cessation of hæmorrhage; they will continue to pour out their blood to an extent that may prove perilous to a weak and irritated patient. But this is not the chief, much less the only source of danger, for in the fatal cases alluded to, no such alteration of structure was present, and the blood proceeded from the veins of the prostate gland and neck of the bladder, which were in a distended and varicose condition. Such a casualty could neither be foreseen or prevented, but the existence of the morbid condition that led to it must be of the last importance, for if the veins are frequently diseased in patients of advanced age, who have suffered from urinary complaints, and if these constitute a large proportion, perhaps a majority of those requiring to have the bladder punctured, it renders the operation by the perineum hazardous in many cases, doubtful in all, and not to be selected unless some collateral advantage promises to counterbalance the risk incurred. Thus, where there is fistula in perineo, if the operation of paracentesis can be so arranged as to be subservient to the cure of the other disease, it might be some justification for exposing the

patient to additional danger, and in case of abscess within the prostate gland the opportunity of opening the abscess at the same time offers too many advantages to admit of any other mode of proceeding.

The operation above the pubis is more frequently performed here, and consequently we are comparatively better acquainted with it; it is simple, easy of performance, and seems applicable to every case in which it might be deemed necessary to cut into the bladder. Of course it is hazardous; any wound of such an important viscus may prove so, and this is attended with more peril than the puncture through the rectum, but the danger arises not from the difficulty of performance, or the risk of wounding any important part or structure, but from consequences that ensue at a much later period. It is performed thus: the patient being laid on the table, with his shoulders supported by pillows, and the surgeon having satisfied himself that the bladder is full, and has risen above the pubis, (for otherwise the operation is unsafe, if not impracticable) an incision is made between the recti and pyramidales muscles exactly in the central line of the abdomen: this is to be carried deeper, cautiously and slowly, until the bladder is exposed at the inferior part of the wound, when the peritoneum and its cellular attachment is to be carefully pushed upwards by the finger, or the handle of the knife, until it is satisfactorily ascertained that the viscus is perfectly uncovered. A large sized trochar is then to be pushed into it, taking a direction downwards and backwards, precisely in the line of the axis of the pelvis, and the stilette being withdrawn, the urine gushes forth. The surgeon must now be careful in

making the canula follow the motion of the bladder in its contraction, otherwise it will slip out, and the urine become diffused throughout the adjacent parts. When the water has been drawn off, a flexible catheter of a sufficient size to fill the canula as nearly as possible must be pushed through it, over which the latter instrument may be withdrawn. The catheter is thus left in the bladder, and must be retained there by being attached to a T bandage, its orifice having been previously stopped by a plug to prevent the constant dripping of the urine. Some operators do not employ a catheter, but endeavour to retain the canula within the bladder,—a proceeding which, if accomplished, would materially contribute to prevent infiltration, but it is difficult to secure, and should it slip out it is often no easy task to replace it, whilst, if it remains, from the hardness of its texture and the comparative sharpness of its edge it is apt to irritate the lining membrane of the viscus, and occasion inflammation. The great objection to this operation arises out of the difficulty of preventing the escape of the urine subsequently from the wounded bladder, and of procuring an easy channel for its removal from the parts in which it rests: the circumstance of the catheter not completely filling the aperture made by the trochar causes the one, while the position in which the patient is obliged to lie effects the other. He is thus exposed to all the consequences of infiltration, inflammation, and extensive sloughing, and, moreover, to the annoyance and debilitating influence of the constant filth, the horrible urinous smell, and the wet and damp of the bed-clothes around him. That an aged, and feeble, and irritable patient should sink and die under such

an accumulation of misery is not surprising—that he should suffer from extensive sloughing, from bed-sores, and the low fever that accompanies them, is, perhaps, only to be expected, and the real subject for wonder appears to be, that any should escape: yet patients sometimes, nay frequently, escape, and the operation, practically, does not present an aspect so very formidable as reasoning from theory alone would seem to indicate. During the progress of the case no time should be lost before an attempt is made to re-establish a passage by the urethra, and occasionally it is astonishing with what facility a catheter may be passed after the retention has been relieved. In a case of prostatic disease, I have known a large-sized instrument introduced on the day after the bladder had been punctured. In cases of stricture, however, and particularly where the parts are callous and cartilaginous, it may not be so easy a matter, yet, even here, when the irritation arising from the retention has been relieved, and the spasm removed, the attempt will be more likely to prove successful. When this has been effected, a catheter must be introduced into the bladder and secured there, and the instrument which until then had remained in the wound may be withdrawn, and the parts allowed to heal. The subsequent management of the case will depend on the peculiar circumstances individually connected with it, and cannot admit of discussion here.

CHAPTER V.

The Symptoms of Stricture pathologically considered, compared with those of Dysuria from other causes : Rational ; not always conclusive ; Sensible.—Some Remarks on Catheterism as employed in the Investigation of Disease.

HAVING now fully considered the most urgent and formidable condition to which a patient afflicted with stricture can be reduced, and seen that however the means of treatment may vary, the principle consists in the single and simple indication of removing the fluid by which the bladder, and perhaps the system, are oppressed, we can turn with more advantage to the next part of the subject, and investigate the symptoms an obstruction in the urethra will occasion, whilst it is yet only partial, and has not proceeded to the extremity hitherto contemplated. Of these obstructions the stricture is the most frequent and the most influential, and on a *primâ facie* view of the case it really seems extraordinary how any difficulty can attach to it,—how, for instance, it could exist there without its effects being most apparent, or how, not being there, its presence should be at all suspected. Yet, although apparently the rational symptoms are of a satisfactory nature, and, in addition, there is the sensible evidence afforded by the introduction of a catheter or bougie, yet from carelessness on the one hand, and defective

information on the other, numerous errors are daily committed in this important branch of surgery. Nor are such errors altogether unpardonable, for almost all the rational symptoms are common to it and other affections; and it is well known that the evidence afforded by the catheter is not always conclusive even in experienced hands. Thus, all mechanical impediments to the flow of urine must occasion symptoms nearly alike, the principal difference being in degree: the effects of irritation within the same canal must not only be resemblant, but in many respects identical; and the sympathies it exhibits with other parts must be exactly and precisely the same: accordingly, every disease that can obstruct the urethra, such as calculus, enlargement of the prostate, or tumours in the neighbourhood—everything that can occasion spasm, such as debility, irritation, or exposure to cold—and every affection that causes a puriform discharge, such as gonorrhœa, gout, or other forms of inflammation, may assist in giving occasion to such mistake. Under such circumstances it may be necessary to examine these symptoms, not alone, as they appear in stricture, but in other diseases of these organs; also, that by comparing them one with another, something approaching to a right understanding of the subject may be arrived at.

On investigating the history of a case of stricture, it will generally be found that some of the supposed predisposing causes had previously existed; that the man had resided for a long time in warm climates—or that he had been given to intemperance—or addicted to excessive indulgences of another nature—or, in some manner, exposed to enervating influences:

if he ever had gonorrhea, or had used injections, these facts will almost certainly be brought forward. The patient will probably state on inquiry (for it is only thus the information can be fully elicited), that it is long since he observed the urine to flow in a full stream, or be discharged with the same force; or propelled to a distance in the same arch-like form it originally had been, and that beside the absolute diminution in the size of the stream, it had passed in a divided or scattered manner, or assumed a spiral or screw-like form. He next can recollect that the diminution of size, although gradual, was progressive, and that on occasions when the bladder was allowed to become fuller than usual its evacuation was tedious and difficult. more recently, perhaps, it has become rather a rapid succession of drops than a continuous flow—it escapes without impulse, and falls perpendicularly from the penis between the feet, and the last drops are not expelled at all at the time, but subsequently trickle away, and render him uncomfortable and offensive, by soiling and wetting his dress. He remarks also that his calls are more frequent than they used to be, especially at night—that he voids but comparatively a small quantity on each occasion, and that he sometimes is obliged to use considerable exertion in order completely to empty the bladder. Along with these symptoms there is frequently a gleet discharge, not very unlike that proceeding from gonorrhœa: there may be in irritable patients an inability to discharge the seminal fluid, which then passes backwards into the bladder, and comes away subsequently with the urine; there is often a dull sensation of uneasiness about the glans penis, a

retraction of one or both testes, pains in the back and loins, and considerable irritation about the rectum; such as a tendency to piles, prolapsus ani, and occasionally a disposition to a troublesome laxity of bowels. There are two important circumstances connected with the symptoms of stricture well worthy of consideration, as having considerable influence on the treatment; one is, that they exhibit different degrees of intensity, induced sometimes by physical causes, sometimes by emotions purely mental: thus the passage from a cold atmosphere to a warmer one, or *vice versa*, may make a marked difference in the power of expelling the urine, and the simple apprehension of not being able to pass it has not infrequently caused an actual retention. It is not necessary here to allude to those stories of individuals not being able to make water unless in some one particular place, which appear absurd and ridiculous, as they cannot be explained; they are, nevertheless, probably true, and are merely exaggerated examples of a fact daily observed, that the mind possesses a most powerful influence over urinary disease. The other is, that the general health is always more or less disturbed in stricture; not that sympathetic derangement which, arising out of a local disease, bears a given relation to it, and becomes aggravated or ameliorated as it increases or declines, but a general delicacy and debility of function which operates more on the local disease than the latter on it. This is principally exhibited in the biliary and other parts of the digestive system, and nothing is more common than to find the use of any but the plainest food followed by severe exacerbation of the urinary distress, nay, by retention itself. In a word,

patients who have long suffered from stricture, are pale, nervous, and excitable, prone to be affected by agencies apparently trifling, and often complaining of local distress and pain, which, not being explicable on rational grounds, are generally regarded as fanciful. But it will be well to examine some of the most prominent symptoms in detail, and in connexion with the pathological causes that produce them.

The gradual diminution of size in the stream of urine is obviously occasioned by a corresponding diminution in the calibre of the canal, and if a stricture could be imagined so permanent as not to be influenced by spasm or any such adventitious excitement, the measure of the one should be exactly the measure of the other : the alteration of shape, its becoming forked, or twisted, or scattered, however, depends on the kind or form of the obstruction present. The dribbling of the urine, or its falling drop by drop between the legs, can only occur when the stricture is so close that the impulse of the bladder is lost on that part of the stream which has passed it, and the frequent calls to make water arise partly from a diminution of capacity in that viscus, but much more from the increased sensibility of its lining membrane. Of these symptoms, the gradual alteration in the size of the stream is the pathognomonic and consequently the most satisfactory, for of the various impediments that interfere with the flow of the urine, stricture alone can furnish it. In disease of the prostate gland there is almost always an alteration in the shape and size of the bladder, therefore the calls are frequent, and the quantity passed but small, and when the case is advanced there may be frequent dribblings of the urine,

amounting to absolute incontinence ; but when it flows it comes in an undiminished stream. Often it may stop suddenly and entirely, and on the patient relaxing his exertions or changing his posture, appear again ; but in this case the obstruction is applied suddenly, and is perfect in its operation : in stricture it is partial, but increases with the duration of the disease. Calculous and gravelly affections may also bear a resemblance to stricture in some of these respects, such as pain and straining and difficulty of passing urine, and the occasional sudden cessation of the stream, but when it does flow it is of the usual size, or, if diminished, such diminution is permanent, and does not increase progressively. A small stone impacted in the urethra may also occasion some doubtful symptoms, but the previous history of the case, the sudden occurrence of the impediment, and its remaining unaltered, will explain the nature of the affection quite independently of the fact that in any of these cases an examination of the urethra by a sound or catheter is always indispensable, and, carefully and judiciously made, will generally prove satisfactory.

The purulent or puriform discharge, the sensation of uneasiness in the glans penis, and the occasional occurrence of spasm, obviously arise from the presence of some irritation of the mucous membrane, and therefore, while it is quite possible they, or some of them, may be absent in stricture, it is equally so that they may be present in other affections. Thus there is a discharge in gonorrhœa, but it is truly puriform, very abundant, attended with ardor urinæ and other indications of inflammatory action, any of which symptoms render it easily recognizable : even in gleet unat-

tended with pain, its profusion will be sufficiently characteristic. There may be some difficulty if a patient with a stricture contracts a clap, or if the obstruction should arise during the existence of an uncured gleet, but in either case, the previous history, if it can be ascertained, ought to be sufficient to decide the question. In prostatic disease there is often an abundant discharge, but it comes away along with the urine, which is thereby rendered white and muddy, but, on being allowed to settle, throws down a large precipitate of flaky mucus, which nearly half fills the vessel: sometimes shreds of this mucus pass off without the urine, and occasionally one or two of them may be seen hanging from the orifice of the urethra; they in no respect resemble the discharge in stricture. Irritable bladder and catarrh are also attended by discharges of a thick, glairy, puriform mucus, but it generally escapes with the last portion of the urine, and falls to the bottom of the vessel, to which it adheres after the supernatant fluid has been poured off. It is now very generally admitted that gout gives rise to discharges from the genital organs of both sexes, sometimes attended with pain, sometimes without it, and as every respect strikingly resembling gonorrhœa, and in gouty patients are particularly prone to urinary affections, it might appear as if a difficulty could arise in such cases; but a mistake is scarcely possible with a moderate degree of care and attention. The real pathology of the discharge in stricture seems to hold some connexion with a chronic inflammation of the urethra: in the majority of strictured patients it is not observed at all, neither is it present in the irritable urethra, but chiefly shews itself in cases where the exist-

ence of inflammation might be suspected; those of long standing, in which the bougie had been frequently or violently used. The same remark will apply to most of the other symptoms usually attributed to irritation.

When a stricture has existed for any length of time, the bladder, and other parts of the urinary apparatus, become engaged, and through them the rectum and other organs which are known to hold an intimate sympathetic connexion with them. Thus, such patients suffer from piles, prolapsus ani, and other irritations about the anus: they have retracted testes, pains shooting down the thighs, and occasionally so much uneasiness about the loins as to lead them to attribute most of their sufferings to gravel. These symptoms are so constant, and their origin, when examined into, so palpable, that it appears almost unnecessary to dwell on them; but it may be observed of all sympathetic affections, that being seated in a different and somewhat distant part, they frequently withdraw the attention of the practitioner from the real disease, and thus give occasion for grave and serious mistakes. Strange and incomprehensible as it may appear, I have known a patient actually treated for piles, whilst the real complaint was stricture: this man had retention of urine for weeks, the fluid trickling away occasionally, which deceived the practitioner as to the state of the bladder, which was never examined into, and the case was regarded and treated as one of severe piles. Such occurrences are certainly very infrequent, nor would this have been alluded to here but for the purpose of inculcating the necessity of examining every case in which there is the slightest deviation from the ordinary functions of the urinary system, and, if possible, ob-

taining information of the state of the bladder by sensible evidence.

The sensible symptoms of stricture are such as will point out the existence to the sight or touch. Sometimes, when it exists in the perineal or in the pendulous portions of the urethra, the hard and resisting band may be felt, and the dilatation of the canal behind it seen, when an attempt is made to empty the bladder: but when it occupies its usual situation, its existence can only be ascertained by the introduction of an instrument. If a catheter is passed into the urethra, and meets an impediment there which effectually arrests its progress, it would seem as if the evidence thus obtained is, or ought to be, conclusive; yet even here a great deal of caution may be necessary, for many persons imagine themselves afflicted with stricture, and are and have been treated for it, who had no complaint whatever beyond an irritable condition of these parts; nay more, their fancies are confirmed by the very operation that ought to dispel the delusion. The extraordinary influence exercised by the mind over the urinary organs has been already adverted to, and must be now particularly noticed, in order to show that it may occasion equal distress, equal anxiety, and almost equal irregularity of function, with the actual presence of organic disease. A good deal of this will, of course, proceed from the connexion that exists between the genital and urinary systems, and the uneasiness naturally arising out of the idea that the former of these has been impaired; but there are other causes occasionally contributing to the same effect, and therefore the practical fact, in its entire bearing, should not be lost sight of. Thus, a young

man having had gonorrhœa frequently, and perhaps been cured principally by injections, and having heard that stricture follows on these causes, comes easily to imagine that he must be a sufferer in his own person : he watches his stream of urine—he catches at every deviation from usual or ordinary appearances—he magnifies every trifle into something important—and at length his anxiety produces the symptoms he dreads so much. I have had opportunities of witnessing many such cases, and been consulted by patients who could detail every symptom of stricture with surprising accuracy, in whom there existed not the slightest obstruction, nor indeed any disease whatever, except a degree of local nervous irritation, evidently produced by mental emotion. Every circumstance having a tendency to occasion this irritability will give rise to similar symptoms. I had a patient lately who applied to me, complaining of occasional partial retention of urine, which at best flowed but in a scanty stream, and sometimes stopped altogether ; there was some purulent discharge from the urethra, pain in the glans, with constant itching, retraction of the testicles, and weight and uneasiness about the loins. He declared he had had no intercourse with a female for more than two years, and as gonorrhœa was out of the question, the symptoms naturally led me to suspect a stricture. I introduced a very large catheter, which passed easily ; there was no obstruction, no change of structure, that could be discovered, not even an occasional spasm to interrupt the passage of the instrument, and yet for nearly three months he continued to call, apparently experiencing as much distress as if he had the organic disease. At length I discovered accidentally that he was addicted

to self-pollution, and I told him he must desist from the practice before I could cure him. This was evidently an aggravated case of irritable urethra, partly produced by his evil practices, but maintained and increased by mental anxiety and distress, for he was deep in the reading of those abominable books in which the consequences of such propensities are portrayed in colours sufficiently fearful to have occasionally led to insanity. Sir E. Home mentions the case of a young man who had a suspicious connexion at a time when his contracting a venereal taint would have proved destructive of his future prospects in life: he became excessively apprehensive and agitated, and the local consequence was an urethra so irritable as to furnish many of the symptoms of stricture. But it is needless to multiply instances of this nature, which must be familiar to every practitioner: let us rather look to the practical inference that may be drawn from them. Let us, for example, suppose one of these applying to a surgeon, detailing his symptoms and his sufferings with such admirable accuracy as at once to point to stricture, and thus creating a pre-conception which very little will serve to confirm: a catheter or bougie is introduced in order to satisfy all parties, and determine the nature of the case: it stops somewhere—probably at the bulb, and an attempt to push it further occasions great pain; the case is then made out, and established as being a stricture: or, again, let it be supposed that the instrument has passed with some difficulty into the bladder, but at one spot had given a hitch as if it had met and surmounted some impediment—this is taken as an indication of an incipient stricture, and the patient, with his own full approba-

tion, is placed under treatment accordingly. If these observations are true, then they prove that the diagnostic mistake may be made of supposing the existence of a stricture where there is no such thing, and that it may be apparently confirmed by a sensible examination of the canal: it may be important to inquire into the causes of such error, in order that it may be avoided.

If the urethra is strong and healthy, and of the natural size, no surgeon acquainted with the anatomy of the parts, and conversant with the management of instruments, ought to find any difficulty in passing a catheter or inflexible bougie of the proper shape along it into the bladder; when, therefore, such difficulty arises, it is usually attributed to some obstruction of the passage, and by no means to incapacity in the operator. But a little reflection will show that in a perfectly healthy urethra it is quite possible that an instrument may be arrested, or worse, may be driven forward in a wrong direction through a want of thought or of dexterity in its management. Every man in the least degree acquainted with the operation of catheterism must know that its chief, if not its only difficulty, lies in so managing the handle of the instrument as to guide its beak safely through the curve which the urethra makes in passing beneath the pubis, and that it is surmounted by the operator depressing his hand at the proper time, and when the other end of the catheter has reached its proper place. Thus it becomes quite clear that if this manœuvre is not perfectly carried out the attempted operation must prove a failure; for if it is performed too soon the beak of the instrument will be pushed against the anterior surface of the tri-

angular ligament of the perineum, which then offers an insuperable barrier to its farther progress, and if too late, it becomes entangled in the bulb, where it rests, and can proceed no farther unless sufficient force be used to tear the part when it passes up between the rectum and bladder. Doubtless, if the case to be relieved is merely one of retention of urine, arising from over-distension, paralysis, the debility of fever, or any other cause in which the existence of an obstruction is not suspected, the surgeon choosing a full-sized instrument, and using it with the freedom that springs from the absence of any contemplated difficulty, will be less likely to fall into error; but if he is told a number of symptoms that almost convince him, without an examination, of the existence of a stricture, and actually goes in search of it, and if, in doing so, he chooses a soft instrument which will bend before an obstacle, or a small one which, besides being liable to bend, may become entangled in one of the mucous lacunæ or arrested by some fold of the urethra, it certainly is probable he may meet with enough to confirm his suspicions, and lead him to pronounce at once on the presence of disease. It may, perhaps, be questioned that in modern times such a mistake could occur, and to this the only answer is that it has occurred—that I have seen it, that I know some patients to have been treated for stricture in whom I believe the affection never had existence, and being satisfied beyond doubt on this point, I have, in its illustration, chosen to speak of the healthy urethra, in which there is no lesion either of structure or function, because if such lesion exists, even to the smallest degree, it may occasion spasm, and spasm is to all intents and pur-

poses a stricture, as long as it is present. For this reason I always make my first examination of a suspected case with a full-sized silver instrument, because, being capable of nearly filling the urethra it is in no danger of being entangled in fold or follicle, and being unyielding there is no chance of its turning on the one side or the other, from the direction in which it is advisedly guided. Surgeons speak very confidently of the agreement that exists between the beak of the catheter and the hand that directs its progress, and this is certainly best preserved by the use of such an instrument; for one that meets with no impediment, or meeting one yields and bends before it, can afford but little practical information. Having ascertained the existence of some impediment, the next step will be to learn its exact situation, and, if possible, its nature: this may be accomplished by passing down a large soft plaster bougie, and marking on it the length to which it enters, which will point out the situation; it should be pressed gently but firmly against the obstruction, and if on being withdrawn its extremity is found indented, as if it had been pinched up, there can be little doubt that it has encountered an organic stricture.

CHAPTER VI.

Treatment of stricture—by dilatation and ulceration—Modes of procuring ulceration—Caustic bougies—Objections to their use—Dilatation—Vital dilatation of Dupuytren—Mechanical dilatation—Different kinds of bougies—Comparative merit of each kind—Constitutional treatment of stricture.

OBVIOUSLY the indication to be fulfilled in the treatment of stricture is the restoration of the canal to its healthy condition and natural dimensions, and in investigating the means which hold out a promise of accomplishing this in the safest and most certain manner, a question of seemingly great importance forces itself on our attention at the very commencement. We have endeavoured to investigate the pathology of this difficult subject as far as the present state of our information permitted, and found not only that there are various kinds of strictures, but that these again often exhibit different states and conditions: that one is comparatively soft and nearly membranous, while another is hard and cartilaginous; that one is limited to the narrowest compass, while another is very extensive: can it be that they are all managed on the same principle, and cured by the same practice? Speaking scientifically, it is very probable that each species ought to have its own appropriate treatment, and, practically,

perhaps some of the recoveries that occasionally follow the employment of measures apparently inadequate and inefficient may be thus explained, but then the precise nature of each case ought to be known, which it unfortunately is not, and cannot be until too late for all practical purposes. Thus the treatment is little more than empirical, and its principles of action reduced to two only—the restoration of the canal by dilating its contracted portion mechanically, or by causing it to be removed by ulceration. In speaking, however, of dilating a stricture, its pathological structure must be borne in mind: it is surrounded by lymph, and therefore, though never so limited, is more or less firm and resisting; it admits not of being expanded like a yielding substance, and consequently what is meant by dilatation is the promotion of the gradual absorption of this lymph. Now it is evident that if this dilatation is not carried on slowly, patiently, and with the greatest gentleness, the process of absorption may become too active, and not only the lymph but the mucous membrane itself be removed. In this manner the cure by dilatation may run into that by ulceration, and probably it does so more frequently than is generally supposed: nay more, instead of being considered hazardous, this latter is often directly and immediately sought after, as being the basis on which all the proposals for treating stricture otherwise than by simple dilatation ultimately depend. Thus, whether the obstruction is made to ulcerate by a too forcible or too rapidly increased pressure, or bored through by the successive application of caustics, or more rapidly gotten rid of by being punctured with a stilette, or torn up by a catheter or metallic bougie, the cure, if at all, must be eventually

wrought out by the process of ulceration. Hence the necessity of noticing the means by which this principle is effected, and the consequences that too frequently result from them.

It has been before insisted on, and cannot be too often repeated, that ulcers must heal, and in doing so must occasion cicatrices, hard, firm, and almost in-organised in their structure, presenting irregularities of surface wherever formed, and if in the urethra, laying the foundation of future strictures of the worst and most unmanageable forms. For this reason, if there were none other, the treatment by ulceration is objectionable, but in any form it is attended with such hazard, and may be followed by so much danger, that, at least theoretically, it has been almost abandoned. Notwithstanding the great and striking benefits said to be occasionally derived from the caustic bougie, it is seldom if ever used in this country. If it be an advantage to perforate a stricture in a very short space of time, it unquestionably may put forward that claim : it is said to soothe the irritability of the urethra, and allay the violence of spasm ; it is said to be effective in restraining hæmorrhage from the canal ; and there are some forms of the disease, hard, callous, and uneven, occupying and irregularly blocking up the urethra to a considerable extent, which it would seem an almost hopeless undertaking to attempt on any other plan. Nevertheless, it is seldom employed here. In a practice of several years I have never employed it once, and the few cases that have come under my observation in which it had been employed were not such as to create any vivid regret for the omission. The objections to its use appear so obvious and important that they may

fairly be set in array against the advantages already stated, some of which are perhaps apocryphal, and these objections are taken from the writings of its most earnest professed advocates. First, then, the constitutional distress and derangement occasioned by the application,—such as intense rigors, sometimes running into perfect paroxysms of fever, fainting fits, vomiting, and other symptoms of irritation. Let any one anxious for the speedy cure of stricture read the cases detailed by Sir E. Home, who, being the great advocate of the practice, must be supposed to have been most judicious in its application, and say could he wish that the records of his own patients had furnished a similar picture. Secondly, the frequent occurrence of hæmorrhage, always alarming to a patient even in the smallest quantity, but sometimes profuse, and therefore really formidable. It is really curious that the opposite properties of causing and controlling this symptom should be attributed to the same application, both of which are possible ; but while the advantage is conceded to it of calming a urethra bleeding from irritation, it is no reason why it might not occasion a worse form of the symptom by producing a lesion of surface ; and that it has done so may be proved by a reference to the same records. Thirdly, the probability of creating a false passage, an occurrence of a most untoward nature, but which need not be dwelt on here, as it must be noticed more at large hereafter. Again, practitioners are not agreed either as to the kind of caustic to be employed, or the mode of its application. Sir E. Home used the nitrate of silver, and it was the kind generally preferred, until Mr. Whately suggested the caustic potash, a change apparently

very objectionable, on account of the greater activity and ready solubility of the latter salt. His mode of application, also, is not easily intelligible, as it implies a pervious state of the stricture, in which case it would scarcely be necessary to resort to so severe a remedy. Mr. Macilwain also gave the preference to the stronger caustic, though without stating any decided superiority attributable to it; but his mode of dealing with it resembled that of Sir E. Home. The manner of applying the caustic to a stricture (as we are told), is this:—A bougie of exploration is first passed along the urethra until it meets and is stopped by the obstruction, and is then notched or marked by the finger-nail in order to determine the distance of the stricture from the external orifice: a bougie then, armed with the caustic, of a similar thickness and marked in the same manner, is to be passed rapidly but steadily down to the stricture, and held there until it excites some painful sensations, which will be in a few seconds, when it ought to be as quickly withdrawn. In an ordinary case of stricture three or four applications will be quite sufficient. All this appears theoretically plausible, and practically easy, and yet the success of the operation altogether depends on the exactitude and accuracy with which the stricture is reached; for if the bougie is arrested at the bulb, which is by no means improbable, or by any other fatality is applied elsewhere than to the obstruction itself, the urethra is opened there, and a false passage established. It cannot, then, be a matter of surprise that a practice so uncertain and so hazardous should not be extensively adopted.

The false passage formed by the unskilful manipulation of instruments is of frequent occurrence, and

therefore of particular interest: it may occur in any urethra, however healthy, through awkwardness or inattention, and in any part of the urethra, although for obvious reasons the bulb is the prevailing locality. If in passing through the urethra the catheter is not evenly guided, and kept steadily pressed upwards against its anterior or superior surface, the beak will very probably become entangled in the bulb, and then, if pushed forward while the handle is depressed, it will pass through and travel upwards between the rectum and bladder. At the moment the canal is lacerated the surgeon feels that some impediment has been passed, but having often experienced a similar sensation at the membranous portion, he gives but little attention to the circumstance, whilst the ease with which the instrument moves, and the freedom with which it can be turned when apparently introduced, lead him to conceive that he has not deviated from the proper track. Still no urine flows, but in its place perhaps a few drops of blood; the handle of the instrument cannot be depressed between the patient's thighs, as it would if the beak was in the bladder: if left to itself, the catheter will gradually be pushed out from the urethra; and when withdrawn, a clot of blood will be found entangled in its eyes: sometimes a tolerably acute pain, sometimes a mere sensation of itchiness, is experienced in the glans penis, but generally it is otherwise; and it is wonderful how little pain or suffering may be attendant on a wound so extensive, and apparently so severe. Farther, the consequences of this accident are various and uncertain; neither are there diagnostic symptoms to mark the probable result of any particular case. In some

instances the patient seems to suffer as little subsequently as he did at the moment the injury was inflicted, and the wound, if not actually kept open by reiterated misdirections of the instrument, heals rapidly and kindly : hence the importance of suspending for a time the treatment of any case in which its occurrence may have been suspected. But the majority of patients are not so fortunate ; and here it may be again repeated, that the consequences of false passage from violence exhibit such variety as to render classification impossible. In one case I saw a patient experience a very severe rigor, after which he sunk and died within a few hours, apparently from the shock inflicted on the nervous system, just as might happen after any extensive wound ; at least, such was the only explanation that a post-mortem examination could offer. In two, one of them a remarkably temperate man, the accident was followed by smart irritative fever, in some respects simulating delirium tremens. In several I have witnessed inflammatory fever, but of a very low type, and complicated with those chills and sweatings so constant in urinary affections, and which are generally found to be the forerunners of abscess. In a few instances, the false passage remains open and unhealed for a length of time, or during the remainder of life, in every respect resembling a sinuous ulcer ; but generally such sinus leads down to the cavity of an abscess. When the stricture is placed in the part of the urethra surrounded by the corpus spongiosum, and the wound is anterior to it, the abscess is usually small, more tractable, and consequently less dangerous, but it may be situated more deeply, and according to circumstances give rise to symptoms and occurrences both extraordinary and

unexpected. I had once an instance of a man who, in attempting to pass a catheter for himself, thrust it up through an old false passage, between the rectum and bladder, where it broke, leaving a portion about five inches long in the sinus, whence I extracted it by an incision through the intestine. Finally, a false passage may give opportunity for extensive infiltration of urine, with all its fearful consequences, as shall be noticed hereafter. It must be obvious now, that of the affections connected with or resulting from stricture, this ought to take a place amongst the most important ; nor is it the less so because made by the surgeon's hand. Whatever follows legitimately as a consequence of disease must be endured, and any evil following an attempt to relieve such disease may be pitied as an accident or a misfortune, if the principle directing such attempt be sound and true ; therefore if a false passage is made in an effort to relieve retention, however the occurrence might be deplored it should scarcely be visited with censure : but where the object to be gained is not of that pressing nature, and can be reached by patience and perseverance, it seems unpardonable that a risk of comfort and happiness, and even life itself, should be incurred. As far, then, as the use of the caustic or the stilette, or the catheter itself, in working out the principle of the cure of stricture by ulceration is ancillary to the formation of a false passage—as far as it can by possibility produce any of the unfortunate consequences now mentioned, it is in every respect objectionable, and should not obtain a place among the principles of our art.

But to return to the treatment of stricture by dilatation. When this word dilatation is used, it almost

instinctively conveys the idea of a passive yielding to some mechanical force—some expanding power, the operation of which has a tendency to increase the dimensions of the substance to which it is applied. This is pretty generally true on every occasion, but is more particularly so when the expression has reference to living structures, the inherent and independent actions of which are in almost all instances carried out by a force of a diametrically opposite nature, that of contraction. It is obviously true that numerous parts in a living body are occasionally distended even to a very inconvenient extent, but they are perfectly passive in the change,—it is wrought *on* them, and not *by* them, whilst the antagonising or compensating principle by which they are restored to their former state is always evidenced by contraction. With our minds preoccupied with these impressions, it cannot be without some misgivings that we read of the vital dilatation of a stricture, nor is it easy to comprehend how or in what manner an organic obstruction, surrounded and fortified by inspissated lymph, can yield and expand itself without the actual intervention of some distending force: yet it does, or perhaps more correctly, it seems so to do, and the phenomenon thence resulting has been termed, by Dupuytren, vital dilatation. It must have been observed more or less by every practising surgeon. A man applies, suffering from retention of urine, and a catheter is at once resorted to, but does not pass,—the instrument is changed, and farther efforts made, but still without success,—the attempt is still continued, but no progress made, when, after some minutes, he suddenly cries out that he thinks he can make his water, and on the instrument

being drawn forth a stream follows it. Here the constriction had been so close, that the retention was complete: nothing had entered it, for it had effectually resisted such introduction,—nothing could have been applied within it to enlarge or expand it in any direction; yet the fact is incontestible that it has yielded, and the stream previously pent up has passed through it. Of such occurrences as this there can be no doubt; they are matters of daily experience; but it remained for the great surgeon of the Hôtel Dieu to lay hold on and apply them to the treatment of stricture.

Nothing can be more distinct and decisive than the manner in which he reprobates the employment of force or violence in the treatment of these affections: it can only be justified on the plea of necessity, and to save the patient from the threatened perils of retention. And more particularly is this the case if the patient can be relieved not only without danger, but even without pain or inconvenience. Whenever, therefore, the case is not one of very pressing urgency, and will permit a delay of days, or even hours, this treatment by vital dilatation may be tried, and we are assured of its being so effective that relief has been obtained in the short space of two or three hours. It consists in passing down an instrument to the stricture, and retaining it there as long as it can be borne, slightly twisting it round, or pressing it onwards, from time to time, until at length it surmounts the obstruction. It is not necessary that the instrument should be of any particular shape or material—a silver catheter, a gum-elastic bougie, will answer the purpose indifferently, provided the surface is smooth, and the extremity

rounded and even. The sensible effect of this treatment is the secretion of a quantity of mucus or of pus, sometimes so abundant as to create alarm in the patient's mind, but which subsides and disappears without trouble: the vital effect is shewn in the dilatation of the urethra to such extent that the canal, which at first would not admit the smallest instrument, at the end of a few hours, or at most a few days, easily receives one of considerable size.

It is of little consequence whether the theory advanced by Dupuytren is physiologically correct, or whether the stricture is relaxed by the presence of the bougie, the secretion it occasions, or a vital action in itself, assisted if not produced by both; the main point to be determined, is, whether the practice arising out of it is really efficient. On this point it is not easy to speak very determinedly, for according to my experience no very great confidence is reposed in it, and when tried it is adopted without previous acquaintance with the case, practised without due regard to the conditions of success, and too often prematurely abandoned. We are, perhaps, a little too anxious not only to triumph over an obstacle, but to do so in a hurry, and at once,—we brook not a delay which may extend over several days, whilst Nature is achieving a work that ought to have come from our own hands,—and doubtful of the truth of a theory which we but imperfectly understand, we place little reliance on it: moreover, it is not always that a patient, familiar with the use of bougies, and accustomed to see them passed through the stricture, will be satisfied with a palliative practice so completely at variance with his notions of the disease. Yet it is sometimes extremely valuable.

I know not the particular character of the local disease, or of the constitution to which it is especially applicable. Dupuytren says it possesses great advantages with timid patients, with those endued with a great or morbid excitability, and in every case not sufficiently urgent to demand the most promptly effective measures; and it may be so, but I am not enabled to point out, without risk of error, the case in which it would certainly prove successful, or the reverse. It has succeeded with me accidentally, and without intention; it has failed where I bestowed every possible attention to ensure success; but nevertheless I am willing to admit that the experiment in both cases might have been but imperfectly conducted: the chief advantage I have found from it is as a preparative for the mechanical dilatation. Very frequently I have met with cases in which the smallest catgut bougie could find no admittance, that after a few days' trial of the vital dilatation allowed the passage of a moderately sized plaster instrument, and the cure was subsequently conducted in the usual way.

The principle of treating stricture by mechanical dilatation involves the application and maintenance of such pressure on its walls and sides as shall be sufficient to cause the gradual absorption of the lymph by which it is surrounded. This is effected by the introduction of an instrument suited by its size to press gently on the stricture, and as in proportion to the quantity of lymph removed the corresponding part of the canal must become free and open, an increase in the size of the instrument will be requisite in order still to keep up the necessary pressure. This affords a plain and simple

explanation of the practice: at first a bougie is passed through the stricture, which, having been allowed to remain there a given time, is succeeded by another and another, until the original size and diameter of the canal are supposed to be perfectly restored. Plain, however, as this principle may appear to be, its application to practice involves details of intricacy and importance so difficult to reduce to rule, that although all practitioners agree as to the object to be obtained, there is the greatest possible diversity in the means by which its accomplishment is sought: one recommending a particular kind or shape of instrument, another insisting on the peculiar value of some manœuvre in its manipulation, and a third differing from all others as to the length of time required to ensure a perfect recovery. The truth appears to be, that the surgeon who hopes for success must become acquainted with the qualities and uses of all these instruments, and familiarised with the methods of employing them, and then he must endeavour to adapt his practice to the exigencies of the particular case before him: it would be strange, where there is such a complexity of disease and such variety of symptom, all influenced more or less by age, habit, constitution, and temperament, if any one routine could be applicable to all; although it is easy to conceive how a successful practitioner, attached to some operation, and confident in his own dexterity, might attribute results to them for which he was probably indebted to much higher qualities.

Bougies, being composed of various materials,—catgut, plaster, elastic-gum, gutta percha, and several metals,—must differ in their relative properties of hard-

ness, softness, elasticity, and unyielding resistance : they differ in shape also, some being made conical and tapering towards the extremity, while others preserve an equal diameter throughout : and it is necessary to add that some, as the catgut, enlarge themselves and swell within the urethra, while others remain unaltered and of their original size. Such a variety of instruments suggests a corresponding variety in their application, and the selection and adaptation of each to its proper case depends entirely on the sagacity or the experience of the practitioner. Sometimes the difficulties to be encountered are constitutional, a patient tolerating one kind of bougie, while every other occasions severe pain and general nervous excitement—usually the soft is less distressing than the hard, although instances are occasionally met with to the contrary : sometimes they are purely local, as that the urethra may be hard, cartilaginous, and comparatively insensible, or soft and exquisitely tender, spongy, and prone to bleed, and also it may be unaltered in shape and direction, save as to the presence of a single stricture, or devious and irregular to a very considerable extent. It would, probably, be hopeless to look for the absorption of an old organic stricture under the gentle and yielding pressure of a soft bougie, while the presence of a firm one in an irritable urethra would be quite intolerable. There is no absolute superiority of one instrument over another, and it must be the peculiarity of the case, as learned by patient investigation, and sometimes by painful experience, and not any preconceived opinion of supposed excellence, that must determine the selection : perhaps, as a general rule, the first explorations should be made in the gentlest

manner, and consequently with the old fashioned plaster bougie: it will be less likely to provoke unpleasant symptoms in an excitable patient, and should a change to more decisive measures appear necessary or advisable, it will be easy to resort to them at any time. It is more prudent in a chronic disease to do too little at first, than by premature activity incur the risk of inflicting positive injury.

In commencing the treatment of any stricture on the principle of mechanical dilatation, it should be uniformly borne in mind that wherever a stream of urine can pass, there must be a canal of corresponding size for its transmission: it may be narrowed within the smallest possible limits; it may be tortuous, irregular, and intricate; but it must be there, and if an instrument can be passed into it, and left there for some time, so as to cause a certain degree of pressure, an ultimate cure may be reasonably expected. The first object, then, ought to be to discover the aperture of the stricture, and introduce the extremity of the bougie within it. This little orifice is usually placed in the centre of the obstruction, the very point of all others most difficult of attainment with a small and flexible instrument; but it may be situated in any part of it, high up, low down, or to either side, and as its position is not, and cannot be known, it follows that success in finding it, particularly at first, must be more or less the result of accident. This assertion must appear startling to those who have witnessed the superiority of some men in the management of instruments, and cannot conceive how an almost invariable success can be accidental; nevertheless, not one of these, not the most practised or the most dexterous,

can be certain in going to seek for a stricture that he must inevitably find it. This should teach the young practitioner a lesson of patience and perseverance, as eventually securing that dexterity he so much desires. Confident that a canal is open to never so limited an extent, there should exist a similar confidence in his breast that he will discover it, provided he seeks it diligently and calmly: failing with one instrument he should select another: disappointed in one manœuvre he may essay another, but always with gentleness and command of temper; for of the cases that come under our observation, a vast deal of the mischief inflicted on the urethra, and consequently a large proportion of the patient's future suffering, date from the first examination, and from an endeavour to force a passage when there was some difficulty in finding one. There is always something exceedingly flattering to our own self-love in the exhibition of superior knowledge and dexterity; it is a feeling so interwoven with our nature that it may scarcely be overcome: every surgeon, too, must be applauded for seeking to perform his painful task, whatever it may be, with the least possible loss of time; yet these and all similar considerations sink to the dust, and are as nothing, when placed in competition with the comfort and welfare of a fellow creature, both of which may be seriously compromised by an overweening anxiety for display. If any proof was required to show that the successful introduction of a bougie was more attributable to accident than to judgment, or to system, it might be found in the multitude of precepts given to ensure it, all of which cannot be necessary, although each is insisted on as being of paramount importance. Of

those who use curved bougies, almost every one selects a different degree of flexure, whilst others prefer a perfectly straight instrument, or one with the extremity but slightly turned up; some again draw forward the penis, almost forcibly, with one hand, while they push the instrument forward with the other, and there are others who leave the part undisturbed in its own position; almost all recommend some particular manœuvre for passing the stricture when the instrument has reached it. Thus it appears evident that each and all of these directions have been useful in the hands of the distinguished surgeons who have advocated their adoption, but it seems equally clear that however one man may have practised some particular operation until he has acquired the degree of confidence which success inspires, a different mode of proceeding has nevertheless been recommended by others, and, therefore, that the value is not to be attached to this or that manœuvre, but to the practical dexterity which is acquired by patient and prolonged experience. I am not, therefore, about to advance any opinion on the proper selection of a bougie, as to shape, size, and material, but leaving those points to the discretion of the surgeon, whose interest it will be to suit his instrument to the exigencies of the case, merely state a few particulars derived from my own practice. At an early period of the disease, and when the stricture is very close, I always resort to the vital dilatation for the first few days, if the urgency of the case and the impatience of the patient permit: it tranquillizes spasm by accustoming the urethra to the presence of instruments—it enables me to become acquainted with the nature of the case by repeated

examinations—and, more than all, it sometimes succeeds in giving facility to the future treatment. If circumstances do not allow of this, I endeavour to pass an instrument of a size corresponding to that of the stream of urine, and greatly prefer the old-fashioned plaster bougie, as being sufficiently firm to compress the stricture, and so soft as not to create irritation. I know of no one manœuvre which more than another facilitates the entrance of the bougie within the stricture, but it is most essential that the effort (in whatever manner made) should be conducted with gentleness and not with force; if the beak of the instrument is in the right direction, very little will cause it to go forward; if it is not, no effort can do more than make it bend upon itself, or drive it through the wall of the urethra. I have frequently commenced the treatment of stricture, particularly where there has been retention of urine, with the introduction of a small gum-elastic catheter: it may be, and very often is, difficult of introduction into the bladder, but when there, the fact is known by the escape of the urine, and there is the additional advantage that it may be left undisturbed for two or three days, after which another may be passed, or the treatment by the bougie taken up according to circumstances. Sometimes the catgut bougie appears preferable in these very narrow strictures, because it can be procured of the smallest size, and being introduced into the stricture, softens, and swells, and excites a corresponding degree of pressure: indeed, there can be no doubt of its utility, provided it can be passed into the stricture rapidly and at once, for otherwise it becomes damp with the moisture of the

part, softens, bends in every direction, and even doubles back upon itself. There is a practical objection to the catgut bougie which I have never heard mentioned, but which I know sometimes occasions alarm and inconvenience: it is, that the portion beyond the stricture may become so considerably softened and swollen as not to be easily withdrawn through the constricted part, giving rise to some apprehension lest it should be broken off and left within the urethra—an accident that would inevitably be followed by serious consequences. I have never seen this happen, nor do I think it possible, except from some imperfection in the instrument; but I have witnessed great anxiety on the part of the surgeon lest it should, and under such circumstances the removal of the bougie is always tedious, difficult, and embarrassing.

Sometimes, the bougie having entered the stricture, as proved by its being firmly grasped, and with difficulty withdrawn, is arrested there, and cannot be pushed farther. This may be occasioned by one of two causes; either by a sudden access of spasm, in which event it is advisable to allow the instrument to remain quietly in its position for eight or ten minutes, when, by a second attempt, it may probably be pushed forward without farther difficulty; or by the stricture itself being of an hour-glass shape, the centre of which is too narrow to allow the passage of the instrument selected, in which latter case no sacrifice of time, and no exertion of ingenuity, will guide it through. The bougie thus fixed within the stricture may be permitted to remain so until it becomes irksome, or withdrawn and a smaller one substituted, which will pass the obstruction: the former plan is preferable if the

patient can be prevailed on to remain in perfect quietude, for otherwise the instrument, which cannot be steadily retained in position, will soon become loose, slip out, and might as well not have been introduced at all. In the management of such cases the caustic has been recommended as highly efficacious, but I generally employ a bougie of a conical shape, sufficiently strong to retain its proper shape and flexure, and sufficiently fine at the extremity to allow of its entrance into the stricture: this being passed into the narrow portion of the canal, is held there with some degree of firm pressure from fifteen to twenty minutes, and after three or four days the part becomes so pervious as to admit of an instrument of moderate size. This practice, however, is hazardous even in an experienced hand, and notwithstanding their sanction by the high authority of Dupuytren, the indiscriminate use of bougies of this description cannot be recommended, or, indeed, their employment at all, unless in very particular cases, such as just now alluded to: if they are soft, they bend at the extremity, and are open to all the objections that have been advanced against the use of small instruments, and if hard they differ but little from stilettes, and may easily be pushed through the wall of the urethra. Some of the most unfortunate cases of laceration I have ever seen were mainly attributable to an incautious and unadvised use of these conical instruments; if too large they irritate the orifice of the urethra by over-distending it.

In conducting the cure of a case of stricture, then, the imposing difficulty is the first introduction of the bougie; to it is all our attention directed, and to its accomplishment does every precept tend. In parti-

ular cases symptoms may arise and accidents occur to interfere with and delay their progress ; but it may nevertheless be assumed that when a moderately-sized bougie can be passed without difficulty, there is every reason to expect a cure ; the surgeon soon becomes acquainted with the nature and situation of the obstruction, with the particular manœuvre by which it may be eluded or overcome, and with the sensation imparted as the end of the bougie is passed through it and glides into the bladder. Yet in the carrying out of this one indication of pressure, what diversity of practice may be observed ! Some, for instance, are satisfied with the daily introduction of an instrument and its almost immediate withdrawal ; others allow it to remain in the passage as long as its presence can be endured ; some, again, advance as rapidly as possible with the treatment, increasing the size of the bougie as speedily as may be ; others are more dilatory in their progress, and advance with greater circumspection. Thus, in the selection of the bougie, its shape, its composition, the mode of its introduction, and the time it should be permitted to remain, there is no fixed and abiding rule ; and it almost seems as if the adoption of any one line of practice in preference to another was a matter to be arbitrarily decided according to the fancy of the moment : but it is not so. In this, as in every other form of disease where a diversity of treatment obtains for the one affection, either there is a corresponding diversity of pathological conditions subdividing it into species, or it is altogether incurable ; but the latter of these conditions is confessedly not true, for there are few surgical diseases in which art is more effective in the palliation if not in the cure. The

difficulty, then, must lie in the various forms it assumes : but this only shows how necessary it is that a practitioner not only should be armed with a perfect acquaintance with his remedies, and the mode of applying them scientifically, but that he should also study the pathological nature of each affection, so far as it is known, in order to adopt the precisely suitable remedy.

But something more than dexterity in the manipulation of instruments is necessary in the management of stricture ; for although it is, or chiefly appears to be a mere mechanical obstruction removable by mechanical means, yet it is an obstruction seated in a living body, and in a part with which other parts and the entire system hold extensive and intimate sympathies. Therefore it is most essential that the general health of the patient should attract serious and constant attention ; for although it may not perhaps be truly asserted that constitutional derangements ever completely prevent the relief of stricture, unquestionably there are few diseases in which they more constantly interfere to interrupt the progress of the cure. Thus, the surgeon may have two classes of symptoms to contend with,—one in which an unhealthy condition of the entire system acts on and aggravates the local disease ; the other, in which the irritation of the part obviously induces a deranged state of the entire body : the former of these holds strict relation to the stricture itself, the latter more frequently to the means resorted to for its relief. If from exposure, intemperance, and more than all, anxiety of mind, the patient suffers from headache, loss of appetite, indigestion, and insomnia, the consequences will probably be evinced in irritability of the urethra and the frequent occurrence

of spasm, protracting the cure and rendering it more difficult ; whilst on the other hand there are numerous instances in which the constitution sympathises with the urethra so directly and entirely that the simple introduction of a bougie occasions faintness, sickness, and shivering of more or less intensity and duration ; thus producing the same effect of delay, although from a different cause. Very often these influences act and react on each other, a general derangement of the health inducing an irritable state of the urethra which had not previously existed, and *vice versâ* ; but in whatever manner originating, it is manifest that either condition must most materially impede the progress of the case ; nay, in many instances it becomes indispensable to discontinue the use of instruments for a time, until the sympathetic symptoms are subdued. For the cure of stricture, then, something more is necessary besides the introduction of bougies. The patient's diet must be regulated, moderation and temperance enjoined, his habits of indulgence or excitement restricted, a healthy condition of his bowels maintained, and, above all, he must be cheered and encouraged with promises of recovery, and assurances (when they can be made with truth) that no injurious consequences shall ensue : when, however, constitutional symptoms assume any definite form, or appear with unwonted severity, they must be met accordingly, and combatted by the medical treatment suited to the particular case. If the urethra is irritable it may be desirable to discover whether the diseased condition arises from inflammation, congestion, or other purely local cause, or follows sympathetically from some general derangement of the system. In the former

case, the application of leeches, or of the scarificator and cupping glass to the perineum, is often attended with the best effects, together with the use of the hip-bath, and warm emollient fomentation, and poultices, or sitting over the steam of hot water: in a word, the local treatment should be antiphlogistic, but always with considerable caution, bearing in mind that patients with stricture are seldom so robust as to endure the loss of blood with impunity; and that local anæmia, which would require a totally opposite treatment, might occasion irritation, and pain, and spasm, and all the symptoms usually recognised as indicative of inflammation. In the latter case it need scarcely be insisted on that the state of constitution, whatever it may be, in which the local irritation is supposed to originate, must be amended before a subsidence of such irritation can be expected or even hoped for, and then, under the judicious administration of opium, cicuta, and medicines of that class, a patient may be brought to endure the presence and effects of instruments that would have been previously quite intolerable. Of these, opium is most decidedly to be preferred as being most manageable, and capable of being administered in such variety of forms and combinations as to agree with most constitutions; its effects are rapid and powerful, but at the same time well understood, and I can now, within my own experience, scarcely call to mind a single case of stricture complicated with irregular and anomalous symptoms in which recourse was not had to this potent but valuable medicine, and that benefit was not derived from its use.

CHAPTER VII.

Abscess in perineo—great pathological variety of these abscesses —
circumscribed abscess—treatment—results in fistula—observations on
fistula in general.—Question of operating on fistula dependent on
the state of the urethra—different conditions of the urethra, and
the modes of operating resulting therefrom discussed.—Diffused
abscess of the urethra—treatment—results, &c. &c.

REFERRING back to what has been stated respecting the pathology of abscesses in the vicinity of the urethra, it will be recollected that they occur under very different circumstances, and present a marked variety of symptoms ; that some have their origin in a breach of the canal, and a consequent escape of the urine, while others occur without the presence of any such lesion,—that some are, to a certain extent, idiopathic, while others are obviously the results of direct violence offered to the part,—and that some are circumscribed and limited in extent, while others are extensively and destructively diffused. There is hence an insuperable difficulty in treating the subject in a general and comprehensive manner. The circumscribed abscess, whether purely sympathetic or connected with an actual lesion of the urethra which proceeds slowly, which is, or at least may be, unattended with constitutional distress, and finally bursts by one or more openings forming fistulæ in

perineo, is a very different affection from the extravasation of urine, which is always preceded by a breach in the canal, extends itself rapidly in every direction by which it is permitted to pass, is uniformly attended by the most dangerous and distressing constitutional symptoms, and ends in a wide-spread destruction of parts, if indeed the patient survives sufficiently long to allow such consummation. The history of such diseases cannot be comprised within a single description: they differ in their origin, their progress, results, and the treatment that may be necessary to relieve them, and therefore, if a right understanding and a correct practical acquaintance with them is to be obtained, it must be by considering them separately and in detail. And first, with respect to the circumscribed abscess.

Collections of this description are either acute or chronic, and these, again, may be subdivided according as they communicate with the urethra and owe their origin to the presence and irritation of extravasated urine, or do not so communicate, and arise from sympathy. The former of these must occasion a fistula; in the latter such consequence is by no means inevitable, unless the treatment of it by incision is so long delayed as to cause its bursting into the urethra. It is probable, in the case of any acute circumscribed abscess, that its origin is sympathetic, for if the aperture in the urethra is sufficiently large to allow of the escape of such a quantity of urine as will cause acute inflammation, the fluid will be driven with a force to cause it to become diffused. The circumstances, however, under which these collections occur, as well as the treatment suitable to each case, will be more easily understood by a reference to the following cases.

Acute abscess of the perineum not communicating with the urethra.—Robert Morgan, admitted into the Meath Hospital, December 22, 1847, with retention of urine arising from stricture. It was most difficult to arrive at the previous history of this case, except that fifteen years previously he had suffered from gonorrhœa, to which he referred as the origin of all his ailments: he had, however, led a most abandoned, dissipated life, and had frequent retentions, particularly after drinking hard. Three weeks before admission he had the epidemic fever, during the convalescence of which he experienced more difficulty in passing urine, and since that he remarked that the size of the stream had gradually but sensibly diminished. On examination, the external orifice of the urethra was found greatly narrowed by the cicatrix of a former chancre, and on passing a small catheter it was stopped at the membranous part of the urethra, and could not be passed onwards without unjustifiable violence. Very small gum-elastic instruments were then tried without success, and during the operation he had so severe a rigor as to cause the attempt to be desisted from for some time. At length, a very small catgut bougie was insinuated within the grasp of the stricture, and left there for about fifteen minutes, which, when gently withdrawn, was followed by a thin spiral stream of urine, and the patient was relieved. He was treated with opium, cicuta, and hot baths, from which he derived considerable benefit, until the 27th, when he complained of pain and tension in the perineum, where an abscess was discovered, and immediately opened, giving exit to a large quantity of pus, having a slightly urinous smell, and mixed with blood, but not (as far

as could be discovered) with urine. The treatment was continued with reference to the urethra, without much attention being paid to the wound in the perineum, further than to remark that not a drop of urine passed through it: it healed kindly and rapidly long before the dilatation of the stricture, and the patient, anxious to return to his former courses, left the hospital without permission.

Acute abscess in the perineum communicating with the urethra.—Thomas Carrick, æt. 32, admitted into the Meath Hospital, Dec. 30, 1847. In endeavouring to mount on a pump his foot slipped, and he fell with his perineum astride on the spout; he fainted at the time, and was carried to hospital immediately, and before he had attempted to make water. The integuments of the penis, scrotum, and perineum, exhibited marks of severe external violence, being greatly contused, but the closest examination of the perineum could not detect any symptom of effusion of urine within it. The catheter was passed, and some urine drawn off, followed by a smart hæmorrhage, and this latter symptom continued for some days, when it gradually subsided. Leeches were applied to the parts, with repeated fomentations, and as the catheter was passed four or five times a day, or oftener if he desired, strict orders were given him that he should make no natural attempt to empty his bladder. On the 3d January, a circumscribed fluctuation being perceptible in the perineum, an opening into it was made, which discharged pus, blood, and urine. The same line of treatment was persevered in, every possible effort being made to prevent the entrance of urine into the wound in the urethra, and

the catheter was introduced frequently every day; yet at first it held out slender hope of success, for in spite of the utmost care, a portion of urine passed by the perineum during the patient's efforts at stool; even the introduction of the instrument immediately previous to an evacuation failed of removing this troublesome symptom. Matters remained nearly unchanged until the 18th January, when he had a severe attack of fever, headache, quick pulse, furred tongue, nausea, dry hot skin, terminating towards evening in a most profuse perspiration, having a slightly urinous smell. On examining the external wound it was found nearly closed, but exhibited the small papilla of granulation, as if a permanent fistula was about being formed: it was accordingly dilated freely and some matter evacuated, a warm bath and a gentle laxative prescribed, and on the following day the febrile symptoms had disappeared. The wound being now extensively open, catheterism was rigidly persevered with, and the instrument passed repeatedly every day. On the 25th no urine escaped through the wound, but the catheter was still used until the 10th February, when the patient was allowed to pass urine without its intervention. The incision in the perineum was then allowed to heal, and the patient left the hospital on the 28th, perfectly recovered.

But the abscess in perineo which accompanies and appears to be always a consequence of stricture, and which constantly terminates in fistula, is rather of the chronic form: it occurs in old cases, that is, where the stricture has been long established, and is usually insidious in its character, particularly during the earlier periods of its progress. It may not be denied that

very frequently it seems to present symptoms of a very opposite nature—that the first notice taken of it is after a smart rigor—that the tumour, on examination, is then appreciable, the pain rather severe, and the subsequent progress sufficiently rapid to merit the appellation of acute ; but on inquiry, even in these cases, it will be found that long before the development of the disease in these its fiercer features, symptoms existed which, if not overlooked or attributed to some other cause, might have given warning of the approaching evil. Sometimes the patient experiences sensations of heat and pain deep in the perineum, which are aggravated by passing water, and are very acute for a few moments after the bladder has been emptied : sometimes he feels as if there was a swelling in the perineum long before any such can be detected by personal examination, and suffers, though in a minor degree, all the inconvenience that would result from the actual presence of such tumour ; his motions are awkward and painful—exercise on horseback, if he was ever addicted to it, entirely out of the question, and even sitting on a chair may be uncomfortable : sometimes he is afflicted with spasmodic pain of the sphincter ani muscle, shooting forward through the perineum,—a most distressing affection, which constantly produces an impression on his mind that there is a tumour deeply seated there or in the neighbourhood of the neck of the bladder ; and I think that on the approach of abscess all the symptoms of stricture dependant on the irritable condition of the urethra and bladder become more striking and severe,—the calls to urinate at night are more frequent, and the quantity discharged at a time less—the occurrence of spasm more frequent

also ; and if, as happens to most patients who have long suffered from stricture, he is subject to occasional attacks of retention, these appear at shorter intervals, and on more trifling provocation. After these symptoms, or a portion of them, have been observed for some time, a small firm tumour may be felt deep in the perineum, tender to the touch, and exquisitely sensible to pressure, although there may be no redness of the surface or other external indication of inflammation. The progress of this tumour to the surface is variable ; occasionally rapid, when it bursts somewhere near to the place where it was first perceived—occasionally slow, when it travels by a winding and tortuous course, and opens by one or more apertures indifferently at any part of the perineum or its vicinity. A fistula in perineo is then found.

The treatment of these abscesses is easily determined. They do not admit of resolution, and therefore time need not be expended or the patient annoyed by attempts in that direction. The application of leeches to the perineum, for instance, may alleviate pain, soothe irritation, or diminish a tendency to spasm, and so far are occasionally useful, but if prescribed for the purpose of dispersing the tumour are absolutely worse than useless. Warm topical applications are generally beneficial in so far as they relax the tension of the parts, and thereby mitigate the local suffering, but they cannot be considered as very serviceable in hastening the progress of the case. As soon as it is distinctly established that there is an abscess it should be cut into at once ; not alone for the purpose of alleviating pain, or relieving retention if it happens to be present, or arresting the progress of the inflammation if it seems dis-

posed to spread, although the attainment of any of these objects would be sufficient to justify the operation, but to prevent the possibility of its being burst internally, and the urine being thus diffused. In the very chronic abscess perhaps this accident is not so likely to happen, because it is usually encompassed by a large mass of inspissated lymph, and in such cases also the probability is that the communication with the urethra is but small; therefore the stream of urine cannot be driven with sufficient force into the cyst to endanger its rupture; whereas, in the more acute case, if the abscess is so circumstanced that the urine can be made to enter it under the influence of the full contractile strength of the bladder, it will probably give way, and permit an extensive extravasation of the fluid. It is quite possible that the surgeon may occasionally experience some disappointment in not seeing purulent matter follow his incision, if he has not cut to a sufficient depth to reach the tumour, and fears to do so; yet on the whole, and even in a doubtful case, the operation is advisable; for if there is an abscess it will burst into the incision in a day or two, and thus diminish the extent and duration of the patient's suffering, and if there is not, the patient undergoes a little more pain for the certain avoidance of a most serious evil. Let the advantage of cutting into such an abscess, or even of cutting for it where it happens not to be opened on the moment, be fairly weighed against the inconvenience of allowing it to wend its tortuous way until finally it bursts spontaneously—let it be considered that if the collection does not originate in a communication with the urethra, the incision may prevent such communication from being formed—that if the con-

trary is the case, it will relieve the difficulty of passing the water, and afford time for removing the obstruction, whatever it may be, and carrying out any ulterior measures that should be deemed necessary ; that in all it tends to prevent the extension of disease and the extravasation of urine, shortening the duration and diminishing the danger of a painful and hazardous disorder ; and few will place all these in competition with the inconvenience experienced by the patient on the infliction of such a wound, or the annoyance by the surgeon on discovering that the operation appeared to be uncalled for.

But it is necessary now to examine the subject under another aspect, and suppose that a fistula has been formed : this may happen either from the case just alluded to being neglected, or from the abscess being permitted to burst spontaneously ; in both of which cases the circumstances after a little time are nearly if not precisely alike. A fistula is generally described as being an ulcerated communication between a mucous canal internally and the exterior surface of the body, lined by a thin pellicular membrane which secretes a watery kind of pus, and discharging from its external aperture not only that pus but more or less of the substances which the canal from which it originates was destined to convey. Some of the symptoms, therefore, of such an affection, as the quality of the secretion and its permanency, will be alike in every case ; some, as the quantity of the discharge, must depend on the nature and functions of the canal with which it communicates ; but all must vary more or less according to the exciting cause that produced or still maintains it, independent of age, habit, constitu-

tion, and other similar circumstances that influence every disease whatever. This being assumed as the correct pathology of the case, it seems to follow that however the disease may have been originally produced, it is maintained and perpetuated by the unceasing passage of some extraneous material from the mucous canal into and through it, and that if such substance could be prevented from entering it, and the membrane by which it is lined could be converted into a granulating surface, it ought to heal up and close. This seems to be the view usually taken of the case, and the principle usually acted on for its cure; but still there is something more to be taken into account, which is practically important in the present instance. *Fistulæ* are divided into the complete and incomplete; that is, it sometimes happens that although a sore in the neighbourhood of a mucous canal remains open and discharging, and apparently in every respect actually fistulous for a length of time, it nevertheless is not complete, inasmuch as it does not communicate with it: there is the same kind of discharge, except that it gives not exit to the contents of the canal, the same kind of pellicular membrane, the same surrounding hardness, the same indisposition to heal, and for these reasons, an indication for a similar line of treatment. It is true that *fistulæ* remain not long in this condition, for they have everywhere a strong tendency to burst into the adjacent canal; but there can be no doubt that, for some time at least, many of them are thus circumstanced; and it may be useful to inquire into the subject a little farther, as it seems to bear a greater or less extent on the treatment of every form of the disease. First, then, let it be observed that the pas-

sage of any extraneous material *over* the surface of a wound or sore does not necessarily prevent its healing : when a fistula in ano is operated on, the surface of the wound is not protected from the contact of fæcal matter, and it heals nevertheless ; after an operation of lithotomy the urine courses freely over the wound, but that interferes not with recovery ; and it has been just seen that an ulcer may present all the symptoms of fistula without the introduction or presence of a particle of such foreign material at all. Secondly, on examining a fistula, even in the most cursory manner, the external orifice is usually found very small ; sometimes, if situated on a rough or wrinkled surface, not easily discoverable, and when discovered it is often difficult to introduce a probe within it ; but when the instrument has passed, not only can it be pushed forward freely if the sore is not tortuous, but it may be moved laterally to and fro to a considerable extent, evidently proving that the internal part of the canal is wider than its aperture ; and this obtains throughout its entire extent until the internal opening is reached, where exactly the same kind of contraction exists, and the same difficulty in passing the instrument is experienced. A complete fistula, then, according to this view, may be regarded as a long abscess with two small apertures, neither of which is sufficiently large to give free exit to the matter that is constantly in process of formation, some of which must be as constantly seeking to escape from it, and thus keeping the orifices open and unhealed ; an incomplete is exactly a similar abscess, only that it has but one aperture instead of two. If this pathological observation is correct, and, making allowances for some varieties which

will be noticed hereafter, it will generally be found so, it follows that the impossibility of the contents of the abscess finding a channel for free escape is at least one of the causes of its persistency (in the case of the incomplete fistula the only one); and the practical inference is too obvious to require explanation. A fistula in perineo or in ano is not so much prevented from healing by the contents of the urethra or of the rectum getting admission into it, as by their remaining there when they have been introduced, and a common abscess in any situation may present phenomena resembling the blind or imperfect fistula: under such circumstances every surgeon is aware of the advantages that immediately follow a free and extensive incision.

When a patient has one or more small ulcerated apertures in the perineum discharging a thin watery fluid at all times, which fluid, although flowing imperceptibly, is still sufficient in quantity to stain his linen very extensively in the course of twenty-four hours, and impart to it a foetid urinous odour, and when this discharge is sensibly increased during the passage of the urine, and for some short time afterwards, there is reason to believe in the existence of a complete urinary fistula: this belief, however, must be confirmed by personal examination. The aperture, though not prominent, is surrounded by a considerable degree of hardness (termed by the ancients "callosity,") which always extends deeply into the perineum and marks the track of the fistula. On introducing a probe into the little ulcer, and a metallic instrument into the urethra, if they can be brought to meet and touch, it determines the question at once; but this kind of evi-

dence can rarely be obtained ; for the very cause that has interrupted the free passage of the urine will prevent the introduction of a catheter or sound, and the winding course of the fistula can rarely permit a satisfactory use of the probe : even if the fistula is straight, its aperture into the urethra being constricted, the passage of the probe through it will not be easily effected, and consequently the instruments will hardly be brought into actual contact. In most instances the history of the case and the character of the discharge must decide on the existence of a fistula : the length of time it has endured will be some criterion as to its being complete or not, for, as has been stated, these collections have all a tendency to burst into the adjacent mucous canal, and therefore, if the disease has been allowed to continue unrelieved, even for a few weeks, it will probably be perfect and complete, although it might not have been so originally.

In considering the treatment of a disease presenting such a variety of character and symptom, perhaps the first point to be determined is, whether there are any cases in which surgical interference might not be very judicious. It is well understood that fistulæ occur in other situations, in connexion with phthisis pulmonalis and other conditions of bad and broken health, in which such interference is not only unprofitable but injurious, and the question is, whether the disease in the perineum may not sometimes have a similar origin. There can be no doubt that the answer should be in the affirmative, and that such cases occasionally are met with ; but according to my experience their number or frequency make no approximation to those in the neighbourhood of the anus. Still the

possibility of such complication is most important, and should never be lost sight of, for an operation undertaken in such circumstances never does, and never can succeed, and consequently brings neither advantage to the patient or reputation to the surgeon: but the question of operating on other fistulæ in similar cases has been so extensively discussed, and its impropriety made so glaringly manifest, that it is now never thought of, except with a view to its avoidance. The same rule of practice is applicable here, supported exactly by the same train of reasoning and facts. But another question may arise, whether, quite independent of all constitutional complication, cases are not occasionally met with in which operation cannot be justified, inasmuch as the relief to be expected may not prove so effectual or so permanent as to counterbalance the suffering by which it is purchased. Doubtless the pain, or rather the tenderness of the part, which is always more or less constant, the inability to endure certain motions, or to take exercise generally, the wet and filth, and nastiness, with the abominable urinous smell that accompanies them,—the occasional attacks of inflammation, or other causes of obstruction of the fistula, with the retention of urine that may be consequent on them, and above all, the constitutional derangements that uniformly wait upon such symptoms,—appear to form sufficient justification for any operation, however hazardous, and sufficient reason for the patient to desire it most earnestly; but, on the other hand, it may be advanced that the fistula has conferred a comparative degree of ease and safety, by removing the pain and peril of frequent retentions, that a good deal of the annoyance may at least be

mitigated by attention to personal cleanliness, and that the operation, although not necessarily attended with great danger, is quite severe enough to render a patient discontented if it should not prove perfectly successful. The responsibility of advising or declining an operation falls entirely on the practitioner, who is alone supposed capable of estimating its probable results, and he will best discharge the duty by referring entirely to the state of the urethra. Considered, then, in this point of view, the subjects may be divided into three heads :—

1. In which the urethra is in such a state as to hold out a reasonable expectation of its being perfectly restored to its usual dimensions by the ordinary use of the bougie.

2. Where the urethra, though still permeable to a moderately-sized stream of urine, is nevertheless so altered in its organization as to hold out but little expectation that it will ever admit a catheter of sufficient size to occupy its entire calibre.

3. Where the urethra is so circumstanced that no instrument whatever can be passed through it, and consequently no hope exists that the obstruction (whatever it is) can ultimately be removed by the most diligent and dexterous use of the bougie.

1. In this case, provided a correct pathological diagnosis is made, a cure ought to be easily effected, and with comparatively little suffering. There is a stricture preventing the escape of the urine by the natural canal, and forcing it into the fistula, from which, by reason of the constriction of its external opening, it cannot flow out with freedom. The chief indication to

be fulfilled, then, is the removal of the stricture to such perfect extent as will allow of the introduction of a catheter into the bladder of sufficient size to withdraw the water without permitting any portion of it to escape by the side of the instrument. Now it has been stated that if the smallest bougie can be made to pass the stricture, there is hope for a cure eventually: it may be distant, and the progress to its fulfilment tedious,—worse again, it may be uncertain; for although sufficient to relieve the stricture, it may be inadequate to the cure of the fistula,—still there is a hope, and an effort should be made for its realization before recourse is had to a cutting instrument. In the first instance, therefore, an attempt should be made to treat the stricture in the ordinary manner, without any reference whatever to the fistula, and endeavour to dilate it to the fullest extent of which it is susceptible, and when that is accomplished it will be time enough to attend to the remainder of the case, if the dilatation of the stricture has not already cured the fistula, for in a great majority of cases it will be found to have done so. The next part of the indication is to provide that nothing shall remain within it, and for this purpose its external orifice should be now fully and freely dilated. Some choose to extend this incision deeply, so as to divide the whole course of the fistula, under the idea that it will not otherwise heal; but such practice is cruel, because it is unnecessary, for all that is wanted is the prevention of any lodgment within the sinus, and the free incision of the external orifice will sufficiently answer that purpose. The urine should then be carefully drawn off from the bladder either by successive introductions of the catheter when-

ever necessary, or by leaving the instrument in its place after introduction for two or three days at a time. For this part of the cure it is essential that the catheter shall completely fill the urethra, so as to prevent the urine from coursing along its sides, and insinuating itself into the internal orifice of the fistula,—a condition not always easy of fulfilment, inasmuch as the part of the urethra in which the fistula is situated is commonly more dilated than any other, and cannot be entirely occupied by the instrument. Fortunately this latter is not absolutely indispensable, and its omission or failure, however it may delay, does not prevent the cure; but if it can be reached, and the fistula so managed that not a drop of urine shall enter its internal orifice, and not a drop of matter find a resting-place within the sinus or abscess, the removal of the fistula may be calculated on with equal certainty and rapidity, without the use of knife or lancet, farther than may be necessary for keeping the external aperture permanently open.

2. If, however, the case is not so favourably circumstanced,—if, as is more likely, the urethra is not so manageable, for fistulæ do not often occur unless where there is dilatation in one part, and incompressible hardness and contraction in another,—this mild and simple treatment will not answer, and some farther operative measures may be necessary. As in the former case, the first care must be directed to the urethra, which should be brought into as healthy and as pervious a condition as its altered structure will admit of. The patient being thus far prepared, a catheter is passed into the bladder, and held there by an assistant; a probe is then introduced through the

fistula until it is distinctly felt to have passed the internal orifice, when the latter being taken as a guide the entire is laid open freely to the bottom, the incision, if possible, being made to include the stricture. This places the parts nearly in the condition of a recent wound, over which, notwithstanding all the care that can be bestowed, some of the urine will trickle ; yet ought it to heal kindly, if proper diligence be used in keeping it as clean as possible, and causing it to granulate from the bottom. How is it, then, that the result is so very often quite contrary to our expectations,—that the wound does not heal favourably,—that the patient gains nothing by the pain and inconvenience, and confinement, he has undergone, and that the fistula is there again? This happens too frequently to allow of its being always attributable to neglect or inattention, and in many instances may be explained by collateral circumstances, for patients who have suffered long from stricture and fistula have not the constitutions from which healthy actions can be expected, neither is it in an altered, gristly, cartilaginous perineum or urethra that one would be disposed to look for adhesive inflammation : in these cases the surgeon may possibly be exposed to censure for not having ascertained the badness of his patient's constitution before exposing him to the risk of operation, but in more favourable cases the failure is justly attributable to himself, for not having kept the external part of his incision largely and constantly open. In every wound the skin has a tendency to adhesion long before the deeper structures, and if it is permitted to do so in a wound like this, the urine must lodge within, and the object of the operation be defeated. Thus it

is that in numerous instances the deeper parts of the incision are actually prevented from healing, and surgeons cover the effects of their own inattention by attributing the failure to the irritating properties of the urine. No doubt it would be well if this fluid could be prevented from touching the sore at all, but when it cannot, there is no use in attaching mischievous properties to it that it does not possess. The urine is not so injurious as is generally supposed, provided it is suffered to escape: it is its constant presence, and not its casual contact, that disturbs the process of healing, and prevents the cure.

3. Where the urethra is extensively and organically diseased, and yet no instrument can be introduced to ascertain the extent or nature of the derangement,—where the disease has been of such long standing that the urethra is probably become hard and cartilaginous, incapable of yielding to any dilating force, even if it were possible to apply it,—when the perineum is altered from its natural structure and appearance, and is studded over with fistulous sores, through which all or nearly all the urine flows,—and where the patient, worn with constant suffering, and wasted with urinary hectic, must obtain relief or perish, a new case arises of great and imposing difficulty. This case can only be treated by operation—by some operation so devised and so conducted as to remove the obstruction at the same time, and by the same mode of proceeding, that the fistula is cured; and this appears to be so difficult of contrivance, so hazardous in its performance, and withal so uncertain in its results, that it should not be undertaken without the utmost care and deliberation. Here, as in every other case, the first attention must

be given to the urethra, for unless some passage can be made through it for the urine, the fistula must remain for ever open, and it is even well that it should do so : every effort, therefore, should be made to render it pervious to an instrument to as great a depth as possible, and when that has been attained an operation may be performed as follows :—The patient being placed in the position as for lithotomy, and held so by assistants (for further restraint is scarcely necessary), and the light so managed as to be fully thrown on the perineum, a catheter should be introduced as far as the urethra is permeable, and held firmly in its position in the left hand of the operator : an incision is then made along the raphe, extending from the root of the scrotum to the anterior margin of the anus ; for it is essential that the wound should be sufficiently large to allow of its bottom being clearly seen. This incision must be carried deeper until the point of the catheter can be felt ; but, if possible, it should not be yet exposed. The fistulous opening in the urethra must then be sought for, and may be found either by the introduction of a probe through the fistula ab externo (which is the more difficult and uncertain method), or by causing the patient to make water, when the stream will be seen issuing forth from some spot in the depth of the wound ; and the opportunity should be immediately seized of passing a probe through the aperture and along the urethra into the bladder. The bleeding must then be controlled, or the operator must wait until it is so, and the parts being sufficiently clean to allow of the bottom of the wound being seen, the portion of the canal between the catheter and probe should be carefully but fully divided : this sets free

the beak of the catheter, which, then conducted by the probe, may be passed into the bladder, and ought to be secured there. The operation is finished by enlarging the external fistulous aperture in order to afford free escape to any matter that may subsequently be secreted within its sinus. The catheter, after its first introduction, should be allowed to remain until the third day, when it must be withdrawn, cleaned, and replaced, and so on from time to time, the success of the operation depending on the possibility of the wound being healed over it: it may happen that you cannot get any instrument into the bladder at this immediate time; if so, insert a sponge tent in the wound, and in a couple of days after withdraw it, and you will be able to accomplish your purpose: the parts will then be free from blood, and, if the patient makes the attempt to pass water, you will see it coming from the urethra in the bottom of the wound, upon which you immediately introduce your instrument into the opening, and so on into the bladder. This is not the method of operating usually recommended. We are told that, the probe being taken as a guide, the whole extent of the fistula itself ought to be laid open down to the bottom, and then with a bistoury, the cutting edge of which shall be turned forwards, that the stricture may be divided, and the beak of the catheter released: but, with respect to this proposal, it may be observed, first, that although the division of the sinuous fistula through its whole extent appears very desirable, and has the sanction of time in its favour, it is by no means absolutely necessary, for if the operation is so arranged that the urine shall not enter it from the urathra, or, that having entered, there shall

be means provided for its escape by an ample enlargement of the external aperture, the abscess will heal whether its walls are divided or not : secondly, that if the course of the sinus is not perfectly straight, which it very rarely is, an incision carried through it can never expose the strictured part of the urethra to the touch, much less to the sight : and, lastly, the division of the stricture in the manner proposed, however applicable to a mere membranous obstruction, is not at all suited to one of even half or quarter of an inch in extent. Such an operation (and I have witnessed many of them) has always appeared to me to be work performed in the dark, and its success, when it has succeeded, altogether a matter of good fortune : it seems to be based on the notion that the fistula cannot heal unless freely divided through its entire length, just as the ancients believed the excision of the surrounding callus indispensable to the same result ; but both these opinions are equally erroneous, for, if a fistula can by any means be so placed that nothing can remain within it, there is no reason why it should not contract and heal like any other abscess, except perhaps a little more slowly. This is the principle on which the treatment of fistula in perineo rests, and if so, it follows that no operation will be entirely successful which does not so remove the stricture as to permit the passage of a tolerably large-sized catheter into the bladder, for otherwise the urine cannot be prevented from escaping into the fistula, and which does not provide a full and sufficient passage by which pus or matter, or other irritating substance, may pass out of it. The latter indication is easily fulfilled, but the former is very difficult, and can only be accom-

plished by some proceeding similar to that I have endeavoured to describe: hence the bungling and awkward attempts to pass the catheter onwards during the operation, which so very frequently end in disappointment, and hence also the renewal or recurrence of the fistula when the wound has been sufficiently healed to form it.

If the views I have endeavoured to establish are correct, it must be evident that the treatment of fistula in perineo ought to be altogether regulated by the pathological condition of the urethra, and its capability of being so far restored to health as to perform its natural function; the fistula itself being of secondary importance, and only to be regarded in the light of an abscess, which will contract and heal if proper precautions are taken to prevent the lodgment of any irritating or deleterious substance within it. The conditions of the urethra are so various in different patients that I have sought to reduce them within three classes, an arrangement which, without embracing every possible case, will be quite enough to elucidate the principles sought to be established: the first being that in which the urethra can be restored to a perfectly healthy condition, and where the fistula admits of being treated as an abscess wholly unconnected with the canal: the second, where the urethra cannot be so completely restored, in which I endeavour to place the fistula as nearly as possible in the condition of a recent wound; and, being unable to prevent the occasional contact of the urine, I mitigate its deleterious effects as far as possible by providing for its free escape: the third, in which I have absolutely to construct a portion of a new urethra in lieu of that one which has been so

altered and spoiled by disease as to render its restoration hopelessly impracticable, and in which the cure of the fistula so entirely depends on the success of this first element of the operation, that, in the event of a failure, its return may be calculated on, perhaps in an aggravated form. I know not whether this simple arrangement of the disease will prove satisfactory to those who, regarding all species of fistula as exactly alike, have been accustomed to apply the same remedy to each, laying them open throughout their entire extent, and principally, if not solely, directing their attention to the perineum, as if their object was to remove the disease there without heeding the condition of the urethra from which it sprung; but it was the observation of such indiscriminate practice, and the scanty success that attended it, that led me to reflection on the cause of so many failures, and thence to adopt the plans of treatment I have ventured to suggest. On one point at least I have perfectly satisfied myself, that all operations for the cure of fistula are perfectly futile unless due attention has been previously paid to the condition of the urethra: it may be necessary in some particular case complicated with fistula to cut into the canal behind the stricture for the purpose of relieving retention of urine, or even to attempt to puncture the bladder by the perineum under similar circumstances, and in both cases the fistula may be extensively divided, but in neither will it be cured, inasmuch as the essential point in driving the urine from its unnatural and abnormal course is to furnish it with its own natural canal. The difference, then, between the principle I advocate, and that I have more generally seen followed, is, that I operate on the

urethra in the first instance, in order that the impression made on it may guide and direct my proceedings with respect to the fistula; whereas others divide the latter in the first instance, and take the chance afterwards for dealing with the urethra concurrently with the healing of the wound. As to the pathology of the fistula itself, I am borne out by experience in the opinion that the difficulty of healing is occasioned by the lodgment of extraneous matters (inclusive of its own secretion) within it, and that the deep and extensive incisions usually practised are wholly unnecessary; all that is required being that the external opening shall be large, in a depending position, and in every possible respect so arranged as to facilitate its free evacuation. With these principles in view, the local management of the disease becomes easy of comprehension, and can be rationally applied to the peculiarities of each individual case: as to the constitutional treatment, it is usually embarrassing and unsatisfactory; the patients men of irregular habits, and often ungovernable tempers,—ill disposed to brook control, and unwilling to submit to restraints which are at least as essential to their recovery as any manual operation can be. With persons of this class the young practitioner must not be too sanguine of success, for even in more favourable circumstances, where patients are in every respect amenable, with all the skill he can display, and all the care he can bestow, he must expect disappointment occasionally,—too often from influences that could not have been foreseen, or causes which, however obvious, admitted not of control.

The diffused abscess of the perineum is of infinitely

greater importance than that which has been under consideration ; an importance derived from its extent, its tendency to spread, the destruction it causes in every direction it can reach, and the imminent peril attendant on it, particularly if neglected : but it is especially interesting to the surgeon, in that there are few diseases in which the resources of his art are more striking and satisfactory, provided they are sought in time. The pathology of this affection has been already fully dwelt on, its exciting causes examined, and their effects explained, rendering it unnecessary here to do more than recapitulate some of the leading and prominent features that, imparting a decisive character to its symptoms and progress, must materially affect its treatment. This abscess is, as has been stated, caused by an escape of the urine from the urethra into the adjacent cellular tissue, and as it must originate in some lesion of that canal, either accidental or diseased, so will its course and progress be determined by the situation of that lesion. For obvious reasons the bulb and the commencement of the membranous portion are the parts of the urethra most exposed to injury and most prone to ulceration, and therefore in the vast majority of instances the extravasation first occurs in the perineum ; but it may take place at other situations in the canal, and occasion symptoms which, though strictly not referable to the perineum, are so entirely similar that all these lesions may be justly included within the same category. Thus I have seen the aperture through which the urine passed situated on the superior or dorsal aspect of the urethra ; and, again, more anteriorly, near the pubic flexure of the penis, giving rise to effusions in no wise

differing from the perineum save only in situation. The symptoms of these various forms of disease will be most easily understood by considering them always in connexion with the anatomical relations of the different structures in the immediate vicinity of the rupture.

An extravasation of urine takes place when the patient is endeavouring to void that fluid : he feels at the time that the desire is being gratified, and that the bladder is becoming empty ; he has all the sensation attendant on making water, but is surprised to find that not a drop escapes externally : sometimes he may be aware of a hot, disagreeable, uneasy feel in the perineum, but this is by no means frequently complained of, and perhaps, in most instances, is so trifling as not to attract attention. For the time, the patient is relieved—perhaps, if he is a stupid fellow (as I have seen in hospital) he may wonder what has become of the urine, and if he had previously endured the martyrdom of urinary disease, may express himself pleased at the wonderful relief he has so suddenly experienced : but the delusion lasts not long, and in an hour or two symptoms commence which forcibly arrest attention. He feels pain, tension, and throbbing in the perineum, with an insupportable sensation of burning heat ; the scrotum assumes a dark livid redness and begins to swell, and at the same time there is shivering, heat of skin, dry tongue, thirst, accelerated pulse, and all the symptoms of incipient inflammatory fever of the severest character. If the patient has attempted to pass his urine a second time, as sometimes happens, the symptoms will be greatly aggravated, and their progress rendered more rapid, for as the

mischief is wrought by the diffusion of the urine throughout the cellular tissue, so must its extent and intensity depend on the quantity thus diffused. A patient in even the most destitute condition is seldom permitted to endure such misery without assistance for more than eight or ten hours; but if he is, and the disease allowed to progress without interruption, matters get worse and worse, and soon assume an appearance of danger not to be mistaken. The perineum, if now examined, appears hard, thickened, and doughy, but still slightly cedematous; the scrotum is swollen to an enormous size, of a dusky red colour interspersed with patches of livid black; the penis is immensely enlarged, twisted and contorted in shape, of a deep dark-red colour at its root, but pale, watery, and glassy towards the extremity of the prepuce. At each side of the inferior part of the abdomen, just at the situation of the chords, there is a blush of dark cedematous inflammation, showing that the urine is passing up in those directions; the whole of the surface around is stained and mottled of a dirty yellow, or amber hue; and withal there is constitutional fever, but now merging rapidly into the low asthenic type. Let it be supposed, although it is now difficult to realize the supposition, that the case is still neglected, the black spots on the scrotum and some on the penis separate, and give exit to a quantity of pus mixed with urine of the most foul and foetid description,—but without relief: wherever the urine has reached, the cellular tissue falls into a state of putridity, and masses of it hang like wetted rags, or tow, from the apertures caused by the separation of the sloughs. I have seen the whole scrotum carried away, and the

testes lie naked and unsupported on the bed; I have also seen the entire of the inferior portion of the muscles of the abdomen perfectly denuded; and it need not be stated that when the work of destruction has been carried thus far, any prospect of recovery must be remote indeed. The patient, stricken down by the mortification, bathed in the profuse discharge of slough, urine, and offensive pus, and harassed by incessant pain, soon sinks into a low irritative fever, refuses food, wanders and becomes incoherent, and finally dies comatose.

Several years ago, when attending the Dublin General Dispensary for my friend and present colleague, Mr. Porter, I met with the following case, which strikingly illustrates the danger of delay in treating diffused urinary abscess.

June 2, 18—.—Stephen Doolan, æt. about 30 years, florid complexion and rather debilitated frame, sent for me to see him. He had a large tumour occupying the situation of the scrotum, of a deep dark red colour, hard, and apparently containing a fluid, but not very œdematous. He had irregular retention of urine for five or six days previously, and when I saw him was still suffering from it, complaining of great pain in the region of the bladder, and lying on his hands and knees, as the only position in which he could find relief. He had a good deal of tenderness above the pubis, extending upwards along the course of the left spermatic chord; pulse about 90; no pain in the head, or vomiting, nor could I ascertain that there had been shivering. He stated that the tumour

faction of the scrotum had appeared about five hours after the introduction of a catheter on the day but one previously. I immediately proposed to open the tumour, and have him removed to hospital, as he could not be properly attended to in the wretched habitation in which he lay, to neither of which offers would he assent, refusing not only with obstinacy but insolence; so I drew off about three half-pints of urine with the catheter, and was surprised to find the instrument almost slip into the bladder without difficulty, and without giving any perceptible indication of the existence of a false passage.

June 3 (the fourth day after the accident).—Had passed a very restless night, and raved slightly, but was so far collected in the morning as to be able to answer questions; his countenance sunken and inexpressive, indicative of approaching coma, his pulse weaker: a dark yellow tinge pervaded his skin and eyes. I drew off nearly a quart of urine, and again advised his removal to hospital, which was now acceded to, and he was admitted into the Meath Hospital under the care of Mr. Porter.

An incision was this day made into the tumour, which had grown larger and become livid; it was five inches long, extended along the raphe, and was made to implicate both scrotum and perineum: it was carried very deep before it reached the abscess, and gave no pain, the parts appearing quite insensible, greatly thickened, and the interstices of the cellular membrane being seemingly filled by a greenish-coloured substance of the consistence of decayed cheese. A vast quantity of pus, mixed with urine and

air, was evacuated, and its urinous smell was so powerful as to pervade the ward for several hours afterwards.

June 4 (fifth day).—Greatly improved; his bowels, previously constipated, had been freed by medicine; his tongue somewhat cleaner; his spirits better, but the puffy tumour of the left chord had increased in size, and its colour changed from amber to a dark red hue: he was told that an incision there was absolutely necessary, but he would not listen to it, and the fact of his being at this time able to pass his urine, partly by the wound and partly by the penis, encouraged him so much that his observations relative to any farther operation were couched in no very civil terms.

June 6 (seventh day).—Large portions of slough were removed from the wound in the scrotum and perineum, and all the urine passed freely through that part; but the patient was evidently sinking, notwithstanding. The abscess at the left groin had made for itself a small opening near the upper part of the front of the scrotum, and into that part Mr. Porter passed a director, which exactly took the course of the chord and cut down upon it; then, introducing his finger to guide the bistoury, he enlarged the wound to the extent of four inches. Nearly a quart of bad foetid pus was evacuated, with sloughy cellular substance, having a urinous smell. As the skin over the right chord looked very suspicious, a similar incision, only not quite to the same extent, was made there, and after the operations the patient seemed much exhausted.

June 8 (ninth day).—The patient was still very low; tongue dry and furred, pulse very weak: the sloughs

all removed, and the tendons of the abdominal muscles quite exposed: the testicles lay bare upon the bed. Notwithstanding the most generous diet, with wine and porter, and stimulating medicines, all of which were ordered at an early period, he is sinking fast.

June 10 (eleventh day).—A large abscess in the nates, extending deeply along the rectum, burst and deluged his bed in pus: the existence of this abscess had not been suspected, for no complaint was made in that direction, and the part could not be easily seen as he lay in bed. The patient's fate was now decided. The whole of the inferior part of his body had been the seat of urinary infiltration: all the cellular tissue had sloughed, and except where covered by patches of loose skin the muscles were perfectly denuded. Bark, wine, ammonia with wine, and generous diet, were all resorted to without avail; he sunk and died on the thirteenth day after the urethra had been ruptured by that unfortunate introduction of the catheter.

Such may be the course of the disease when the rupture has taken place in the perineal aspect of the urethra, but if, although very unusual, it should be situated on the upper or anterior surface, the course of events is somewhat different, and the inferior part of the abdomen is infiltrated before the scrotum or perineum exhibit any indications of disease, and from thence the fluid may pass upwards, even on the anterior walls of the thorax. When the rupture is placed on any part of the pendulous portion of the urethra, the infiltration is usually confined to the cellular tissue of the penis itself, the symptoms, of course, being less severe and the danger less imminent; but, nevertheless, in any of these cases, however apparently limited in

extent, there is always peril, for every portion of the cellular membrane reached by the urine inevitably falls into a state of slough, and patients of this description are not very well calculated to endure the fever that attends on mortification, or the wasting hectic that must accompany the progress of the subsequent sore. The following case will illustrate the usual progress of events when the rupture takes place in the pendulous part of the urethra.

Bernard Concannon, æt. 50, admitted into the Meath Hospital, Dec. 23, 1847, presenting the following symptoms. The penis is greatly enlarged, of a deep red colour, except at the orifice of the prepuce, where it is pale and almost transparent: about half an inch from the extremity, a dark vesicle, about the size of a sixpence, marked the commencement of mortification. The scrotum is swollen also, and the perineum tense, but not œdematous. The history of the case is shortly as follows:—The man was extremely dissipated, and continued so up to his present advanced age; had frequent attacks of (as he expressed himself) every kind and quality of venereal disease, and says he has had stricture for the last twelve years; but a remarkable feature in the case is, that he never had difficulty in passing his urine, much less retention, and never during the whole of that time required the introduction of an instrument. If he had a stricture, it will be proved in the sequel that it was not situated at the usual place. On admission, from the appearance of the scrotum and perineum it was considered that a rupture had taken place in the usual situation, and an incision was made along the raphe, which gave exit to

some pus and urine, with the usual abominable smell, but on the following day it was found that he had been only partially relieved: the penis was more swollen than before; two or three livid spots appeared upon its dorsum, and the lower part of the abdomen was beginning to be discoloured: an incision was now made along the dorsum of the penis, which evacuated a large quantity of foetid pus, and showed that the cellular tissue there was all in a state of slough. In the course of a few days all the mortified parts cleared away, and then an aperture was discovered in the lateral part of the urethra, near the pubis, which would easily admit the largest bougie: it was there that the rupture or ulceration, however occasioned, had taken place, and thence came the urine which had infiltrated the scrotum and part of the perineum. It is worth remarking that all those parts healed kindly after the sloughs had been thrown off, and without the precaution of drawing off the urine to keep it from irritating the sores; and if there had ever been a stricture in this case, it must have been at the seat of the rupture, and carried away by the sloughing, for after the recovery a catheter passed as easily through this urethra as if it had never been the seat of disease.

The treatment of these affections is plain and simple: deep and extensive incisions must be practised in every place to which the urine may have found its way, but more especially in that corresponding to the breach of the urethra. This latter precaution is most essential, for unless a free and direct passage is formed for the urine on its escape from the urethra, it will continue to spread, notwithstanding any incisions that may have been made in the infiltrated parts: these

may be useful in permitting a small quantity of the fluid to trickle away, and in facilitating the subsequent separation of the sloughs, but in preventing the farther insinuation of the urine into the adjacent cellular tissues they seem to be totally inoperative; and this fact may be adduced in explanation of the difficulty attendant on the management of ruptures of the urethra situated otherwise than in the usual place, and the dangers that so constantly ensue on them. In a case of this description no one can say where the rupture may be placed: a kind of conjecture may be formed by attention to the local symptoms, but still there can be no certainty until the incisions have been made and their results observed, and if they do not accomplish the object here pointed out, the infiltration will proceed, perhaps not so rapidly, but eventually with as much destructiveness as if they had never been practised. Fortunately, the rupture, however caused, is most frequently situated somewhere in the perineum, and to this case, as being practically of most importance, the remainder of these observations must be understood to apply.

The operative treatment of diffused abscess of the perineum has reference to two indications, which, however, are to be fulfilled at different periods,—one which shall give exit to the urine which is insinuating itself extensively and destroying whatever it touches; the other, to restore the integrity of the canal, and enable the fluid to escape by its own natural outlet. The operation, in the first instance, is to be performed thus:—The patient is placed on the table, his buttocks slightly projecting over its edge, and supported in that position by assistants, who at the same time elevate

the scrotum, and by separating the legs expose the perineum. An incision is then made commencing at the root of the scrotum, or perhaps a little anteriorly, and carried along the raphe to the margin of the anus : this is perhaps best effected by a plunge of the knife in the first instance, for the matter lies deep above the fascia of the perineum, which prevents its pointing there, and directs it forwards into the scrotum, and the parts and tissues external to this fascia are greatly thickened ; the cellular membrane is not only œdematous, but seems infiltrated with a cheesy kind of lymph, which imparts to the incision an appearance of smoothness as well as solidity. However made, the wound must be carried deeply until the abscess is opened, when a gush of matter mixed with urine takes place, diffusing through the apartment an overpowering and sickening fœtor. The fore-finger of the left hand is then introduced, and on it as a director the wound enlarged upwards and downwards, to the entire extent of the perineum. On the requisite depth of the wound, or on the best method of conducting this part of the operation, whether by a rapid plunge of the knife or otherwise, it is unnecessary to insist, it being perfectly obvious that until the matter escapes freely nothing has been accomplished ; but it is at least as essential that the incision should be of the length here described, in order to ensure the escape of the urine wherever the rupture may be situated, but more particularly to facilitate the subsequent operation of endeavouring to restore the urethra. Besides this great and important incision, others must be practised wherever the dusky hue of inflammation gives evidence that the urine has passed, or even where the skin has changed to an unhealthy

amber colour, or pressure detects a crackling sensation underneath it, for in all such localities the cellular membrane will be found sloughy, of a dirty brown colour, infiltrated with urine, and exhaling that horrible odour which is so peculiarly offensive. These operations being finished the patient is replaced in bed, the parts covered with emollient poultices, if they are not inconvenient by their size and weight, and as he is generally worn with fatigue and suffering, the administration of a full opiate will be found beneficial.

It is a remarkable circumstance that during the first two or three days the urine seldom flows in an appreciable stream through the wound, though it be never so large : true, the patient's bed is wet, and dirty, and uncomfortable, and probably there is a constant oozing to keep it so, but the stream of urine passes by the natural canal. Even where the rupture has been the consequence of stricture it not unfrequently happens that soon after the formation of the abscess the flow of urine through the penis becomes unusually large, as if the stricture itself had been involved in the general destruction of parts ; but under any circumstance the symptom occurs as stated, and may be explained by the sloughs more or less blocking up the wound, inasmuch as when they separate the entire contents of the bladder are evacuated through it. Whilst the sloughs are separating, and, indeed, through the entire progress of the case, a generous diet, if the patient's stomach will bear it, together with wine, brandy, ammonia, and other diffusible stimuli, must be administered : it is a case of mortification of the worst and most unfavourable description, attended with extensive destruction of parts, and his strength must be supported not only

while Nature is struggling to throw off the spoiled and putrid strictures, but afterwards during the profuse and wasting suppurations that necessarily ensue.

In the course of a few days, when the sloughs have been cast off, while the wound to its very bottom appears clear and florid, and, if possible, before it has commenced to granulate, an attempt ought to be made to fulfil the second indication in restoring the urethra, but always provided that the patient shall have recovered sufficient strength to enable him to sustain an operation always tedious and fatiguing,—sometimes extremely painful. On this point there must be no unnecessary delay, for the urethra lies deep, its position and appearance more or less altered by the effects of disease, and is with difficulty found even under the most favourable circumstances; in fact, I know of no operation in the whole range of surgery more embarrassing, and in the end more uncertain, than this one of endeavouring (as it were) to create a new urethra; and all these obstacles will be seriously enhanced if the parts are permitted to granulate—a process which they sometimes commence even before the sloughs are entirely thrown off. These granulations are often exquisitely tender, and thereby considerable addition is made to the patient's suffering while under the surgeon's hands; they bleed readily on being roughly touched, and thereby obscure parts otherwise sufficiently indistinct; and by their growth cover and confuse the very organs which it is the object of the operation to deal with. It is, therefore, most unfortunate if the patient's constitution still continues so broken and debilitated as to prevent the attempt being made until these granulations have been established,

for the opportunity is lost when it might have been most successful. The patient is then to be placed on the table in the same position as before, but so arranged that the strongest light shall be thrown into the very depths of the wound. It is now that the precaution of having made an extensive incision in the first instance becomes so valuable,—there is no additional cutting, no painful plunging in the dark, no laceration of tender and delicate parts in order to procure sufficient space; the wound lies open and patulous, affording perfect room for the difficult manipulations that are necessary, and preventing numerous accidents that would otherwise be unavoidable. The surgeon now passes a long gum-elastic catheter through the urethra until an inch or two of its extremity comes through the rupture out into the wound; he then endeavours to find the posterior segment or portion of the canal; and this is the embarrassing part of the operation. I have seen a length of time, such as may not be mentioned here, expended in fruitless and unavailing attempts to push a probe into it, but as it can neither be seen or felt, when hit upon the success must be only recognised as accidental. The patient should now be directed to endeavour to pass his urine, and the surgeon, watching the spot from which the stream issues, may, guided by it, introduce a probe into the urethra and thence into the bladder: having accomplished so much, he turns up the beak of the catheter which lies within the wound and directs it along the probe into the bladder also. The probe is now withdrawn, and the gum-elastic catheter not only left in the urethra but retained there by being fastened to a T bandage; it may be allowed to remain undisturbed

for about three days, but not longer, as by the end of that time it will begin to be encrusted with sabulous deposit. I know not why it should be so, but having once succeeded in passing the catheter into the bladder I have rarely experienced any difficulty in replacing it after it had been withdrawn; but if such difficulty should occur he must be treated in the same manner again, and so on until a new canal is formed by the parts granulating and healing over the instrument. A question has often been raised, whether it is generally more advisable to leave the catheter in the bladder for a length of time, or introduce it on every occasion when its use should become necessary, and various arguments have been advanced in support of either opinion: but whatever doubt may exist on that point with reference to other affections of the urinary system, there can be no doubt in this: the urethra must be healed over the catheter, and when that has been accomplished the bladder may be relieved in any manner that seems most suitable to the other features of the case.

How easy does this operation appear in description! How promising of the most happy results in the hands of any man possessed of ordinary dexterity! Yet experience every day demonstrates, in this very instance, how vastly precept may come short of practice. Take a case of the most favourable nature possible—suppose that the urine had not been extensively extravasated, the sloughing, of course, proportionately limited, and above all that the patient's strength had been sufficiently restored to enable him to undergo the completion of the operation at the proper time—even under such promising circumstances success is by no means

certain, and many a patient has been placed on the table and returned to his bed without the object being completed. But where and when have we such a concurrence of favourable accidents? Certainly not in our hospitals; neither are the results of our cases such as would encourage very brilliant anticipations of success with any given patient, notwithstanding our utmost efforts to secure it. True, patients are not now lost in the numbers, and almost with the certainty, that happened heretofore, yet some perish from the foul and filthy form of mortification, perhaps the most loathsome and distressing that can be endured, and scarcely any are sufficiently recovered at the time of the separation of the sloughs to allow of any further operation. The surgeon, therefore, is obliged to wait, and when he dares venture, he finds he has to deal with a wound in which the parts are matted together by agglutinative lymph, and obscured by granulation, and in which his anatomical knowledge and his surgical dexterity are equally of small avail: little wonder, therefore, that his operation lasts long, and is wearisome to his patient and himself, that it is really conducted by guess-work as much as on scientific principle, and that it generally proves a failure. If the first attempt proves abortive, I think the patient frequently refuses to undergo a second trial, and almost always obstinately rejects a third; and thus, although the treatment of diffused urinary abscess is admirably understood, and clearly laid down by systematic writers, it is rarely practicable to carry it fully and completely out, and the termination of most of these cases is in an incurable fistula in perineo.

CHAPTER VIII.

Dysuria by affections of the prostate gland.—General pathology of the gland—senile alteration of structure—effects of this on the gland and on the urethra.—Complications of the disease.—Treatment of the senile prostatic disease.—Abscesses of the gland.—Causes—treatment.—General observations.

As man approaches the decline of life, changes occur in various organs and structures within him, giving certain indication that they are no longer capable of the activity of function for which they were originally designed; and no part seems to experience this in a more marked and decided manner than the prostate gland. It may be almost universally asserted of this organ, that old age brings with it some alteration of structure. Now the first observation that naturally arises in connection with this subject is as to the paucity of our information concerning it: how it is induced, how continued, and what the precise pathological change may be which constitutes the affection. According to the authority of Home, the senile disease of the prostate is inflammatory; yet, if it was so, why should it not be curable like other forms of inflammation, and why should not abscess, the natural and ordinary result of such morbid action, occur more frequently than it does? For these reasons it appears not to be inflammatory. But this negative information

as to what it is not, affords very little assistance in discovering what it is, and the difficulty is increased by the discrepancies observed in the appearances of the gland on dissection: sometimes it is found harder, sometimes much softer than in health; sometimes it is homogeneous in its apparent structure, and again in other cases evident deposits of adventitious material are observed; sometimes, also, the affection (whatever it may be) if not confined to, is more remarkable in, one part than another, and on the other hand, occasionally it seems to pervade all parts of the organ equally. Again, what is it that induces this morbid tendency, and is it explained by the supposed causes to which it has been so often referred? does it originate in high living and dissipation, in over indulgence in venereal pleasures, in frequent or long continued exercise on horseback, in exposure to cold, or in any other cause capable of creating a state of unnatural excitement? The answer to this question will be found in the universality of the affection, for all cannot be open to these influences, yet all or nearly all suffer; and if it proceeded from any known causes, persons not exposed to them ought to escape; and amongst those seized there should be a marked difference in the severity of the attack, according to the power or length of application of its exciting cause. But this is not the course of events, for it makes its appearance amongst the rich and the poor, the dissolute and the industrious, the luxurious, and the wretched pauper; nor is it confined to clime or country, habit or pursuit. It appears, then, that this prostatic affection is a natural change brought about by time, and is analogous to the alterations in other structures produced by the same cause, and con-

nected with some change or cessation of function occurring about the same period; it is, therefore, to a certain extent incorrect to call that a disease which is an ordinary operation of nature, which would probably never occasion inconvenience if it was not so placed as to interfere with the function of the urinary excretion, and which is often made to assume its worst forms by the surgical operations necessary to relieve the bladder.

But besides this affection, properly appertaining to old age, the prostate is liable to attacks of ordinary inflammation, although perhaps less so than other organs possessing an equal organization and activity of function; and these may occur at any period of life: in youth they seem very often to be the result of some scrofulous taint in the system; but then, as well as at more advanced periods, they may also arise from exposure to cold, repressed gonorrhœa, accidental injury, intemperance, or any of the causes that occasion inflammation elsewhere. There is, however, an especial excitement to disease of the prostate gland, in the sympathetic relation it holds to other parts of the urethra, and its consequent liability to become engaged in consequence of, and in connexion with, stricture. Sir Everard Home had long since directed the attention of the profession to secondary strictures ensuing on prostatic affections; but probably the opposite view is the more correct, and it is the gland that sympathises with the obstruction in the urethra,—for, whether arising from sympathy, from the constant irritation and straining, or from some sort of infiltration following an abrasion of its surface, it is beyond doubt that inflammation and abscess sometimes occur as sequelæ of stricture, giving rise to obscure and unmanageable symptoms,

and terminating, if not otherwise relieved, by bursting by the perineum or through the rectum. It will be necessary briefly to examine these different affections ; and, first, that one which being most common becomes most important.

The prostate gland may be enlarged in one or both of its lateral lobes, in its third lobe, or throughout its entire extent, and the effects on the size and direction will vary according to the particular part engaged. If one lobe only happens to be swollen, it will push the canal in the opposite direction, rendering it flat, but not at all diminishing its capacity ; such deformity (for it is nothing more) scarcely obstructing the escape of urine, and offering no impediment to the passage of an instrument, except that occasioned by its slight deviation from its usual track. When both lateral lobes are enlarged, the effect will be to compress the urethra into a flat instead of a circular canal,—the vesical extremity of which may be seen after death in the form of a perpendicular slit, with thickened or pouting lips ; the urethra becomes elongated also to the extent of the enlargement, and its direction rendered more perpendicular ; but these derangements seldom or never lead to retentions of urine, nor is there difficulty in introducing an instrument, provided it is somewhat longer, and bent to a larger curve, than those commonly in use. When the middle lobe begins to enlarge, it cannot swell in a posterior direction, on account of the firm and unyielding nature of the vasa deferentia, which pass exactly behind and beneath it : it therefore pushes upwards into the cavity of the bladder, where it appears as a nipple-shaped tumour varying in size from that of a small filbert to a walnut,

and even more; and if at the same time the lateral lobes remain unaltered and of their usual size, the swelling draws with it a fold of the mucous membrane, which lies like a festoon on either side of it. The urethra, in this case, is compressed from before backwards, as well as elongated, and its vesical orifice resembles a *transverse* slit, with its posterior lip larger and more pouting than the other. Retention of urine now happens by the stream of urine pushing forward the tumour against the orifice of the urethra, which it covers like a valve, the occlusion being in some instances rendered more perfect and complete by the festoon-shaped folds of membrane just described. This latter may be regarded as the *surgical* disease of the prostate gland, inasmuch as it is for the relief of symptoms occasioned by it that professional assistance is generally required; and it may now not be very difficult to comprehend why, although some change of structure and some degree of enlargement is found in the prostate gland of every, or nearly every subject, above the age of sixty, the actual disease requiring surgical treatment is confined within so limited a number. The gland may be enlarged in every direction but the one without causing retention of urine: nay, even in that one, the third, or Home's lobe, the swelling must be so large or so moveable as to act like a valve before it can be capable of producing the distressing and dangerous symptoms which characterize the prostatic disease of advanced life.

Such a disease as this can scarcely make its appearance suddenly and at once, and accordingly in almost every case the patient recollects that he had some premonitory symptoms foreshewing the approach of some

malady, but not of such distinct and definite character as to mark precisely its nature and importance. Thus, there may have been an increased irritability of the bladder, leading to a more frequent evacuation of the organ both by day and night; yet this is an inconvenience experienced more or less by all persons of advanced age, and might therefore pass without very particular observation. There may have been some tediousness or even difficulty in passing the urine at times; yet if it did not amount to actual retention, it would, for the same reason, be probably disregarded. In like manner, uneasy sensations about the perineum may have been considered as merely nervous, or irritation of the rectum or anus looked upon as a tendency to piles or prolapsus: thus, a number of urinary symptoms may occur, and remain wholly unnoticed until the great and formidable attack forces the patient's attention, and compels him to seek relief. Yet it is often at this early period that great and serious, and well nigh irreparable mischief may be wrought, the patient being, if not unconscious, at least unsuspecting of it: for example, he may have frequent and urgent calls to make water, with but a small discharge at a time, and that not without unwonted straining and force; he may thus succeed in discharging nearly the natural quantity in twenty-four hours, and being only aware of some little more difficulty than usual, he disregards it and remains satisfied, yet all that time the bladder may never have been emptied; nay, it may have been nearly full and distended. It is unnecessary now to point out the probable effect of this straining on the prostate and its vessels, on the bladder itself, and all the adjacent parts: it would be equally unprofitable to dwell on the neces-

sary results of such retention on the urine itself, for every one in the slightest degree conversant with urinary disease must at once perceive how they would tend to complicate a malady in itself so difficult and obscure.

But let it be assumed that these warnings (if they ever existed) have passed away unheeded, and the disease is completely formed. The patient has occasion to pass water, and finds that after the discharge of a small quantity, perhaps in as full a stream as ever, it suddenly stops : he strains and forces violently, and exhibits all the symptoms already described as appertaining to retention, but not a drop flows : he writhes and tosses himself about in search of relief, and perhaps on some fortunate change of position the water may flow again, to be again suddenly interrupted. If the patient becomes weary and exhausted, and falls into a slumber, it not infrequently happens that the fluid escapes while he is unconscious : often a full dose of opium produces a similar effect : or if he can so far command himself as to forego his violent exertions, the urine may possibly be discharged. But practically it is found that these fortunate occurrences are infrequent, and the retention being complete, professional assistance is required to relieve it. Perhaps, after the first attack, weeks or even months may elapse before a second, and it is almost forgotten, when a new seizure, often at an unexpected time, and without any ostensible provocative, causes a repetition of the same scene, and thus a considerable time may elapse, the patient going about and attending to his business, but never for a moment secure from an attack, and consequently never happy. The occurrences of retention become, then,

more frequent, and require proportionate attention. Sometimes the patient acquires some acquaintance with the management of the catheter, and is enabled to relieve himself,—sometimes he requires the assistance of a surgeon in the morning only, and can pass his urine tolerably during the day afterwards. Thus there may be great variety of symptom, and difference as to the rapidity of progress, in the several cases, but all tend (provided the patients live sufficiently long), to the one hapless termination, incurable retention of urine, absolute incapacity to relieve the bladder except by artificial means. But many other symptoms besides those of retention combine to render the patient's condition unhappy and uncomfortable, one of the most remarkable of which is a tendency to profuse hæmorrhage from very insufficient causes: exercise on horseback, jumping from a height, walking on a rough pavement, or, what is more to the purpose, (for old persons seldom expose themselves to such causes of irritation), the passage of a catheter or bougie. In a great many instances the catheter on its withdrawal will be found streaked or marked with blood; but matters sometimes proceed to a much more alarming extent, and I have known a basin full of blood lost on such an occasion. In such cases of profuse hæmorrhage some of the blood may find its way into the bladder, and if it coagulates there produce another cause of retention, and another train of symptoms that constitute no trifling complication. The celebrated Dessault considered a varicose condition of the veins of the prostate and neck of the bladder not only as a cause of the enlargement of the gland, but as incapable by itself of

producing retention of urine: in another place he stated that this abnormal condition of these vessels was as often the effect as the cause of the retention, and was produced by the violent efforts, not only of the bladder, but of the abdominal muscles, under such painful circumstances. Probably the latter opinion is the more correct; but in either case the varicose condition of these vessels seems to be established, and forms a most important element in the pathology and treatment of the disease. Affections of the prostate, when far advanced, are, I believe, always accompanied by a peculiar secretion, which Home considered as coagulated lymph. It has been already shortly described, but a repetition of some of its characters may not be out of place here: it is always white, and gives the urine the appearance of whey in which curds had been broken up; it is in great abundance, and on subsidence more than half fills the vessel in which the urine had been received for examination; it is generally found in the ducts of the gland after death, and is so ropy and tenacious that flakes of it hang floating into the bladder, or along the course of the urethra to a considerable extent. This urinous precipitate is very characteristic of prostatic disease, but there is one so like it as not to be distinguished during life, occasionally met with in cases of fungous tumours growing from the mucous surface of the bladder: it is doubtful, however, whether a diagnosis between such cases would actually prove of much importance.

Disease of the prostate does not, and probably cannot, continue for any length of time without inducing some complication; the structure of the gland, its situation, and its effect in producing retention, all

contributing to this result: amongst these the formation of a prostatic calculus is amongst the most frequent, if not the most formidable. Under what peculiar circumstances these concretions take place it is difficult to determine, but they always, I believe, occur in old persons, are composed of phosphate of lime, and occasion symptoms strikingly resemblant to those of enlargement of the third or middle lobe. They are in general small, but may approach to the size of a very large pea, are smooth on the surface though angular in shape, and are sometimes found in numbers; but more generally there is only one. Now if it be recollected that in prostatic disease the calibre of the urethra is rather increased than otherwise, and that this dilatation affords a more than ordinary latitude of motion to a catheter or sound, and moreover, that a greater length of instrument must be introduced before the calculus can be reached, the possibility of the case being mistaken for stone in the bladder becomes at once apparent. The circumstance of the calculus being fixed and immoveable is not of much assistance to the diagnosis, because it cannot be too frequently repeated that scarcely any experience can impart such a delicacy and exactness of tact as will accurately determine the position or other condition of an object so distant; and the appearance of blood on the instrument will be of as little use, for, as before mentioned, in a vast number of cases of prostatic disease such symptom is present. Thus it appears that there is a disposition to, or rather a provision for, the formation of a vesical calculus in such cases, from the circumstance of the bladder being seldom, if ever, thoroughly emptied, and also a similar disposition to a

like deposit in the prostate gland; but it does not appear that a distinction between the cases is easy, or perhaps sometimes possible, although the indications of treatment may be widely different. It is necessary, then, to be aware of these facts, in order to be prepared, during the progress of a case, for accidents and contingencies of a very untoward nature; for unless the enlargement of the third lobe is met with at a very early period, it is seldom to be dealt with alone; its very nature leading to the production and development of other diseases, which not alone render a diagnosis difficult, but involve the treatment in a most embarrassing uncertainty.

The senile disease of the prostate gland being an organic change of structure, must be regarded as incurable, it being absolutely impossible that it ever can be brought back to its former normal condition again: it may, having reached a certain height, remain stationary, or appear to do so, the patient suffering from occasional retentions of urine, and being relieved by the catheter, and thus may wear out a tolerable length of sickly and painful existence; but in general it is otherwise, and tortured by a progressively increasing disease, by the frequent and almost constant recurrence of retention, and perhaps as much by the means resorted to for relief as by the malady itself, he sinks exhausted in the struggle, and dies. Some few live to a very advanced period notwithstanding the progress of the disease, and then a new symptom, the very opposite to retention, very often occurs, and adds materially to their suffering and danger. Incontinence of urine sets in, which admits of no assistance from art, and the patient lies with his bladder full, or nearly

full, of urine, which is incessantly trickling off, and thus, harassed with the wet and dirt, the foetor and the urinary hectic induced thereby, his final struggles cannot be long protracted. Whatever the cause of the disease, then, it may not be arrested by art, and scarcely alleviated by medicine; and therefore the treatment must be directed to relieve its present symptoms as they occur, and prevent the future complications that so certainly arise from neglect. The urine must not only be drawn off artificially when it cannot be expelled by the natural process, but it must be *all* drawn off, and the bladder emptied so completely, and at such regular intervals, that none shall be permitted to remain, either to irritate by its presence in a state approaching decomposition, or give opportunity for those calcareous deposits that so frequently prove troublesome. It would appear from this that the patient's prospects are seldom more unpromising than at the time when he seems better,—when he is able to pass his urine generally unaided, and has only occasional recourse to an instrument; for it is seldom, or perhaps never the case, that the bladder is entirely emptied by the patient's efforts alone, and consequently it is then he is most exposed to those evils that have been already described.

In this, as in every other case of retention of urine, relief must be obtained by the use of the catheter, and if it be necessary to devote time and attention to the management of the instrument in other affections, it is infinitely more so in this, for there is scarcely any other resource: true, it has been necessary to tap the bladder under such circumstances, or to cut into it for the purpose of evacuating blood, yet the slightest re-

flection will show that even by reason of the patient's age such operations must be all but desperate, and, happily, in practice they are not often called for. Here, as in most other cases, every surgeon has his favourite precept to inculcate,—his own particular manœuvre to recommend as ensuring certain success; and, doubtless, if catheterism could be taught by either written or oral lessons, we should have no lack of dexterous and accomplished operators: but that instruction is always imperfect which merely tells how an operation may be successful in a particular case, but does not explain why it ought to be so in all. The points to be really attended to are—the pathological changes that have been wrought on the size, shape, and direction of the urethra by the disease, and the nature of the obstruction to be overcome. First, then, the urethra is rather enlarged in its diameter, and will admit the largest-sized catheter, and, therefore, such an instrument is to be preferred, as being the most easily guided, and the least liable to be entangled in the mucous folds or lacunæ, or other minor cause of obstruction. Next, it is lengthened really by the longitudinal extent of the enlargement of the body of the prostate, and, virtually, by that of the third lobe, for a catheter cannot be said to have entered the bladder until it has passed this latter: therefore, the instrument should be longer than those generally in use. But the chief and important change the urethra undergoes is in its direction, it being pressed forward and made to describe a greater portion of a circle than it does in health; and hence the necessity of imitating that curve as nearly as possible in the instrument. As to the nature of the obstruction, it is only

the valvular growth of the middle lobe which is pressed against, and closes the vesical orifice of the urethra, but which seems to be so soft and pliant as to be easily removable by the slightest touch of the instrument: this, however, it is not—at least not always, and it will be seen hereafter that it is sometimes so firm and resisting as to refuse to yield to any force, and is actually lacerated, and its substance torn through, before a catheter can be introduced. It appears, then, that it should be large, long, and possess a greater sweep of curvature than is usual. Is the material of which it is composed a consideration of any consequence? Most surgeons prefer the gum-elastic catheter, rendered firm by the presence of its stilette, and, apparently, there are good and sufficient reasons to support the choice. Our patients are generally irritable and timid; they fear the silver instrument, are uneasy under its operation, and if there is any difficulty in the introduction, or any loss of blood after it, never fail to lay the blame on it: the urethra itself is often too morbidly sensitive to endure the presence of the more rigid and unyielding substance, and then no choice is left. Doubtless, a hard metallic instrument is more calculated to wound or injure the enlarged veins about the neck of the bladder, and so far to occasion hæmorrhage; and it is, moreover, very desirable to use a gum-elastic catheter if the patient is to be personally instructed in its mode of introduction, so as to be enabled to assist himself afterwards. Lastly, a considerable share of importance has been attached to the manœuvre recommended by the late Mr. Hey, of partially withdrawing the stilette from a gum-elastic catheter at the moment when its beak is

supposed to have reached the bladder, a proceeding which certainly having the effect of turning the instrument forwards, and thus giving it the proper direction, is often invaluable to those not very conversant with operations. Conceding, however, to these observations the full weight to which they are entitled, I confess a partiality for the silver instrument where there is no obvious and decided objection to its use: it passes through the urethra with great facility until the difficulty occurs, and then it is infinitely more manageable. I suppose the catheter to pass easily until it is about to enter the bladder, where it hitches against the swollen lobe, and stops: here is the point of obstruction; but it is easily surmounted, if the instrument is inflexible, by depressing the handle as far as possible between the patient's thighs, and directing its beak as if with the intention of making it strike against the posterior surface of the pubis. It is in the performance of this part of the operation that the value of the silver instrument is most apparent and its superiority fully established. Yet I wish not to insist on my own opinion, any more than I would blindly yield to that of others, and therefore have I placed both sides of the question in the most impartial light of which I am capable. It may not be denied that the gum-elastic instrument is more generally preferred, perhaps for some of the reasons already mentioned: it must also be conceded that by the adoption of the suggestion of Hey, or some similar fortunate manœuvre, it may often answer its purpose sufficiently well; but the point insisted on here is, that when it does so, it is as much by accident as correct guidance, and that all its admitted advantages are more than counterbalanced

by its yielding nature, which removes the guidance of its course from the control of the surgeon. It is soft ; its extremity may bend while it seems to be pressing forward ; it cannot be directed towards any one particular point ; and therefore, in the hands of the educated practitioner, must be vastly the inferior instrument.

But in this, as in every other retention of urine, the most judiciously directed efforts of catheterism may prove unavailing ; perhaps there are some in which it cannot possibly be otherwise, for there are numerous morbid specimens in our museums exhibiting such deviations from the natural course and condition of the urethra as to render it difficult of conception how an instrument of any description could be made to pass through them. But without resorting to such extreme cases, nothing can be more familiarly known than the fact that the causes which produce obstinate retentions in stricture, and other forms of urinary obstruction, operate with a similar effect on prostatic disease, and that of all these, intemperance in the use of intoxicating liquors seems to be the most powerful. It is possible that the great accumulation of urine within the bladder which constantly occurs under such circumstances may force the enlarged lobe against the urethra, and so compress its vesical orifice as to render the passage of an instrument impossible, or that the course of the canal may be thus driven in a direction which a catheter cannot follow,—conjectures which are materially sustained by the observation that the same urethra, which is perfectly impassable whilst the retention remains, becomes as permeable as before when the bladder has been emptied by puncture. But

from whatever cause proceeding, the practical fact of the occurrence of such unmanageable retentions is undeniable, and it remains to be considered whether surgery presents any resource except the formidable operation of paracentesis vesicæ under such difficult and unpromising circumstances. I believe it was the elder Dease, of this city, who first spoke of forcing the beak of the catheter through the enlarged gland, and thus relieving the retention: the precept is certainly not laid down in any of his written works, but I have learned from some of his cotemporaries that he mentioned such an operation in his lectures, and spoke of its performance in the most familiar and easy terms. The late Mr. Wilmot also, a most admirable authority on urinary disease, mentioned the occurrence as an accident; but an accident certainly not followed by formidable results. Besides these authorities, insufficient as they are, I have not seen such practice anywhere alluded to, and on inquiring into the subject have heard such objections advanced as would render it hazardous to appear as its advocate. The danger of hæmorrhage, the risk of inflammation, abscess, and all the other ills that may ensue on severe internal injuries, appear too formidable to be willingly incurred, and the only answer that can be given is, that the accident (for up to this moment it must be spoken of as an accident) has occurred, and has not been followed by the terrific consequences that might, *à priori*, have been expected. It is unnecessary here to adduce authority in support of such a proposition, because on a practical question there can be no sanction but experience: it is equally so to enter upon a discussion to show that the arguments raised against it are more

formidable in theory than in practice : all that need be insisted on is, that the pushing of a catheter through the substance of an enlarged prostate is not necessarily followed by fatal consequences. I have the strongest reasons for believing that in two instances the accident unintentionally occurred in my own hands, and am satisfied not only of the truth of the above position, but that such a proceeding may eventuate not only in the safety, but comparative comfort, of a patient. Unfortunately, here again there is reason to complain of the inattention paid to the pathological study of urinary disease, and, consequently, the scanty assistance derivable from morbid anatomy : specimens are daily obtained illustrative of the effects induced by disease, or by the attempts made to relieve it, but they are placed in our museums as matters of interest or curiosity, without imparting that extent of practical information to which they might be made subservient. We know that the senile alteration of structure in the gland admits not of uniform description ; that it is not the same in all ; nay, that it may not be identical in any two individuals. May it not result from that circumstance, that in some it is so hard and resisting as to repel almost any force that can be directed against it, and in others so soft that an instrument without difficulty can pass through it—at all events, without its offering any very appreciable obstruction ? May it not offer some explanation why some cases admit of relief with comparative ease, while others must submit to the more painful and hazardous operation of puncturing the bladder ?

I am personally acquainted with but two instances of false passage effected through the prostate gland—

one through the left lobe, the other through the substance of the middle: the patient in the former case lived about a fortnight after the time at which I suspect the injury to have been inflicted; the latter, for several months after the same period: in the former no benefit was experienced, but most unquestionably the patient's condition was in no respect rendered worse; while in the latter, the patient being always obliged to relieve himself by the passage of the catheter, the introduction of the instrument was rendered comparatively easy, and I entertain no doubt that during all the time it was through the artificial canal it passed: in neither was there any indication, either during life or in the subsequent examination, to create any great apprehension for the consequences of such a wound. Doubtless, no practical conclusion can be sustained, on the slender foundation furnished by two cases, against the apparent dangers likely to ensue on the infliction of so serious an injury; yet the question cannot be decided without making the alternative an element in the calculation, and when that lies between forcibly pushing through the gland and puncturing the bladder, perhaps the encouragement afforded by even two cases might be allowed to possess some little weight. It is needless to repeat the observations already made on the operation of paracentesis, or to dwell on its dangers and its difficulties, all of which are here enhanced by the patient's age and probable infirmities, by the nature of the disease, and the condition of the bladder, and other parts implicated in it; but if these are brought fairly under review, and backed, not by the probable result of so severe an operation, but by that which is really true and proved

by experience, it is almost consoling to reflect that there is any mode of escape from the direful necessity of performing it. It is very probable that in many instances the gland is so indurated and unyielding that no blunt instrument can be forced through it, and in such cases there is but the one resource : it is equally probable that many instances have occurred in which it was so soft as to have been perforated even without the surgeon's knowledge. I have accidentally broken through it twice, and perhaps more frequently, without being aware of it.

To return, however, to the other branch of the treatment, the prevention of those complications which add so materially to the patient's suffering and danger. It cannot be too forcibly inculcated that in disease of the third lobe of the prostate gland the bladder is scarcely ever emptied completely by the natural effort alone, and therefore, although there may never be actual retention—nay, so far from it, so little inconvenience as scarcely to attract attention—still, great and serious mischief may be silently in progress. If there are obvious symptoms present, if the patient experiences generally a difficulty of micturition, with occasional retentions requiring the aid of the catheter, the probability of the occurrence of some complication is still further increased, and the case requires a proportionate degree of attention. In some instances, the patient, even from an early period, suffers so much distress in his efforts to empty the bladder, as to require the constant assistance of the instrument, and, however troublesome or disagreeable such a condition must be, it has the advantage of ensuring the complete evacuation of the bladder on each occasion. It is of

no small importance, then, that this symptom should be particularly attended to, and the surgeon satisfy himself as to the real condition of the viscus after each apparent evacuation, for on this precaution a good deal of the patient's future comfort will depend: if urine remains within it, and cannot be expelled by its own efforts, it is idle to hope that the case shall not progress more rapidly or more unfavourably, or that he can escape those complications that tend so materially to aggravate his condition. This state of things should be fully explained to him, and the importance of completely emptying the bladder strongly inculcated; and this is sometimes not easily effected, for persons cannot be persuaded to discredit their own sensations, or believe that a function has been imperfectly performed when their feelings tell them otherwise. He should then be instructed in the use of the gum-elastic catheter, in order to be enabled to relieve himself, and it is sometimes astonishing how long a person may live, and what comparative comfort he may obtain, under such discouraging circumstances. But if the patient cannot bear the gum-elastic instrument, or if he cannot learn, or may not be entrusted with its use, there is no resource but the appliance of the surgeon's hand. The catheter must be introduced regularly by night as well as by day, and by such means (when they can be obtained) life may be prolonged to a very protracted period; but where they cannot, and the disease is allowed to run its course, with all its fearful accompaniments of frequent retentions, pain, and urinary fever, and all its complications of irritable bladder, calculous deposits, hæmorrhage, and such like, it cannot be expected that nature shall struggle long

against such a host of evils ; and accordingly prostatic disease may be classed amongst the most mortal that can affect the human frame, not because of any malignancy in itself, but that few can avail themselves of that assistance which relieves what it cannot remove, and palliates that which it cannot cure.

But the disease does not always exhibit these very chronic characters, and even with the most minute and zealous attentions, suppuration and abscess sometimes take place, accompanied by symptoms of great distress and danger. This introduces a new and more extended view of the subject, for it is manifest that the prostate gland, in common with every other structure, must be exposed to inflammation and all its various consequences, proceeding from and produced by the same causes that operate elsewhere ; but at the same time it may be observed that, considering the structure, the situation, and the nature of its supposed functions, it seems to enjoy a comparative immunity in this respect, and inflammation here is not of very frequent occurrence. Perhaps the rarity of the affection invests it with more importance, and renders an acquaintance with it the more indispensable, particularly as it sometimes assumes a chronic form, and makes its approaches most insidiously. As a consequence of, then, or at least in connexion with, a repressed gonorrhoea, inflammation of the prostate may occur : it has been seen in comparatively young subjects, apparently as the result of some strumous taint ; but in both these cases the disease is acute, the symptoms sufficiently well developed, and the progress rapid : but by far a more frequent cause seems to be, irritation arising from the efforts of the bladder to expel its urine, and

thus it is met with as a complication of stricture, or of the senile alteration of the gland itself. It is possible that in these latter cases many of the symptoms may be attributed to the disease, the existence of which is already known : it may be, that the symptoms being so very chronic, it steals almost imperceptibly on the patient : certain it is that abscesses of the prostate have existed unrecognized until their bursting externally explained their nature. The acute abscess occasions symptoms of great urgency. The patient complains of uneasy or painful sensations about the neck of the bladder, with a feeling of fulness and irritation in the neighbourhood of the rectum : the sensibility of the bladder is increased, and the calls to make water equally urgent and frequent : in general the passage of the urine imparts a burning sensation, and when the bladder has been emptied, the contraction of the sphincter gives intolerable pain : often there is a discharge of a considerable quantity of blood, and there are mucous or puriform deposits in the urine : all these symptoms are aggravated when the patient goes to stool, particularly if he is obliged to strain, and this is very distressing, as there is a constant sensation of fulness in the intestine. Besides these, there are the constitutional symptoms of inflammation, head-ache, dry skin, accelerated pulse, thirst, constipation of the bowels, &c. If matters progress farther, the patient may experience one or more rigors, and then probably suppuration has taken place, and an abscess been formed : sometimes a soft and yielding tumour may be felt projecting into the rectum, pressure on which with the finger gives excessive pain : sometimes the matter makes its way slowly in the direction of the

perineum ; but more frequently it bursts into the urethra. When this takes place a cavity is formed, in which the urine lodges after the bladder has been emptied, which must prove a constant source of irritation, and, besides occasioning great pain and frequent straining, must keep the abscess open and discharging : under such circumstances the cavity will increase, until the matter and urine find for themselves an external opening by bursting either into the rectum or through the perineum.

Inflammation of the prostate must be met by antiphlogistic measures of the most prompt and vigorous description, where the age and constitution of the patient will permit ; by bleeding, generally and topically, fomentations, the warm hip-bath, and the administration of aperient medicines, avoiding all such as act specially on the rectum. If there is retention of urine it adds greatly to the patient's suffering, for it must be relieved by the catheter, and the passage of the instrument by the inflamed and tender gland is extremely painful : in this case the gum-elastic instrument is preferable, as occasioning the least irritation. When the affection proceeds from cold, or from suppressed gonorrhœa, this treatment will be generally successful in procuring resolution,—less so, perhaps, if it originates in a scrofulous diathesis ; but, under any circumstances, no exertion should be spared to avoid the occurrence of suppuration. But, in the aged and broken subject, when it appears in connexion with stricture or other obstruction, such treatment cannot be adopted ; and, if it was so, perhaps little could be expected from it as long as the exciting cause remained in undisturbed operation : in these cases, therefore, the

disease progresses, without interruption, to suppuration, and there are few examples of human suffering more pitiable than prostatic abscess, complicated with some other form of urinary disease. Happily, it may be said, for the patients, they last not long: worn and wasted with long-continued pain, unable to bear an operation even if such promised relief, and often obstinately refusing to listen to any proposal of the kind, they either perish rapidly under an attack of urinary fever, or sink more slowly, the victims of incurable renal disease. Perhaps this chronic form of prostatic abscess will be most easily understood by a reference to the following cases:—

W. M. Esq., æt. 60, came to town in January, 18—, to consult me for stricture. He had been a most dissipated man, especially with respect to drinking, a practice which he obstinately continued for the short time he was under my care, and I believe subsequently, to the day of his death. He said he had suffered from stricture more than twenty years, and sometimes had occasion for the use of the catheter during that time, but on the whole the disease was tolerable until a few days before he set out from the country, when suddenly every symptom became aggravated, the urine flowed away with great difficulty, and he had uneasy sensations, rather than pain, about the neck of the bladder, perineum, and rectum, with a particularly unpleasant feel, which he could not describe, in the glans penis. When I saw him he made water at regular intervals, but always in drops, so that he was a long time at every evacuation, and when the urine ceased to flow, and the bladder appeared to be emptied, the desire

still remained, with even an increase of straining : as far, however, as could be learned by external examination, the bladder was really emptied on these occasions, or nearly so. This was one of the most impracticable patients I had ever seen : he would not hear of an investigation per anum ; he would not permit the introduction of a silver catheter ; and, as far as I could perceive, seemed to care little about his own safety, or the nature of his disease. He appeared to be strong, and otherwise healthy, and certainly presented no indication of having long suffered from a painful and irritating affection like stricture. On introducing a large bougie it stopped at the usual distance, but a small one passed easily, and went so far that I thought it had entered the bladder, but he told me it had not ; and the result proved he was correct. I took a soft flexible catheter, which passed sufficiently far to have reached the bladder, when it stopped, and no warrantable exertion could push it further : a few drops of thick urine mixed with matter escaped, but the bladder remained unrelieved. He complained of very little pain during the operation. On the day following I succeeded in getting a very small flexible catheter into the bladder, and secured it there by attaching it to a T bandage : its passage through the prostatic portion of the urethra seemed to occasion great pain, and I learned afterwards that I had scarcely left the room when he withdrew it himself. I never could replace it afterwards. He was seen by other surgeons, whose efforts were equally unavailing, the instrument always passing with tolerable freedom into some cavity near the bladder, but refusing to proceed further ; and he left town, at the end of ten days, dissatisfied with himself and his atten-

dants. In about six weeks I received a letter of consultation from his medical friend in the country, stating that his general health had so declined that he was then confined to his bed; that there had been no alteration of the local symptoms until a few days previous to his writing, when the patient, straining at stool, suddenly gave discharge to an immense fluid evacuation per anum, which on examination was found to consist of putrid urine, and that since he had been rapidly sinking under irritative fever. After that period he lived but seven days, never passing any water through the urethra: it seemed to flow from the bladder into the cavity of the abscess, whence it was discharged every four or five hours, but always per anum and with a gush. I understand the body was not examined, but the nature of the local disease could scarcely be a matter of doubt.

In the month of December, 1847, in the absence of his usual medical attendant, I was called to see Mr. B——, a man of 38 years of age, possessed of great mental energy, but from long suffering and severe illness completely broken down in bodily health and strength. I found him in bed, resting on his hands and knees, straining violently in endeavouring to pass water, a few drops of which oozed through three old indurated fistulæ in the perineum, which had been repeatedly operated on without benefit. The present paroxysm had been induced by an ineffectual attempt on his part to introduce the catheter; but he told me, that during the previous three months the constant desire to pass water, and the torture he endured whilst endeavouring to void it, had made his life nearly intolerable. I ordered him an opiate, and had him placed in a hip-

bath; and after the lapse of an hour, he became somewhat relieved, the water passing freely by the fistulæ, but only by a few drops through the penis. I did not see him again for some days, when in consequence of the illness of his medical friend he placed himself under my care. He now requested me to pass a conical-shaped bougie, which he was in the habit of using, or said he would do it himself, if I pleased. I preferred the latter, and he passed it up to about seven inches, without feeling much pain, (although it encountered two obstructions—one just at the orifice, the other distant about four inches from it): at this part it was stopped, but on being withdrawn about half an inch, and again pressed forward, the obstruction was eluded, and it passed to the depth of nine inches, occasioning at the time very severe pain. On the instrument being withdrawn the urine *did not follow*, neither had it ever done so, and it was only used because the patient found that during a few days subsequent to each operation of this nature the discharge of the urine became more free. He had been afflicted with stricture for fifteen years, and latterly the urine had passed almost entirely by the fistulæ.

Towards the end of January, 1848, I was sent for to see him again, and found him restless and feverish, with hot skin, parched tongue, great thirst, constant desire to pass water: pulse 120: he had experienced a rigor, and there was a copious mixture of ropy mucus with the urine, and great tenderness on pressure over the region of the bladder. He complained of intense pain at the anus, through which he said he had passed his water for some days previously: the posterior fistu-

lous opening of the perineum had closed, but the others remained open and discharging foetid pus. As soon as the febrile symptoms had sufficiently subsided to permit an examination, I passed a full-sized silver catheter down the urethra. The first impediment it met with was about half an inch from the orifice—it was passed by a little gentle pressure; the next was about four inches lower down, which did not yield so easily, but was eventually overcome; the third was about seven and a half inches, which could not be passed until his own manœuvre of withdrawing the instrument slightly was adopted, when it passed onwards with the utmost freedom, but occasioned great pain. On examining now, I found the instrument had passed into a cavity in the prostate gland, and on pressing the gland some foetid matter mixed with urine and ropy mucus escaped into the rectum: the same kind of fluid filled the eyes of the catheter, and was found in it when withdrawn. He was much exhausted by the examination; and as his health was in such a state as to preclude the performance of any operation, I had him removed a short distance into the country, where I saw him frequently, and made many attempts to pass an instrument through the stricture, but always without success.

At length, in the beginning of June, he returned to town, improved in health and appearance, but with all the local symptoms of his disease quite unaltered: he was most anxious for relief, and willing to undergo any operation, or submit to any line of treatment I thought advisable. Under the advice and with the assistance of Sir Philip Crampton, I performed the fol-

lowing operation :—We placed him on the table, as for the operation of lithotomy, and a staff being introduced down to the most remote stricture, I cut upon it, commencing my incision about an inch and a quarter in front of the anus, in the raphe, and continuing it backwards and to the left side into the fistula that was beside the anus ; this exposed the urethra with the staff in it, its point resting against the stricture. I then laid open the membranous portion of the urethra as far as the stricture, and the stricture itself. The staff being now liberated, was pushed gently forward, and passed in a sinus, through a consolidated mass of cellular substance, between the rectum and bladder, into the abscess in the prostate : I ran a probe-pointed bistoury along its groove to its beak, and dilated the sinus sufficiently to admit my finger. The staff was then withdrawn, and passing the bistoury outwards and backwards in the direction of my first incision, pressing at the same time on its back with my finger, I laid the sinus and abscess freely open to the bottom. There was not much blood lost, the only vessel requiring a ligature being the transverse perinei artery. The wound was dressed lightly with lint, and a sponge tent inserted into it, and he was placed in bed. He had a full opiate at night, and when I was giving it to him he stated his astonishment at being so easy : the urine had flowed freely through the wound since the operation, and the irritation of the bladder was much abated.

When I saw him the following morning, he said he was much better ; he had had a better night than for months previously : the bladder was quiet, and alto-

gether matters looked so well that I did not disturb the dressings.

The next day I removed the tent, which was saturated with urine and had some pus around it: it came away easily, and left the parts clear: another tent was introduced and secured, and I left him in very good spirits.

The following day he was still more improved, his only complaint being of soreness in the wound. I removed the tent, and had a clear view of the urethra at the bottom of the dilated wound. I then made him make an effort to pass water, and when it flowed out through the incision in the urethra, I passed a gum-elastic catheter, $4\frac{1}{2}$ inches long and No. 12 in size, into the bladder through it, and secured it in the perineum with a plug in its orifice, by the aid of my friend Mr. Trant's very ingenious contrivance for that purpose. I dressed the wound to the bottom with lint and simple ointment, and ordered him a few grains of rhubarb pill, as the bowels had not been moved for three days.

The next day he was going on well, and managed the instrument admirably; it was left untouched, and the rest of the wound dressed as before from the bottom. There did not appear to be so much urine in the dressing as formerly, and there had not been any appearance of it through the rectum. The bowels were moved.

I then set about most sedulously to restore the natural canal of the urethra, which, after much time and difficulty, was so far accomplished as to permit the introduction of a catheter No. 13 fairly into

the bladder ; the canula was then removed from the perineum, and the urethra was healed over the instrument. The fistulæ in perineo had now disappeared, and all the urine was discharged by the catheter through the urethra. About the month of September, a small abscess pointed by the side of the rectum, which being found to communicate with the intestine, both were laid open : a small quantity of urine now came through the rectum for a few days, but very soon ceased. After this occurrence the case progressed rapidly to a perfect recovery, and Mr. B. left town, being in the habit of introducing a large-sized catheter or bougie himself every second or third day, in order to keep the passage free and healthy. I have heard from him very lately, and learn that he is now capable of enduring any fatigue or pursuing any enjoyment suited to a man of his age, and that (to use his own expression,) "he is all the better for it."

That abscesses of the prostate gland will exhibit the greatest diversity of symptoms will be readily acknowledged : seeing that they may occur at different periods of life, in persons of different habits and constitutions, and may proceed from a vast variety of causes, it is therefore only reasonable to conceive that they may demand a corresponding diversity of treatment. One principle, however, is applicable to all, namely, that such abscess not only cannot heal, but will be progressively growing worse, until an external opening *in the perineum* allows a perfectly free discharge of matter : this obtains whether it has burst spontaneously or not ; for an outlet into the rectum, although

it may diminish the excessive severity of a patient's suffering for the time, can scarcely be called an alleviation, and that formed in the perineum by an effort of nature is never sufficient for the purpose. In fact, the only means we possess of preventing the communication between the bladder and rectum from becoming permanent, is the formation of another channel for the passage of the urine, and it is consolatory to reflect that such operation will be successful (as proved by Mr. B.'s case), provided the patient's health is not so deteriorated as to render every effort abortive. In all respects the case is really one of circumscribed abscess of the perineum, subject to the same conditions, save only that it is very deeply seated, and consequently to be treated in an exactly similar manner. Whenever, therefore, the existence of matter can be ascertained, it should be cut upon and evacuated; and the manner in which this operation is performed must be determined by the particular nature of the case, the age and constitution of the patient, the exciting cause of the inflammation, the condition of the perineum, the presence or absence of fistula, and a number of similar considerations, which will always leave much to be determined by the skill and sagacity of the surgeon. For instance, I can well conceive a simple case of inflammatory abscess sufficiently dealt with by a single plunge of the lancet; I can imagine a case complicated with fistula to require an operation so devised as to conduce to the removal of both affections; and I know that where the abscess has burst into the rectum, a perineal incision will be necessary, of equal extent and depth to that which might be

required in lithotomy. Under such circumstances it would be useless to speak more at large of operations as applicable to these cases, one rule being available for all, namely, that the incision, however practised, must lead down directly to the cavity of the abscess, and that the external opening must not only be sufficiently extensive to prevent any lodgment within, but kept so as long as the discharge continues.

THE END.

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