

## **Surgical cases and essays / by Rushton Parker.**

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SURGICAL  
CASES AND ESSAYS

BY

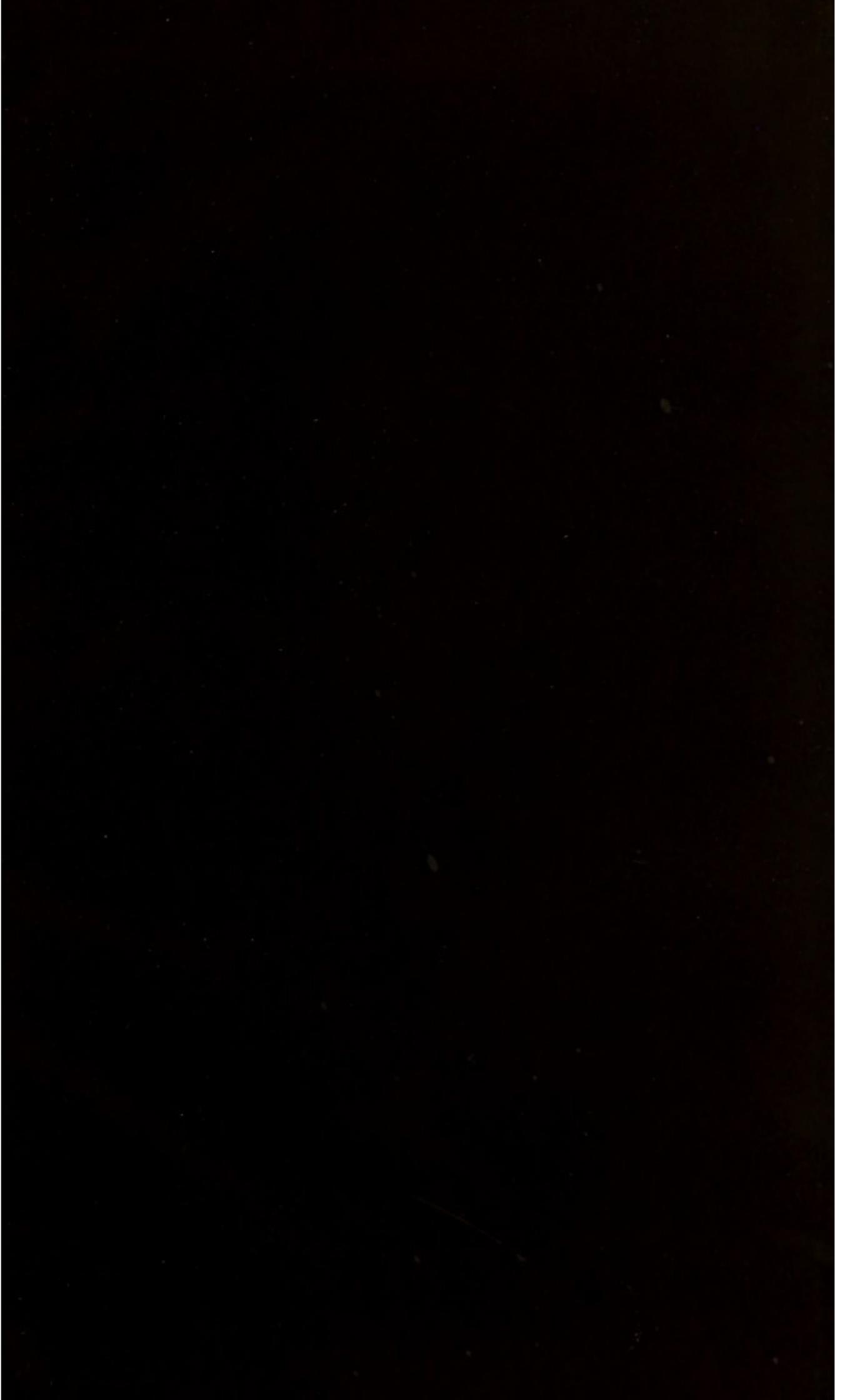
RUSHTON PARKER, B.S., F.R.C.S.,

PROFESSOR OF SURGERY IN UNIVERSITY COLLEGE, LIVERPOOL.

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SURGICAL

CASES AND ESSAYS

BY

RUSHTON PARKER, B.S., F.R.C.S.,

PROFESSOR OF SURGERY IN UNIVERSITY COLLEGE, LIVERPOOL.

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ADAM HOLDEN, LIVERPOOL.

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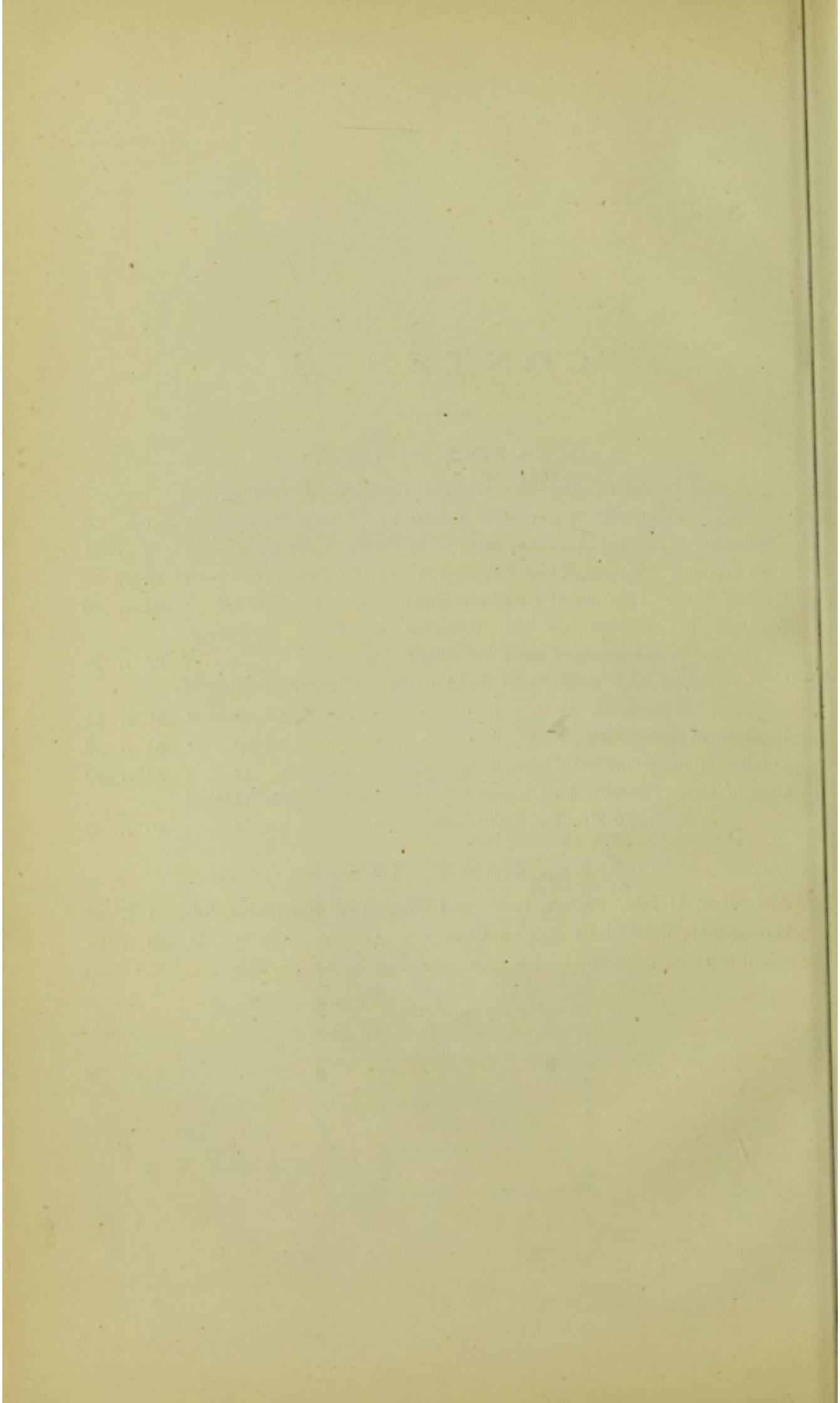
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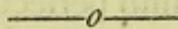
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Paper read in the Surgical section of the International Medical  
Congress, London, 6th August, 1881.

ON THE  
TREATMENT  
OF  
FRACTURED FEMUR,  
BY  
RUSHTON PARKER, LIVERPOOL.



Among the many uses to which the splints of Mr. Hugh Owen Thomas, of Liverpool, may be put in the mechanical treatment of injuries and diseases of the lower limb, none is more conspicuous in fitness, frequency, and effect than their employment for cases of fracture, especially of the femur. A glance at the models or diagrams will show this, and will besides, I hope, throw upon my words a light in which they could hardly otherwise be seen, as, to many here addressed, the objects and methods may be unfamiliar. Having been deeply impressed with the excellence and practical value of the appliances in question ever since they were first shown to me; having during six years occupied myself with their constant use and exposition to others; and having been the means of attracting professional attention to their existence and to the important labours of their author, who has spared no pains in transferring to me the details of his knowledge and methods, I may venture, without apology, to make this brief contribution.

For fractures of the shaft and condyles, Thomas's knee-splint is advised (*a* to *e*), and for fractures of the neck, the hip-splint of the same author (*f*).

In fractures of the condyles the knee-splint is applied in its most simple style and in a way exactly similar to that adopted for uncomplicated inflammation of the knee-joint (1). The oval padded ring of iron rod encircles the root of the limb, lying in the fold of the groin in front, and similarly behind, being in close contact with the skin covering the ischium. Two strips of bandage, laid one along each side of the leg, and fixed there firmly, but not tightly, by plenty of adhesive plaster, are tied to the lower end of the splint, so that the leg is pulled straight and the splint kept constantly against the perineum by what has the appearance of slight extension and counter-pressure. The limb itself lies between the parallel bars of the splint, suspended evenly and steadily, in a sheet of calico or a towel pinned to the bars at each side, and reaching from a little above the ankle to a little below the hip (1, 3) A wide bandage round the middle of the leg, and another round the middle of the thigh, keep the limb perfectly still and straight, the whole thing constituting an exceedingly comfortable and a really artistic adjustment, in a perfectly natural attitude.

The patient rapidly loses any pain and tenderness that may have existed, can sit up in bed, make use of the bed-pan, and otherwise move unassisted, without interfering with the treatment and good progress of the case. There is, in all surgery, no more perfect means of securing, with great facility, the linear immobility of the lower limb, and of giving at the same time a great range of liberty to the patient. The knee is left uncovered (1), with little or no readjustment, requiring chiefly to be let alone till union of bone, disappearance of all swelling of the soft parts, and complete slackness of the joint, have ensued. Passive movement is, under this system, never employed by either the author of the apparatus or by myself, being replaced by a patient confidence in its strict avoidance, a few additional weeks of which easily purchases immunity from that stiffness of which passive movement in not unfrequently, although unintentionally, the cause.

For immediate use the "bed-splint" (*a, b,*) is preferable to the "walking-splint," though the latter is, perhaps better known (*d,* and *5*).

The former is made with a symmetrical oval ring, and can be employed on either side of the body. The lower end of the bed-splint has hitherto been made simply square (*a*), and may conveniently rest upon a block or a book laid in the bed. But a recent improvement consists in an oblong rectangular frame, by which the splint and the limb are raised a few inches off the bed (*b, c, 2, 3*).

In the walking-splint (*d*) the ovoid ring is unsymmetrical, being shaped according to the section of the thigh, more prominently curved behind, around the hamstrings, than in front, where it is flatter. It must, therefore, be made "right" and "left." The lower end, moreover, is furnished with a circular, oval, or ovoid patten, to touch the ground, while the limb is slung in a sheet of leather for more permanent fitness and durability.

Again, while referring briefly to modifications in form, I may add that instead of two bars merely (*a, b, c*), the knee-splint is now often fitted with three, the additional bar reaching from the back of the upper ring to a point about half-way down the calf, where it is attached by a semi-circular piece of rod behind the other two welded to all three (*c, d*). This third bar existed in an early development of the splint, but was cast aside as not essential to rigidity as at first supposed. But it has now been found to be invaluable in preventing the back of the knee from coming in contact with the bed in the recumbent attitude, and from striking the chair when the patient sits in using the walking-splint. It is thus a great, and sometimes a necessary addition, protecting the joint against even slight, though painful, or at least detrimental, movements. Incidentally, the third bar diminishes the pressure of bandages without necessarily impairing their efficiency (*5*).

In fractures of the shaft of the femur the knee-splint is of great value. The side-straps are applied as before said, and tied to the lower end of the splint (*1, 2, 3*) permitting adjustment of the limb at its full length, by extension and counter pressure on the ischium, as in the case of the "long-splint" and "perineal band" of Liston. The leg from the knee downwards is supported, slung between the bars on a towel or sheet of calico, which may be conveniently used double, folded over one bar and

pinned to the other (3). It is well to place a soft pad behind and in front of, or even all round the leg, as a protection to the skin in contact with the tibia and fibula, before applying the wide bandage. The thigh is separately supported by a hollow firm splint of padded sheet metal (zinc or iron), or wood, as in Gooch's material, or even thickly folded paper, closely fitting the limb, reaching from the ring at the buttock to a little way below the knee (2). Contact should be secured behind the knee-joint by interposing, if required, a small mass of extra padding slipped in to relieve the soft parts behind the knee from the irksome strain of supporting the bones. This splint behind the thigh is now slung to the side bars by strips of bandage two or three in number, suitably adjusted and knotted. Other short hollow splints, of the material that may be chosen, or that comes most handy, are now placed so as completely to encircle the thigh, and strips of bandage tied moderately tightly around them and the included thigh, inside and outside the iron bars according to fitness (2).

The extension straps are tightened up from day to day, if slack, so that the full length of the limb is, if possible, secured within a week or so, especially in children, whose bones so quickly unite. When the length is secured, all that is required is a vigilant maintenance of immobility and correct line, by tightening the encircling bandages as they become slack during the wasting of the limb, and by such other adjustments as common sense demands. In case the skin of the perineum becomes tender, apply grease, and so prevent or allay excoriation.

By this mode of treatment shortening may be more often prevented than is generally imagined, and in a good proportion of cases can easily be averted. I have left a case now in hospital where a fracture of the tibia, fibula, and femur in the same limb, managed chiefly by the house-surgeons of the Liverpool Royal Infirmary, in one of the splints here named, has resulted in a perfect union without deformity in the leg, and an almost inappreciable shortening of the thigh; though here the difficulties were really great, in spite of which the patient has had less than the average discomfort attending either one of these fractures; to say

nothing of other injuries, namely—fractured clavicle, sprained wrist, and scalp wound, stripping the bone.

It is obvious that shortening must often occur in fracture of the shaft of the femur, but by this method of treatment the frequency and the extent of the deformity are, to say the least, less difficult of control than by any other.

The liberty of the patient in bed, while securing the full efficiency of the treatment, is also obviously greatly increased. In osteotomies and other compound fractures the same means are employed, with the addition of Lister's arrangements and dressings.

During convalescence, after union, the walking knee-splint (*d*, 5), in which the weight of the body is transferred to the perineum, as the limb hangs harmlessly between the bars, and the sound limb is provided with an elevated boot or patten, should be used until union has become inflexibly hard. In adults the period varies, but is one that may be counted by months—roughly speaking, from six to twelve after the receipt of the injury, in favourable cases. It is well to let the patient know this at first, for the sake of his or her arrangements; and in order to do so with confidence, it is well for surgeons to provide for the supervision of the case during some such length of time, as it is to be feared that they not seldom erroneously substitute the six to twelve weeks properly claimed in books for the mere process of union, in computation of the average duration of the more lengthy process of a finished cure.

In children the precautions taken need not be so stringent, as their bodies are lighter, and their bones, although soft, less liable to bending at the seat of union, in comparison; though the possibility of secondary deformity must be borne in mind and guarded against. The calliper walking splint may be substituted for the longer knee-splint as soon as the limb is fit to bear the whole or most of the weight of the body, while still requiring to be maintained in the straight position. The elevated patten is thus dispensed with, but even then, if required, part of the weight may be taken off the confined limb by making the splint

just long enough to press on the perineum in the attitude of full linear extension (*e*, 6).

Fractures of the neck, or immediately below the great trochanter, are best treated in Thomas's hip-splint (*f*), applied exactly as in hip-joint disease (1, 2). In fracture of the neck without impaction, as there is not seldom an absence of shortening at first, it is well to apply the splint as early as possible after the receipt of the injury; in fact, when opportunity occurs, before the patient is moved at all. Otherwise, during transport shortening to even a great extent may any moment be caused.

In impacted fracture the shortening is accepted, but the use of this splint is found to be most gratifying, not only by removing and diminishing pain, but by greatly extending the patient's liberty.

The unassisted use of the bed-pan and other considerable voluntary changes of situation and attitude can be painlessly effected in bed, with the aid of the hands and the other leg, and the enforced recumbency thus made less wearisome. The bed should be soft for the use of both kinds of splints; in that for the hip the patient lying chiefly upon the back, which should be uniformly supported by the bed, into which, when sufficiently soft, the splint is depressed, and prevented from bearing more than a trifling share of the recumbent weight of the body.

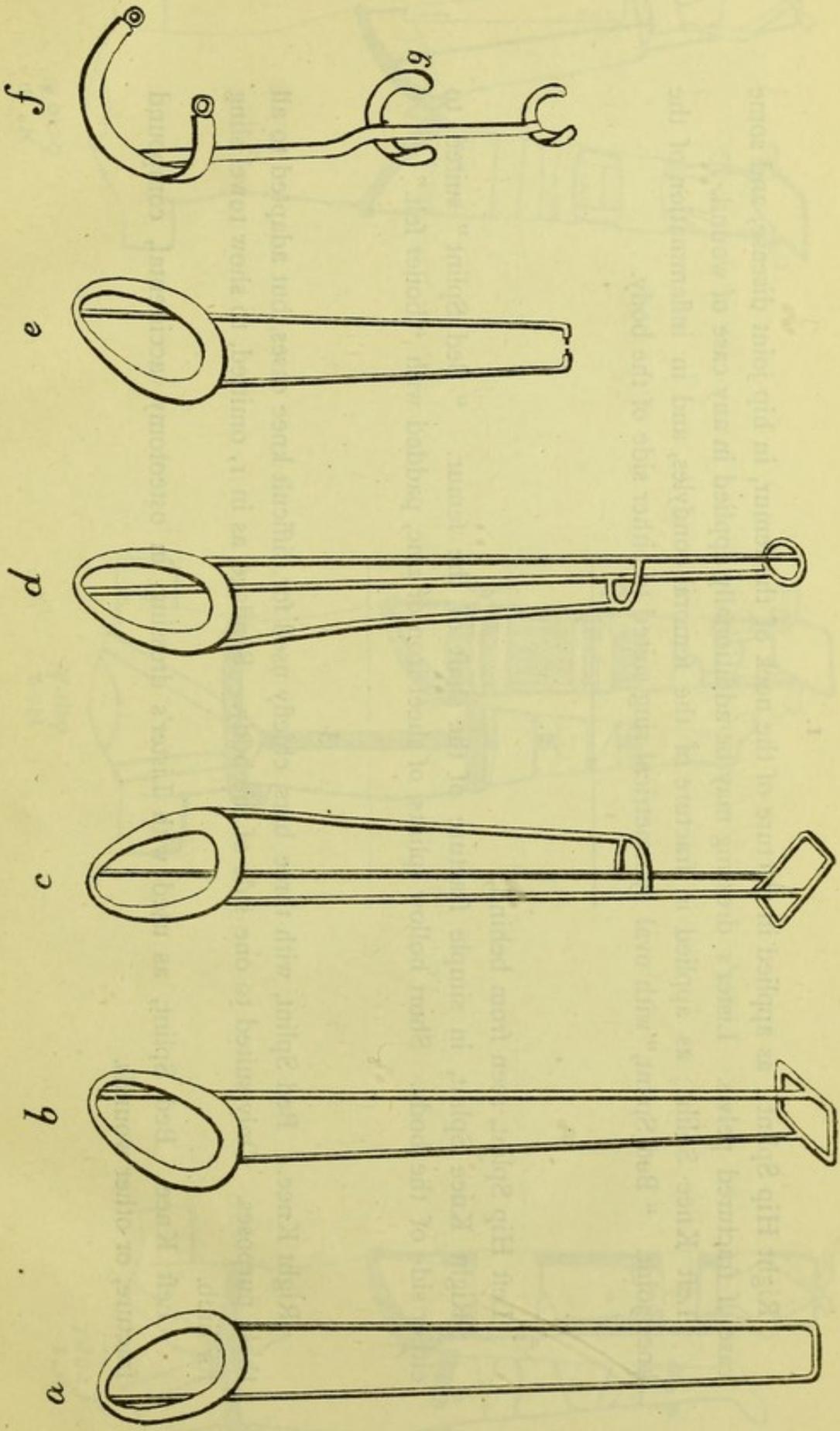
In the event of recent shortening in unimpacted fracture of the neck, in a vigorous patient at or under the middle age, extension straps should be well fixed to the thigh, and tied to the lower end of the splint, which then should have no shoulder bands, and which, by its observed tendency to slip downwards towards the feet, will be found to act as a sufficient drag in maintaining the length of the limb. But if that do not prove enough, the inner horn of the thigh crescent may be thickly but firmly covered with extra padding, and comfortably employed in counter-pressure on the ischium (*g*, 1). When locomotion is resumed, on the cessation of all tenderness and the occurrence of union, the injured limb is kept off the ground, and all flexion and other possible strain avoided at the now pliable neck, by the use of crutches under the arms, a wooden clog, or iron patten, under the boot of the sound leg,

and by a continuance of the splint behind the broken limb (4). The only postures permitted are the vertical and the horizontal.

In compound fracture, incision of joint or of abscess, or in case of any other wound or open inflammation, a Listerian dressing can be applied to the locality just as well with this splint as without it, the splint of course being outside the dressing.

In the event of non-union, in fracture near the head, from whatever cause occurring, the walking knee-splint, (5) or a long calliper, (6) may be employed with advantage, as a valuable aid to progression, and a useful substitute for crutches.

- a.* Ordinary Bed Knee Splint, for either side.
- b.* Ditto. with new end to raise it off the bed.
- c.* Bed Splint, with three bars for right side.
- d.* Walking Knee Splint, for left side. Three bars and terminal patten.
- e.* Calliper Walking Splint, to clip in boot heel.
- f.* Hip Splint, for right side.



1.

Right Hip Splint ; as applied in fracture of the neck of the femur, in hip joint disease, and some case of fractured pelvis. Lister's dressing may be additionally applied in any case of wound.

Left Knee Splint ; as applied in fracture of the femoral condyles, and in inflammation of the knee joint. " Bed Splint," with oval symmetrical ring suited to either side of the body.

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2.

Left Hip Splint, seen from behind,

Right Knee Splint, in simple fracture of the shaft of the femur. " Bed Splint " suited to either side of the body. Short hollow splints, of sheet iron or zinc, padded with " boiler felt."

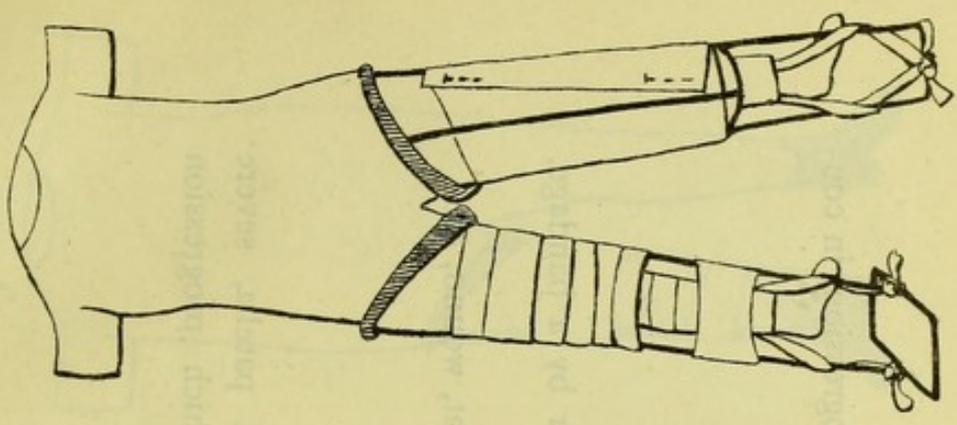
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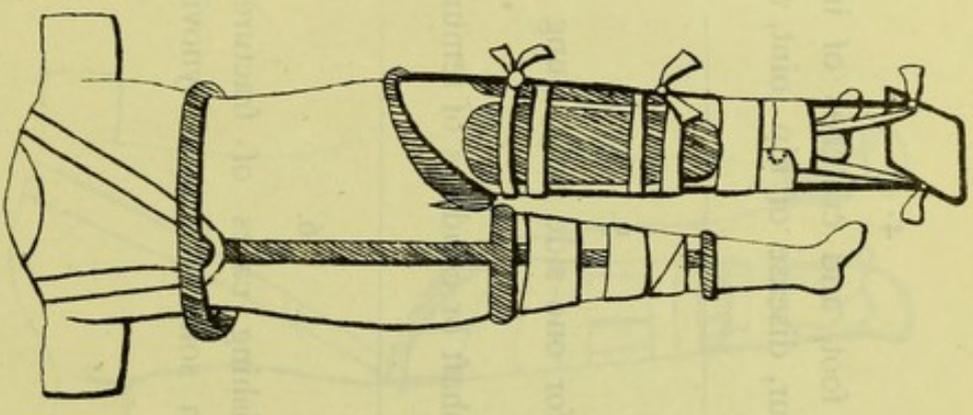
Right Knee. Bed Splint, with three bars, chiefly used for difficult knee cases, but adapted to all these purposes. Only suited to one side of the body. Bandage, as in 1, omitted, to show towel sling for limb.

Left Knee. Bed Splint, as used with Lister's dressing, in osteotomy, accidental, compound fracture, or other wounds.

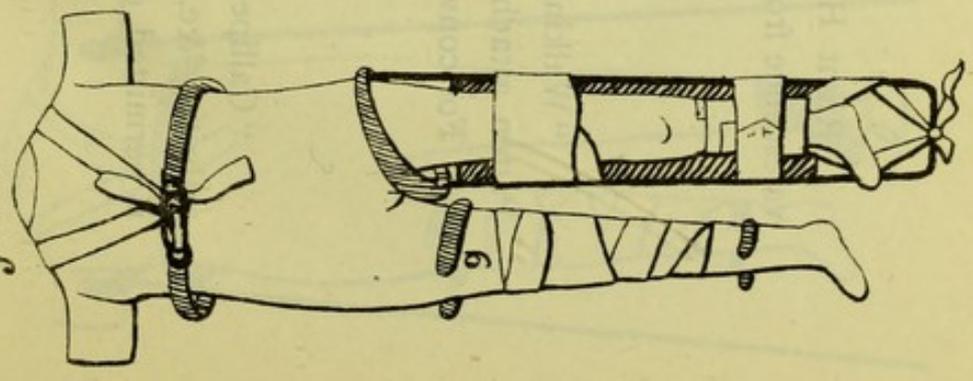
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N<sup>o</sup> 2  
back



N<sup>o</sup> 1  
front



4.

Right Hip Splint, patten to left foot, and crutches of iron gas-pipe; for progression, in convalescence from fracture of neck of femur, disease of hip joint, &c.

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5.

“Walking Knee Splint,” adapted for one side only, slung to opposite shoulder by a bandage. Patten attached to opposite foot..

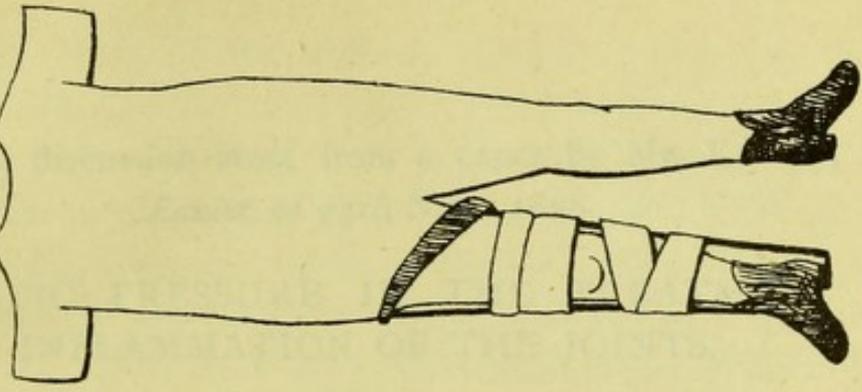
For convalescence from fractured shaft or condyles of femur, disease of knee joint, wound, &c.

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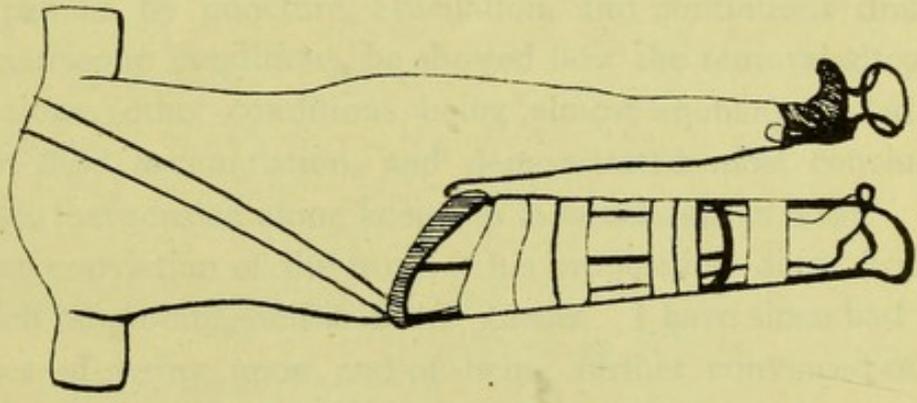
6.

“Calliper Knee Splint”; for finishing cases of fractured femur, fractured patella, severe arthritis, &c. For immediate use in some cases of synovitis of knee, in which progression is permitted during treatment.

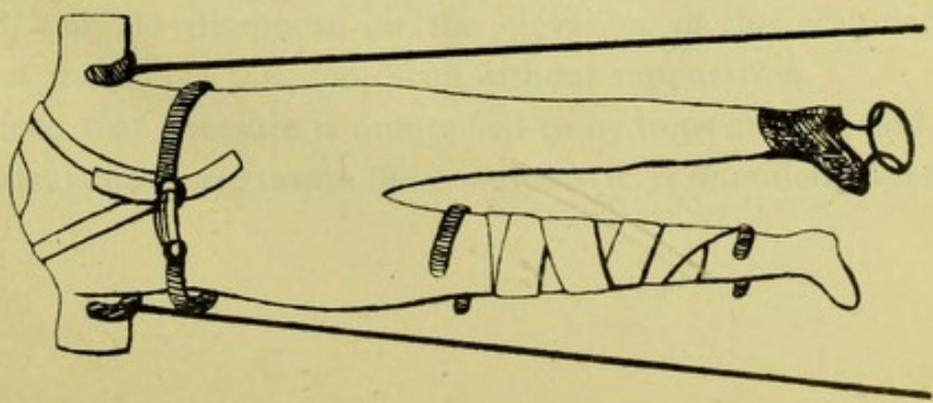
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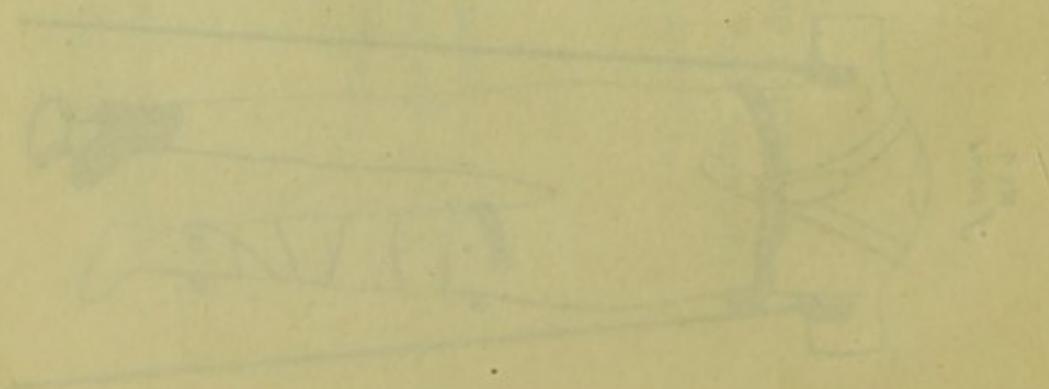
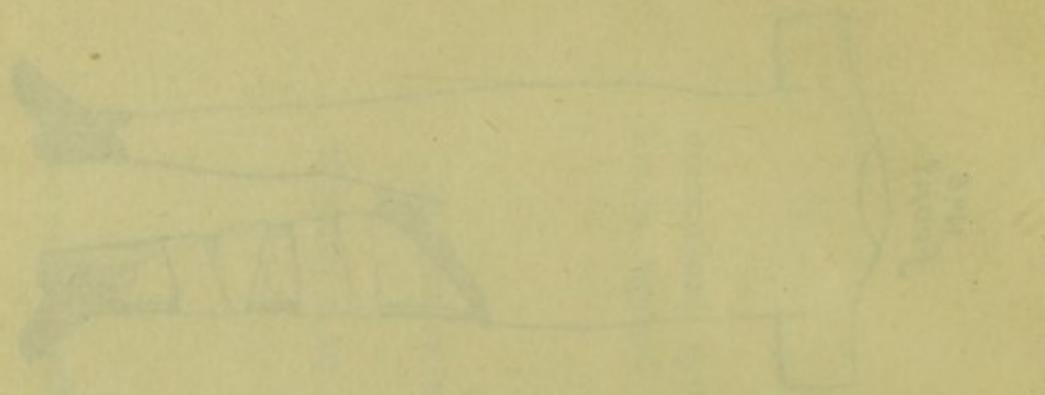


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The following discussion arose from a paper by Mr. Keetley, in the *Lancet* of 23rd Nov., 1878.

### ON ELASTIC PRESSURE IN THE TREATMENT OF INFLAMMATION OF THE JOINTS.

---

TO THE EDITOR OF THE "LANCET," 7TH DEC., 1878.

Sir,—The remarks of Mr. C. B. Keetley, in your last issue, in advocacy of the above practice, are characterised by a *naïveté* and truthfulness of manner which assures me that my adverse criticism of the matter will be as well received by him as it is meant by me. When Mr. Lister referred in your columns ("On some Recent Improvements in Antiseptic Surgery") a few years ago to the treatment of effusions into the bursa patellæ by puncture, evacuation, and continuous drainage, under his antiseptic conditions, he showed how the removal altogether of tension alone (other conditions being almost unchanged) led to a cessation of fluid accumulation, and demonstrated most conclusively the converse, that tension alone keeps up inflammation in a sac.

My own conviction of the truth of his proposition dates from the day on which he promulgated it in the *Lancet*. I have since had many opportunities of acting upon, and of being further convinced of, this elementary surgical truth (as I think it). I teach it in my lectures, and endeavour to act up to it in my practice.

Without going into much detail as to its application in other ways, I hold that it applies no less to the case of fluid confined in a joint, and have even proved its verity when mere serum has accumulated under a scab, for a faint pink blush may be perceived in the skin at the edge of a scab as soon as fluid tension beneath that scab has become established, only to disappear on the elevation of the scab and the liberation of the fluid; this, too, even without suppuration.

I believe that pressure is misapplied to hydrochs articuli, and that its use is calculated to aggravate the condition it is intended to relieve.

In the majority of instances the fluid will disappear when the joint is fixed straight and still, in acute cases. In many chronic cases this is also true; but if, in addition, the fluid be **drawn off** with an aspirator, in either acute or chronic cases, its **disappearance** may be assured. Perhaps not always by a single aspiration, but always after some. I am not now referring to cases where the joint has a lining of lymph in addition, though even here it does not always fail. It is on this principle also that Mr. Lister has practised (as others have also practised) the incision, evacuation, and drainage of simple serous synovitis.

There is uncertainty enough in what we are often pleased to call the principles of surgery to enable many to argue for or against any and every theory under the sun, and to dispose of each with a stroke of the pen; so that the view I here contend for may be less easy to prove on paper than to demonstrate in practice. However, having regard as much as possible to the realities of the case as distinguished from mere language, I believe that those surgeons will have most success with articular effusions who avoid compression. I have never yet regretted having avoided it, and can quote many instances in my favour. That cases may get well after compression is undeniable, but these occurrences are, I think, in *spite* of it. This fact alone renders the proof more difficult in writing than in personal acquaintance with its operation.—I am, Sir, yours, &c.,

RUSHTON PARKER.

Liverpool, November 26th, 1878.

---

TO THE EDITOR OF THE "LANCET," 1ST MARCH, 1879.

Sir,—Mr. Rushton Parker, in your journal of Dec. 7th last, attacks not merely my own particular plan of hydraulo-elastic pressure, but pressure in general, as a treatment for joint affections. He writes: "I believe that pressure is misapplied to *hydrops articuli*, and that its use is calculated to aggravate the condition it is intended to relieve." He adds: "That cases may get well after compression is undeniable; but these occurrences are, I think, *in spite* of it. This fact alone renders

the proof more difficult in writing than in personal acquaintance with its operation." It would be valuable to have a detailed description of that "personal acquaintance with" the "operation" of pressure which Mr. Parker considers strong enough to justify him in condemning the belief in the virtue of pressure which is entertained by almost every British surgeon who uses Scott's dressing for chronic joint cases, or Baynton's dressing for indolent ulcers—that is to say, by almost every surgeon in the country.

There is only one *argument* in Mr. Parker's letter, and that is based on the success attending continuous antiseptic drainage. I read some time ago in Braithwaite's Retrospect what was probably an abstract of the paper in the *Lancet* referred to. I then accepted the doctrines of that paper as fully as Mr. Parker does; but it appeared to me to justify conclusions as to the operation of pressure the very opposite to those drawn by him. Does he think that the relief of internal tension and the removal of external compression are the same thing? If so, he is guilty of the physico-physiological fallacy which lies at the bottom of almost all theoretical opposition to compression—a fallacy which I have striven to combat in a paper which will shortly be published in the forthcoming volume of St. Bartholomew's Hospital Reports, to which I would beg to direct his attention; and, so far from perfect rest and the straight position being the real curative agents, and doing their work in spite of the hydraulo-elastic pressure, I have some reason to believe that they rather retard the perfect restoration of a joint to its healthy functions. Certain it is that I have now a case of chronic synovitis with great effusion which has recovered rapidly without any kind of splint, and in spite of the patient's getting about every day and walking backwards and forwards to the hospital as an out-patient. Surely my bag and bandage policy deserves some credit here.

Finally, I beg to thank Mr. Parker for the friendly tone of his comments, and to apologise to you, Sir, for occupying so much space.

Yours, &c.,

CHAS. B. KEETLEY, F.R.C.S.

Manchester-street, W., Jan. 1879.

LANCET, 26th APRIL, 1879.

ON ELASTIC PRESSURE  
IN THE  
TREATMENT  
OF  
INFLAMMATION OF THE JOINTS.

BY

RUSHTON PARKER, M.B., B.S., F.R.C.S.,

*Assistant-Surgeon and Lecturer on Surgery at the Liverpool Royal Infirmary and  
School of Medicine.*

—o—

My reply of Dec. 7th, 1878, to Mr. Keetley's paper of Nov. 23rd, on the above subject, written with a studious brevity, was rather an assertion of my own conclusions and personal impressions than an attempt at the more lengthy process of their detailed justification. This attempt, however, I feel now compelled to make, and I have the less hesitation in doing so as I see in his paper a disposition to perpetuate views which are of a somewhat representative character, which really affect the whole subject of inflammation, and, consequently, its surgical treatment, but which I regard as no less misleading in practice than erroneous in principle. Mr. Keetley is kind enough to reciprocate the feeling of personal goodwill, which I hope there may be no occasion to disturb. A want of clearness in my last sentence, quoted in his answer of March 1st, 1879, has led him to misinterpret its meaning; but as the sentence is quite unimportant I will dismiss it, and go on to the main points.

Whether Mr. Keetley estimates correctly or not the prevalence of a faith in, or of the use of, Scott's dressing, I cannot really say, but I am less concerned with "the belief . . . . entertained . . . . by

almost every surgeon in the country" than with a desire to learn and to prove what are the realities of our art, as contrasted with the incoherent language and shallow inconsistencies by which it is too often defaced. I entertain no "theoretical" opposition to pressure, in the sense in which, if I rightly understand Mr. Keetley, it would be more correctly termed "hypothetical." I prefer to recognise as theory that explanation alone which is ascertained to be true. Theoretical considerations are, in this sense, the verbal expression and interpretation of facts, and difficult if at all to be kept out of an argument. Any reliance, however, on purely "hypothetical" grounds I agree with Mr. Keetley in deprecating, and am anxious to avoid. *Bonâ fide* compression I oppose, for practical reasons, derived from practical experience, tempered, I hope, with reflection, and not unmindful of the opinion of others, when veraciously given and free from obvious fallacy.

The view epitomised in my letter is based upon clinical knowledge, which has taught me that the repeated pressure inseparable from flexion in the use of a knee-joint, the subject of hydrarthrosis, is a frequent, and often the only, obstacle to speedy recovery. I availed myself of Mr. Lister's exposition of the perpetuation of patellar bursitis under tension, and the relief of it by antiseptic evacuation and drainage, as a collateral argument against the perpetuation or increase of this fluid tension in a joint. It must be admitted that concentric compression from without increases the fluid tension within a sac containing fluid. Whether or not the absorption of that fluid be thereby promoted is another matter. If the indiscriminate use of such compression were followed, either invariably or even generally, by the disappearance of the fluid, a much stronger argument in its favour would be established on this ground alone, quite apart from any other explanation, such as the arrest of flexion, and the consequent removal of a form of repeated pressure and friction. Even admitting, for the sake of argument, such an invariable sequence, in the hands of one surgeon, or of more, we have to explain the recoveries without it in the hands of others.

Synovitis of the knee often gets well after the application of poultices, fomentations, iodine painting, various solutions on rags,

without any mechanical appliance, and even when totally untended and unprotected from use. Who is to tell beforehand what case is capable of spontaneous recovery? What we want to know is the treatment under which no case shall get worse, or for mere want of which any case may fail to get well, and the unalterable laws governing the use of treatment which may admit of variations in detail while attaining its invariable purpose.

I will now proceed to the further consideration of synovitis of the knee, patellar bursitis, and also boil, abscess, or other inflammation, cutaneous or subcutaneous, in the same anatomical neighbourhood, having found that similar treatment is, in principle and often in detail, appropriate to all, and that each condition in its own way gives evidence of the part played by rest in the process of inflammatory resolution. Any one of these affections can be treated, as a rule, without laying the patient up, and is, if painful, immediately relieved as soon as the knee is fixed in the straight position by a back splint, or by abundance of plasters enveloping the joint and continued a moderate distance above and below, or by a combination of both. A continuance of this treatment, not tightly applied, but so as to prevent or greatly to limit flexion, is not only comfortably borne by patients going about, but is generally followed by complete resolution. I cannot attribute its good effect to any compression of the plaster; witness cases where the actual joint was uncovered from first to last, a practice which I invariably adopted formerly. In each case there is an inflammatory condition which with each flexion of the knee-joint is either compressed (as in the case of synovitis, bursitis, or abscess), or pulled upon (as in boil, wound, &c). The mere cessation of this movement not only allows the patient to get about painlessly within certain limits, but, by ceasing to aggravate, permits the resolution of, the inflammation. The abscess may, of course, require incision or aspiration, and the same is true of the serous fluids; in fact, much time is often saved in synovitis, and always in bursitis, by aspirating at once *after fixing the joint*; while in some cases it is indispensable. But I am quite prepared to admit that some of my cases could possibly have got well without my

interference ; so with anybody else, Mr. Keetley included, as, for example, most probably in the case referred to at the end of his letter on March 1st. The obvious existence of such cases is one source of the prevailing fallacies which attribute recovery to some one or more useless, but harmless, devices, that hopelessly fail in cases of more importance, such as the obstinately chronic or painfully acute. The essentials of treatment I have learnt from the important cases, which respond with great precision to its proper employment. The same means, though less imperative, are always advantageous, even in minor instances. These minor instances, however, are those which sometimes emerge little or none the worse, or, at any rate, eventually get well, after the application of other modes of treatment which I most unhesitatingly condemn from abundant knowledge of their ruinous effects upon severe cases, and the undoubted delay they make in the recovery of the mild. Such are blistering, firing, so-called passive motion, and, equally, the too early recommendation of voluntary motion, each of which is an importation of fresh injury into parts which one would think deserved a gentler handling, by reason of their already known infirmity. Into this injurious category the hydraulic compression of Mr. Keetley must often enter, can, in fact, only accidentally fail to enter, by the very thoroughness with which it effects compression, and so inflicts upon the joint an injury which it may, indeed, fortuitously survive, but to which it should in reason never be subjected. The very pain produced is faithfully recorded by that gentleman, in the only two cases which he reports, and is such as I should deem evidence rather of injury, however temporary, than of relief. As he truly supposes, such pain would not have occurred under a sufficiently slack application of his bag and bandage, for which he will, I trust, forgive me for recommending a "bag and baggage" policy.

To return to the treatment I am defending. We have here a relief of inflammatory tension, obtained in two different ways : first, by the arrest of movement and of the repeated slight compression, friction, or tension which that act inflicts ; secondly, by the withdrawal of the fluid when it exists. Either may succeed alone, but either may singly prove

insufficient ; whereas both combined are certain. For example, a woman applied to me with a small effusion in both patellar bursæ. Each was aspirated three or four times at suitable intervals of a few days, the joints being unconfined. Re-accumulation, however, occurred as often. Then one bursa was aspirated, and the joint restrained with plaster, the other limb being used as before, and remaining *in statu quo*. No further accumulation resulted, the single aspiration sufficed, and the joint was set at liberty after a week or two. The same was then repeated with the other knee, with the same result. I have subcutaneously ruptured the swollen bursa patellæ, and applied a back splint ; also punctured, drained, and dressed in Mr. Lister's fashion, other bursal cases, and applied a back splint with the same perfect effect, and treated synovitis of the knee with back splint or plasters, or both, aspirating once or oftener, or not at all, in all cases allowing the patient to walk, without a single failure or mishap, often enough to be quite certain of what I am saying.

It may be true enough that joints plastered in Scott's fashion succeed in getting well, or even derive actual benefit from the plan. The *hoc* is there, and I will admit the *post*, but I draw the line at *propter*. The apparatus is a splint, imperfect at the best, but which may suffice, particularly if, as it must often have been, not too tightly applied. While intended to compress, it really rests, by immobilising, the joint, and so does good in a proportion inverse to the attainment of its immediate object, in consequence of its accidental attainment of another. In mild and unimportant cases be it remembered, for in advanced general arthritis, it may be disastrous or, at best, futile.

The strapping of ulcerated legs is undoubtedly of value, whether in the mode practised by Baynton, or in its extended modification, and possible improvement, by John Scott. Is it because of compression, either of the ulcer or of the leg in general, when œdematous or congested ? If so, an indolent and already ill-nourished sore is rendered still further anæmic, and an apparent contradiction afforded of the well-kown fact that healing proceeds more rapidly where the blood and other juices are increased, as in paraplegic bedsores, and other cases of accident or

experiment illustrating vaso-motor paralysis. But the ulcer improves nevertheless, even in legs not œdematous or congested by varicose veins. Is it not rather by the support and fixation of the surrounding healthy skin, and the consequent immunity of the ulcer from incessant stretching and sliding, that the benefit results? So with carbuncle, so with boil, so with sprains. The pressure applied with plasters inflicts a momentary, perhaps a more permanent, pang or even injury, but the seat of disease and the surrounding healthy skin are stiffened, and move only *en masse*, thus neutralising the constant pain due to the slightest local movements. I do not therefore join in the indiscriminate welcome which some accord to Martin's elastic bandage, which is a sensational revival, in a deteriorated form, of a known and well-approved device that has never yet died out, and consequently not stood in need of re-discovery.

So much for the mechanical item; now for the local applications. Any and every form of joint disease can be got well (if got well at all) without them, as I have abundantly satisfied myself, and can assure others. They are of two kinds: the positively injurious and the harmless. The former have been already alluded to, and include every form of effective irritation. The latter are a host, from which I would by no means exclude the pharmaceutical ingredients of Scott's dressing, their filthy character notwithstanding. One cannot legitimately attach any more therapeutic importance to the use of mercurialised, iodised, or improvised applications, *of a non-irritating character*, to inflamed knees, than to any supposed local action of the sticky material in the various plasters, or even of the paper, wood, or iron in the splint. But allowances must, of course, be made for a certain amount of credulity, even among ourselves, to the perfectly free exercise of which I prefer to extend the utmost indulgence, particularly in the use of materials which are, at the worst, but harmless incantations, and which are often not without their psychological uses as *placebos*.

(Reprinted from the Medical Times and Gazette of 1st Dec., 1877.)

EXCISION OF HALF THE TONGUE, PART OF EACH  
JAW, SUBMAXILLARY GLANDS, AND SIDE OF  
PHARYNX, FOR EPITHELIOMA, WITH  
SUCCESSFUL RESULT.

—o—

James Gunn, aged sixty-one, a dock porter, under the middle height, and with a healthy history, family and personal, applied at the Stanley Hospital, Liverpool, early in May 1876, on account of an excavated ulcerated swelling affecting the left side of the tongue rather to the under side, for a length of about an inch and a half, and extending continuously to the molar gums of the lower and upper jaws adjacent and involving a small piece of the inner side of the intervening cheek. The glands under the angle of the jaw felt enlarged and hardened; the centre of the main sore was excavated to a depth of about half an inch, and its edges were hard, elevated, and tender. The patient had had it for two years, to the best of his knowledge, and, although a very wiry man, was now much debilitated by pain, and inability to eat with sufficient ease. The growth was judged at the time, and has been subsequently proved, to be epithelioma, and the circumstances were considered to justify an operation, if complete extirpation were feasible. Accordingly, this having, after a little consideration, been proposed to him, he readily consented, and gave absolute *carte blanche* as regards extent.

On May 19, under ether followed by chloroform, the left cheek was incised from the angle of the mouth to the sub-maxillary region. The facial and lingual arteries and veins were sought and tied; the lower jaw was sawn through at the canine tooth, and immediately above the angle; the upper jaw was clipped with forceps at the posterior and lower corner; the tongue was drawn out, and transfixed with a sharp-pointed curved bistoury from the middle line at the hyoid bone to the base of the epiglottis, and then slit to the tip; part of the soft palate and side of the pharynx were then separated with the rest. A

vessel or two remained to be tied, catgut ligatures being used in every instance, and the wound was closed with a pin and sutures. The operation is easily told, but it took nearly two hours to do, the patient being with the utmost difficulty influenced at all by the anæsthetic, and much time being lost in sponging out the pharynx, and giving him breathing opportunity; however, he bore it with great courage, and made a good recovery; but a large piece of skin sloughed from the cheek, and left a pharyngeal fistula, no doubt because, in the operation, about two inches of the facial artery had been sacrificed in removing the submaxillary salivary and lymphatic glands. The latter were found scarcely enlarged, while the former was very indurated.

After five months, the hole in the neck being about the size of a hazel-nut, and having assumed its ultimate shape by cicatrisation, was closed by a plastic operation on October 20. But the tip of the flap, which was taken from the neck below, and slid up along its long axis, did not hold, and the fistula became as bad as ever. Six months later (April 6, 1877) another attempt was made, but this likewise failed.

He manages very well by keeping a lump of cotton wool on the hole, and tying a band over it round his head and chin.

He was seen early in November, 1877, eighteen months after the operation, strong and well, continuing his work as a dock porter, which he resumed four months after the original operation, and only discontinued again in order to submit to the plastic attempts.

*Examination of the Specimen.*—The extent of the disease was found to be even rather more wide than was expected, and the duct of the submaxillary salivary gland passed immediately under the base of the ulcerated growth.

The microscopical details are somewhat unusual. The extent to which the epithelial masses can be seen penetrating between the bundles of fibrous tissue, and the total absence of small round-cell infiltration, where the epithelial elements are most abundant, give the tissue an aspect which is astonishingly like alveolar sarcoma. Yet everywhere the large characteristic cells of the buccal epithelium—arranged in globes at the centre of each cylinder, yet nowhere forming the horny globes so

usually present in cutaneous and buccal epithelioma,—and the unmistakable even front presented by the “lines” of the rete Malpighii, make the true nature of the disease plain enough. The round-cell infiltration is, in the adjacent muscular tissue, quite in the usual small-celled style ; and where the epithelial ingrowth is more scattered, it is perfectly visible and somewhat larger-celled. The bundles of the fibrous tissue are split up, and the individual fibres widely and often almost singly separated, and singularly invaded by the epithelial columns at the surface where all trace of papillæ or other sign of mucous membrane is wanting. The indurated salivary gland shows an abundant round-cell infiltration between the gland-tubes and acini, constituting an interstitial adenitis. The sections of slightly enlarged lymphatic gland did not show any secondary infective growth.

*Condition.*—Though he has lost such a considerable part of the lower jaw, this defect is, as usual, hardly perceptible. The remaining half of the tongue is pulled over to the left, and its outer side serves as a front and tip. It is mobile to a useful extent. The pterygoid plate shows on the left side, tightly covered with cicatricial mucous membrane ; and close to it, firmly attached by cheek and cicatrix, is the sawn end of the body of the lower jaw ; while between the two is the pharyngeal fistula, about the size of a small hazel-nut. There is not much room in his mouth, it is true, for the fingers of a surgeon ; but there is room enough for his own food and its efficient mastication. He has had continuous good health and strength, which latter, however, is tested to the utmost by his poverty and the rough nature of his work.

June, 1882.—He has been continually under observation ever since, on account of hairs growing into the mouth and pharynx through the cicatrix in the cheek, and on the margins of the fistula, which he has plucked out from time to time. He did not continue hard work for long, but obtained employment as a night watchman on ships in dock. Up to the early part of this year he continued well. There has gradually appeared, however, a hard rounded lobulated swelling under the right sterno-mastoid, involving the floor of the anterior triangle and its component tissues. The mass is evidently a malignant growth,

the anterior lobe of which has already commenced to soften. Whether it be a primary growth in the fascia, associated with the site of a branchial cleft, or it be a secondary infection of lymph glands, it is equally unusual and peculiar, as in the latter event the side of the neck opposite to that originally affected is the seat of disease. There is no trace of disease in the mouth or pharynx, or in any part of the left side of the neck, originally operated upon.\*

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EXCISION OF HALF THE TONGUE, HALF THE SOFT PALATE, SIDE OF PHARYNX, SUBMAXILLARY GLANDS, AND PART OF LOWER JAW, FOR EPITHELIOMA—RECURRENCE.

Wm. O., aged fifty-four, a full-bodied, strong-looking man, over the middle height, giving a family history and personal antecedents of a perfectly healthy character, came under notice May 26, 1877. He had, until lately, had a good digestion and lived freely, eating heartily and drinking plenty of alcohol, but not getting intoxicated. His face was spotty, having bright red pimples on the forehead and cheeks; the tongue was furred, and the breath very foul. On the left soft palate was a sloughy and excavated mass, covered with granulations at the edges, which were prominent, extending from the left of the uvula to the pillars of the fauces. Under the angle of the jaw was a globular induration the size of a small walnut. The dorsum of the tongue was unaffected, and some difficulty was experienced in ascertaining the whole extent of the disease, on account of stiff closure of the jaws. But a later examination showed that the under side of the tongue and the molar gum of the lower jaw were included in the affection, which was evidently epithelioma. He was recommended to give up the use of alcohol, and to take his food (liquids only could be used) at regular meal-times exclusively; also to take a tumbler of water containing a little Epsom salts each morning on rising.

By June 6 the tongue was clean and moist, the fetor of breath

\* See remarks at end of next case.

was all but gone, the face was less spotty and flushed, and the complexion clearer. The epithelioma was perfectly clean, and its granulations slightly less prominent, while the submaxillary swelling was less turgid, but harder and smaller. The only inconvenience he felt was difficulty and pain in swallowing, and constant pain about the left ear. The case was not considered a favourable one for operation; and all that was hoped for was a mitigation of the inconveniences of the disease by a judicious system of diet and, if necessary, other palliative measures. After careful consideration, in fact, the operation was declined by Mr. Parker; but the patient begged, as a favour, that anything that was possible might be undertaken, saying that his prospects could not be worse than if he were left alone. So on June 8, under ether followed by chloroform, the left cheek was incised from the corner of the mouth to the back of the hyoid bone, in front of the facial artery; the lingual artery and vein were tied under the hyoglossus muscle, with the aid of an aneurism needle and catgut; the lower jaw was sawn through about the first molar tooth, and clipped across with forceps above the angle, after stripping the masseter and internal pterygoid muscles; the tongue was then drawn out and slit from base to apex, by medium puncture from below to the upper surface at the epiglottis, with a sharp-pointed curved bistoury; then with a probe-pointed bistoury the soft palate was cut vertically to the right of the uvula, and separated from the posterior edge of the hard palate. The whole specimen, consisting of half the tongue, palate, submaxillary glands, etc., was then grasped, and swept off at its pedicle, close to the great vessels of the neck. Sponges were in readiness to instantly control the bleeding which was expected from this final measure. The facial artery was found cut about an inch from the carotid, and tied. A pin and a number of wire sutures were put in to close the wound.

It was hoped that the operation might have been more quickly performed, but the time occupied was at least an hour and a half. The anæsthetic was admirably managed, and the operation unfelt by the patient, except for a few minutes at the finish. For a few days he had a good deal of smarting, but he made a good and rapid recovery, as far

as minor matters are concerned. Food was almost withheld for the first few days, a little warm water containing boiled sago being given. A month after the operation there was a glandular enlargement under the sterno-mastoid, and in the pharynx a rosy crop of granulations, quite soft, but which looked ominous.

On July 13 the lump was exposed, and in doing so at least half the thickness of the sterno-mastoid was broken through. On almost completely isolating the growth, it was found to enclose the carotid artery, the jugular vein, and pneumogastric nerve. It was not considered proper to sacrifice the last structure, although the vessels might have been readily extirpated with the epitheliomatous mass of glands, so the latter were burst, and scooped out with the finger-nails and other instruments, and the wound left to heal. A day or two before this second operation his diet was changed with obvious benefit. He had had beef-tea and milk given him by the attendants, and it was noticed that his tongue was persistently furred white; moreover, he spat pints of saliva in the day. He was now ordered three meals daily, to consist of any one, or even two, of the following articles:—Bread, pea-flour, sago, and oat-meal, prepared with hot water or tea; milk was interdicted. In a day or two the tongue cleaned, and salivation ceased. The wound of the first operation healed at once, and was firm in ten days, except a minute hole where the tip of the jaw necrosed, and which closed after the separation of the minute exfoliation. The second wound became the seat of slough, deep down about the fasciæ and vessels. Much fetor was set up by decomposition here, but was completely corrected by filling the wound with magnesia powder. The sloughs then separated amid antiseptic suppuration, which gradually subsided. After all decomposition had ceased, he had a severe attack of erysipelas of the neck and head. His bed had been in a draught, so he was put in another, and the only treatment adopted was the administration of a little morphia, and the limitation of his diet to bread and sago, while the erysipelatous skin was coated with thick boiled starch. Within five days he was desquamating, and walking about as if nothing had happened. But the patch in the pharynx was increasing, and the deep parts of the neck, although

the wound was closing, were enlarging again.

He was discharged on August 15 exceedingly well in health, perfectly satisfied with his daily diet of a little bread-and-butter and tea, and pea-flour mixed with boiling water and butter. There was no emaciation, and he was perfectly free from hunger. Since that time recurrence advanced still farther beyond the reach of operative remedy, and he was admitted into Mill Road Hospital, where he died in September or October, 1877.

*Remarks.*—It is plain that no operation less extensive than the one performed would have been of any use in either case. When the gum is affected, the whole width of the mandibular arch need not always be severed; but when the tongue and reflected mucous membrane are also concerned, the greater sacrifice of bone is of little or no account to the patient (in view of the issues at stake), while it immensely facilitates an operation which is at best not one of the easiest, by permitting the free exposure of the parts involved, and leaving a perfectly accessible wound. The fact that each lingual artery is confined to its own side of the tongue allows the vertical median division of that organ to be bloodlessly effected, while the preliminary ligature of the vessel renders the removal of the corresponding half of the tongue equally bloodless. The submaxillary salivary gland (with or without the sublingual) is better removed, in order to effect a clean sweep; while the lymphatic glands and the whole track of lymph-vessels leading to them from the diseased part were specially included (themselves healthy or diseased) among the tissues whose removal was most thoroughly desired and anxiously attempted. The perfect success of the first case, and the strictly limited area to which recurrence was at first confined in the second, suggest the probability that, in spite of all precautions, the operation in the latter instance may have fallen a little short, in extent, of what ought to have been done. If that could really be proved to be true, no better justification of the procedure could be found. The singularly spare diet (as it would seem) which sufficed, in the same case, to fully satisfy and to maintain in good condition a big, strong man, is regarded as a feature of much clinical importance, not only as having afforded an

easy means of nourishing an individual who could not masticate at all, and only with difficulty swallow, but as being one out of many instances where the condition of a "sore place" can be improved and kept apparently within bounds by the dietetic amelioration of the "constitutional state."

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*From the British Medical Journal, December 17th, 1881.*

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SIMPLE FRACTURE OF PATELLA, UNITED BY BONE.

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William H., aged 23, a bargeman on a canal, was kicked on the right knee; fell, and, on rising, fell again heavily. He was admitted some hours later, on July 16th, 1879, having a transverse fracture of the patella, with about three-quarters of an inch separation between the fragments, and œdema of the neighbouring subcutaneous structures, but no articular effusion. The limb was fixed horizontally in a Thomas's knee-splint, being suspended between the bars on a posterior hollow splint of sheet-iron, padded with boiler-felt. A ring of three-quarters of an inch rope, about six inches in diameter, thickly wound with cotton wrung nearly dry out of water, was placed, closely-fitting round the patella, on the front and sides of the joint, and pressed backwards with strips of bandage in such a way as to hold the fragments closely together. To prevent their tilting, some more cotton was then stuffed in front, so as to fill the ring, and confined with a bandage, firmly and comfortably without being tight.

This treatment was continued for a month, with occasional adjustments, the patient sitting or lying in bed as he pleased, and having experienced distinct relief at the first application. On August 14th. Thomas's calliper knee-splint was put on, and the patient allowed to get up and walk about; in fact, he was made an out-patient at once, and returned to Cheshire, being advised to wear the splint six months

or more, and, under those conditions, to do some of his work. He visited the hospital on November 17th. Union was good and close, but not bony—a result not thought of then. He had discontinued the splint shortly before, and was at work on his barge; but, though not following out his injunction to persevere with the splint, which he found irksome, he wore a bandage, and took some pains to avoid more than a slight bending of the joint. He did not come again till March 15th, 1881, when bony union of a very firm kind was obvious to anyone, and complete mobility and perfect strength of the joint. He is a very powerful and healthy man, of middle height, and thick-set.

The above method of putting up a recently fractured patella is simple, accurate, and very satisfactory when no effusion is present. In the latter event, any forcible attempt to approximate the fragments is better omitted until the effusion is gone, or has been withdrawn by aspiration. The effusion may in some cases have coagulated, in which case aspiration fails. Under any circumstances, effusion generally disappears rapidly, and the fragments fall together so satisfactorily that forcible approximation is hardly necessary. The great item should be the avoidance of flexion in the after-treatment until the union has long been inextensible—if possible, for six or twelve months; after which, fibrous union is practically as good as that by bone; while the occurrence of bony union itself is probably even facilitated.

ABSTRACT OF AN ADDRESS  
ON THE  
MATERIALS OF BLOOD-POISONING:  
IS MALIGNANT DISEASE PARASITIC?\*

*Delivered at a Meeting of the Lancashire and Cheshire Branch  
at Blackpool,*

BY RUSHTON PARKER, B.S., F.R.C.S.,  
Professor of Surgery in Liverpool.

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I HAVE to show you micrococci from acute abscess, gonorrhoea, and pyæmia, and bacilli from a wound in a case of septicæmia. They are prepared by Koch's method of aniline-staining, and rendered distinct under microscopes bearing high powers, illuminated, in two instances, by Abbé's condenser; and are additionally represented in the diagrams which hang before you.

The germ-theory of disease is so far a reality, that spirillum is the demonstrated organic cause of relapsing fever, bacillus anthracis that of splenic fever; while the local and constitutional changes in septicæmia, pyæmia, and acute suppuration, are equally proved to be due to the presence, propagation, and influence of bacilli and micrococci of various sizes and differing degrees of irritative or toxic virulence.

In reviewing the germ-theory of infective disease in general, and of traumatic infection in particular, it may be convenient to allude to two distinctive types severally represented by septicæmia and pyæmia. Many of the infective diseases having been proved, most of them are provisionally supposed, to be due to organisms imported in some way from without. The organisms present in decomposing animal fluids are both numerous and various, yet they are, fortunately, "pathogenic" only in an extremely small minority. Some of them are always present in decomposing, and under certain conditions in suppurating, wounds; while, even in health, the cutaneous and mucous surfaces may be peopled with organisms of several distinct kinds. Under the type represented by septicæmia may be classed anthrax (and possibly also measles, typhus, and their associates), where the blood is simply polluted with an organism or with its products. Septicæmia proper seems to be of two kinds: (1) septic intoxication or toxæmia due to sepsin evolved by the septic bacteria (themselves confined to a putrid part of the patient or victim); and (2) septic infection or toxæmia in which the septic bacteria themselves enter the blood. In the septicæmia of mice, bacilli are the form of organisms concerned, and found in the blood, or in the infected wound, or in both. But they are often not to be found in casual specimens of the blood, owing to their more numerous accumulation in the capillary vessels rather than in the main blood-stream.

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\* This Report was kindly prepared by Dr. Barr, from the extempore address; and has been revised, with slight verbal alterations and additions, by the author.

In pyæmia, as investigated in rabbits, the organisms concerned are micrococci. There have been changes of opinion as to the appropriateness of the word pyæmia, as a descriptive term, especially in the old sense implying a suppuration of the blood, seeing that the introduction of pus into the blood had chiefly a negative value in the attempted experimental production of pyæmia. But, since Mr. Lister showed, in his observation of the breaking down of the infected blood-clot in a donkey's vein, that a genuine suppuration of the blood can indeed take place, the rational value of this necessary traditional expression is once more established. Pyæmia is characterised by a clotting of the blood, and the distributed infection of an organic ferment. The micrococci crowd together, increase the adhesiveness of the corpuscles, and promote the clotting of the blood, even in capillary vessels. The thrombi, whether large or small, are foci for the further development of the micrococci; and hence all the secondary phenomena, which, like the primary, may be suppurative or not.

In septicæmia, the bacilli kill by poisoning the blood, without giving rise to secondary inflammations or primary local manifestations; whereas in pyæmia, the micrococci cause clotting of the blood, and set up embolic pneumonia, nephritic infarcts, and perhaps also suppuration of the joints. The micrococci do not seem to be in themselves always so extremely poisonous; but, by giving rise to suppurative or other organic changes, indirectly lead to death by perversion of visceral functions.

What is the immediate cause of death in perforation of the bowel? The general answer is, "Collapse", which is indeed true enough when collapse actually takes place. But how are we to explain the cases where neither collapse nor death occurs? Perforation or rupture of intestine, with diffusion of contents throughout the peritoneum, is followed by peritoneal absorption, and the collapse is septicæmic; but a similar occurrence into the tissues, and not into the peritoneum (or only gradually and slowly into that serous sac), is a sure cause of acute (because putrid) abscess, but is often followed by recovery. A similar explanation attends the fatality of intestinal gangrene—as a complication, for instance, of strangulated hernia. It is a modern canon of surgical pathology that, in gangrene of any superficial part, putrefaction will occur unless circumstances specially prevent it. Dry gangrene may spontaneously fail to putrefy, except at the moist line of demarcation; but moist gangrene will infallibly putrefy, unless the timely disinfection of the superficial surface be artificially undertaken. But, if this be successfully done, the disease may be arrested, its spread prevented, and its disappearance accomplished, without loss of substance.

In the case of the intestine, no such prevention can be practised, so putrefaction inevitably attends the establishment of gangrene, demanding the prompt and free excision of this (as of any equally advanced) gangrenous organ.

A case of hernia, three days strangulated, recently came under my care at the Liverpool Royal Infirmary. At the necessary herniotomy, I removed twelve inches of bowel, with some omentum, and the patient for a time did perfectly well, in fact nearly recovered, but eventually died collapsed. After the *post mortem* examination, it was found that fresh patches of gangrene had appeared in other parts of the intestine, and thus the temporary relief and the ultimate death were both explained. Cases have been already reported in which this operation has been perfectly successful.

Although bacilli are the characteristic organic poison in the septicæmia of mice, and micrococci in the pyæmia of rabbits, it is to be noted

that Koch found rabbits liable to a true septicæmia produced by micrococci differing in shape, size, and distribution from those producing pyæmia in the same animal.

Tubercle is an infective disease, now known to be due to an organism which gives rise to the characteristic manifestations. These are both anatomically and physiologically allied to pyæmia. Opinions have, in the past, been apparently divergent as to the supposed real nature of tubercle; for instance, one school of able observers held that it was a purely inflammatory process, while another equally able, and its allies, have always regarded it as a specific disease due to an infective virus. No doubt the histological phenomena of tubercle are consistently explained as inflammatory, and so are those of pyæmia. But what causes the inflammatory changes? The very specific virus once thought to be an explanation antagonistic to the former, but now woven inseparably into it in the form of the tubercular bacillus so admirably discovered by Dr. Robert Koch.

Syphilis again presents many features analogous to those of pyæmia, and some have even alleged that they have seen a special syphilitic germ. But though this is not yet sufficiently proved, it is probable that such a germ exists. As for gonorrhœal rheumatism, its clinical features have long been interpreted as those of an aseptic pyæmia, which, fortunately for the patients, lacks the anatomical proofs that might be afforded if it terminated fatally; while ulcerative embolic endocarditis is a true aseptic pyæmia on the best anatomical evidence.

There is another infective disease which I venture to compare with pyæmia, and that is malignant disease, more especially its so-called carcinomatous varieties. Like tubercle, the inflammatory character of which is admitted on all hands, so far as the histological changes are concerned, the cutaneous, mucous, and glandular cancers have very close affinities to inflammation. The primary growths are essentially a plastic catarrh; and the round-celled infiltration, by which they are additionally indurated, shares, with the similar indurations of undisputed inflammation, a histological identity. Simple inflammations, however, are resolvable, their infiltrated products disappearing on the subsidence of the irritant cause, be it chemical or mechanical; whereas the cancerous induration is unresolvable, be it a malignant stomatitis, glossitis, enteritis, or dermatitis, as in epitheliomas, or be it a malignant adenitis, as in mammary or other glandular cancers. Round-celled sarcoma, again, is a true infiltration of the plainest possible kind, whether it constitute a malignant cellulitis, periostitis, or ostitis, or even an interstitial orchitis or any other adenitis; and differs only from undisputed inflammation of regions and organs in its "unresolvability". But the very unresolvability of carcinomatous tumours, whether primary indurations, lymphatic infections, or disseminated visceral growths, has a distinct parallel in the similar unresolvability of pyæmic, tubercular, and neglected syphilitic phenomena.

The cachexia of acute cancer, and of acute sarcoma, when now and then it kills as a poison, without prominent local symptoms, is not unlike that of pyæmia, of tuberculosis, and even of syphilis; the lymphatic glandular infection, and all its attendant and consequent phenomena, is conspicuously similar to various forms of infective inflammation; while the malignant thrombi that form in veins, in cases of carcinoma and sarcoma alike, with the still more frequent embolic disseminations of these truly infective appearances, have a resemblance to the thrombosis and embolism of pyæmia too obvious to need defence.

More than six years ago, I was led to the assumption that malignant disease had inflammation for its anatomical type, by the histological examination and comparison of inflammation, tubercle, and cancer; and I have taught it, during the greater part of that period, as an idea justified on anatomical grounds, though not entitled to acceptance as a truth. As a mere hypothesis, I venture to suggest it here, with the intimation that many things will surprise me more than the discovery of a parasitic germ originating malignant growths.

The bacillus of tubercle, though discovered, separately cultivated, and successfully inoculated by Koch, is still most difficult to find, and then chiefly in the freshest growths. The microphytes of disease, how terrible soever be their vigour, or the initial reality of their presence, are sometimes exhausted, and even effaced, in the transformations of tissue which they themselves educe—exhausted, as noticed in tubercle by Koch; effaced, as observed by Lister in the ass's jugular. The parallel, once established, recurs even in prevention, in treatment, and in cure. Against pyæmia, the only certain safeguard lies in preventing the primary infection; in tubercle, we already extirpate the earliest manifestations when we can get at them; while, in cancer, timely excision does sometimes amount to effectual eradication. The purpose is, in all, to avoid the dreaded physiological "infection".

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*From the British Medical Journal, December 17th, 1881.*

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UNUNITED WIDE SEPARATION BETWEEN PATELLA AND  
ITS TENDON: INCISION AND SUTURE  
ANTISEPTICALLY: CURE.

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John R., aged 12, a healthy schoolboy, applied, in December 1879, on account of an injury to his right knee, received a fortnight or three weeks previously. He had not been laid up, nor had he had any restraining apparatus. When erect, this limb fell straight, and could be used for progression; but he could not stand upon that leg alone, nor in any way employ the extensor muscles of the knee, so that the least force from behind knocked him off this leg. In flexion, the whole patella was drawn up, or rather remained constantly, at and above the trochlear surface of the femur, so that a gap of three inches could be instantly made; in the erect posture it fell a little, and could be drawn completely down. There was no pain, swelling, tenderness, or other abnormal sign about the knee. The operation of incision and suture was done on January 6th, 1880, under ether, and with all the precautions of Mr. Lister's carbolic acid method. A transverse incision was made, and the joint entered in its femoro-patellar division, above the mucous ligament; the patella was bored along its length obliquely from below, upwards and forwards, with a cabinet-maker's small twisted gimlet, which was made to issue through the skin, and then withdrawn along with a piece of copper bell-wire (about three-sixty-fourths of an inch thick), held in the twisted groove of the gimlet. Two wires were thus employed, in two different parallel tracks; and the same process was repeated through the skin and ligamentum patellæ. By this means the patella and its ligament were drawn together, and the wires acutely bent once on the skin at each aperture above and below; serving, in addition, as relaxation-stitches for the wound, the edges of which were then capable of being closely sewn with carbolised waxed threads, without tension on the latter. No twist in the wires was needed, nor any

disturbance of the wound contemplated or experienced in their withdrawal. The drains were of rubber tubing and horsehair, and Thomas's knee-splint was put on in addition to the gauze dressing.

On the following day the temperature was  $103^{\circ}$ , the pulse quick and the knee painful and exquisitely tender. When exposed under the spray, the skin all over the outer half of the joint and the lower outer half of the thigh was swollen, and marked by a circumscribed bright red inflammatory blush. The inner side was not puffed, and was free from tenderness. Ether was at once given, and the wound examined at leisure, as defective drainage was suspected. A suture or two being removed, and the drains in the outer corner being examined and nothing found, a pair of dressing forceps were passed into the joint, with the effect of letting out a couple of drachms or less of bloody serum from behind a clot. The drains were doubled, and the sutures not reintroduced. The temperature fell two or three degrees in as many hours, the tenderness gradually diminished, all pain disappeared, and the boy remained well until healing was accomplished. Several days elapsed between the changes of dressing, which were effected on the second, seventh, fourteenth, and the twenty-fifth days respectively; the wires were straightened and easily withdrawn on one of these occasions; the drains were gradually removed, and at the end of a fortnight the few punctures and spots in the incision, still unhealed, were superficial granulating sores. Nothing but blood and serum issued from the incision at any time; a flake of puriform lymph collected at each wire orifice, where slight ulceration of the skin ensued under the acute flexion of the wire; and, after the first fortnight, the boy got up each day, wearing a calliper splint and his Listerian dressing. Thomas's calliper knee-splint reaches from the groin and perinæum to the heel, where it clips a short piece of gas-pipe lying in a slot in the boot.

At the end of about three weeks total healing had resulted, and the patient was walking about and playing with other boys; the patella keeping its place in contact with the upper end of the tendon, and, from the impossibility of flexion, not being in the slightest degree induced to leave this position. He went home at the end of five weeks

and visited the hospital as an out-patient during the next few months, wearing the splint night and day ; being, moreover, enjoined to continue doing so for about a year, and being particularly urged not to permit the knee-joint to be flexed to the slightest degree for any purpose during the same period. He was lost sight of for the latter half of the year 1880, but was seen in January 1881, still wearing the splint and knocking about the fruit market and town generally, perfectly comfortably and healthy. He could not be persuaded to come to the hospital to show his knee, but he was told that he had probably worn the splint long enough. However, he did not remove it till the beginning of June 1881, and on June 25th he came to show himself. After three weeks disuse of the splint the knee could be bent to a right angle, and extended fully by the proper muscles in any attitude. Though the patella was firmly attached to its ligament or tendon, it is situated about an inch or more higher up than the opposite one.

It will be perceived that no "passive motion" was employed here. On his discharge from hospital, examination of the knee revealed what is often called "stiffness," but what was in reality a want of suppleness or flexibility in that part of the capsule involved in the cicatrix—a perfectly natural and, of course, inevitable result of the simple unexaggerated inflammation by which the primary union was effected. The perfectly straight position was maintained until long after the cicatrix had ceased to be vulnerable under muscular pulling and articular motion—with the effect of restoring the suppleness of the tissues. The boy was so afraid of bending the knee, which at first pained him at the slightest attempt, that there was no difficulty in getting him to comply with the directions given him : in fact, when all need of the splint had ceased to exist he still wore it for his own comfort and protection. The much dreaded permanent stiffness, which is so much talked about, did not supervene ; but, on the contrary, the slight temporary œdema and juiciness of the cicatrix gave place to toughness and consolidation ; and the slight defect in suppleness, naturally resulting from long disuse, is being safely removed under the gradual, painless, and consequently

harmless, resumption of articular movements. After sixteen months' confinement in the perfectly straight position, the joint can be easily bent to a right angle, though it had been liberated only three weeks, and may confidently be expected to bend very much more, possibly completely, in a month or two to come.

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*From the British Medical Journal, March 5th, 1881.*

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### LIGATURE OF LEFT SUBCLAVIAN ARTERY FOR ANEURYSM.

—o—

Michael McMahon, aged 36, a dock-labourer, applied in the last week of April 1880 on account of a small swelling below the left clavicle. Only five days previously, on awaking, he felt "something contrary with his shoulder"; and, on putting his hand there, he discovered the lump, which had not pained him either then or since. About eighteen months previously, he had felt rheumatic pains, as he called them, in the situation of the lump; but they disappeared in about a week. His work for the last three years had been among cargoes of corn, of which he had to carry heavy sacks; and, although one arm, commonly the left, was elevated to grip the top of the sack in this severe labour, there was nothing which drew attention to special strain in his case upon the affected blood vessel, unless it were that from disease it was the less fitted to withstand extra pressure.

He admitted having had a chancre ten years before, with enlarged inguinal glands and falling of the hair, but no rash or sore-throat. Before that time, also, he drank heavily, but said that he had since been sober and free from disease. Under the clavicle was a distensile pulsating swelling, of the size of a small hen's egg, soft, compressible, ceasing to pulsate, but not collapsing, on pressing the subclavian artery, and revealing a *bruit* on auscultation over it. The corresponding radial pulse was feebler than the right, and somewhat delayed.

On April 27th, under ether, the left subclavian artery was tied above the clavicle with a medium-sized ligature of carbolised catgut; the wound in the integuments being made with a knife, and those in the fasciæ with a pointed but blunt steel instrument, aided by dissecting forceps. In this way, after reaching the first fascia, both it and the succeeding layers were easily divided; while the external jugular and other veins were as easily left unwounded and pulled aside. The aperture in each fascia in turn was held open, as soon as made, with two pairs of artery-forceps, by Mr. Bickersteth, who kindly acted as principal assistant. The aneurysm-needle was passed unarmed; then threaded and withdrawn to give place to the ligature. In this way, bleeding was avoided, and accordingly sponging was not required. No incidental obstacles were encountered, and none were created; so the operation was shorn of all difficulty. Lister's arrangements were adopted in the steam-spray and carbolised gauze; the drain being a wisp of horsehair. The dressings were changed on the third, fourth, and tenth days; on the last occasion, boracic lint was used, as a superficial strip of granulations alone remained to be healed. The drain of horsehair had escaped before the third dressing, when it was found convenient to substitute a short piece of tubing. This, having escaped before the fourth dressing, six days later, and, being then obviously no longer of any use, was no longer employed.

Pulsation ceased in the aneurysm at the operation, and never returned. In the corresponding radial artery, no pulse could be detected till after ten days, and then only feebly; and thus it has continued ever since. The limb did not become cold or painful, and no wrappings of any kind were used. The discharge was slight throughout, consisting of bloody serum, followed later by serum; no pus or lymph.

The temperature rose to  $102^{\circ}$  on the evening of the third day, having been  $101^{\circ}$  on the second, and  $99^{\circ}$  on that of the operation. It had previously been normal, and subsequently reached  $100^{\circ}$  on ten successive evenings. But the patient was never ill, or in any way inconvenienced, beyond a feeling of numbness in the limb. After five weeks, he was sent to a convalescent hospital outside the town, and

returned in a few days somewhat ill, having exposed himself to a chill, and having a great arterial throbbing, especially in the lower limbs, the vessels of which seemed of immense size and painfully distended. Tincture of opium was given in frequent small doses for a day or two; and he was kept to bed, and fed lightly. He soon recovered, and went again to the convalescent hospital. Throughout the summer he took care of himself, and got a few light jobs to do. In October, he was working hard again as a dock-porter, and reported himself occasionally. All this time the aneurysm remained soft, and but little reduced in size, being still visible. In December, he reported himself better than ever, and working regularly without discomfort. The swelling had now very nearly gone, though it could be felt as a small knob, seven months after the ligature.

Two years after operation he applied on account of iritis, which soon passed off. In other respects he was well, including his arterial system and the site of the aneurism, which continued as at last note. The pulsation in the left radial artery was still hardly perceptible.

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*From the Lancet, July 8th, 1882.*

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#### ON THE METHOD OF OPERATING IN STRANGULATED UMBILICAL HERNIA.

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The communication of Mr. T. F. Chavasse in the *Lancet* of May 27th, 1882, is deserving of criticism on several grounds, among which are, the importance of the emergency, the principles concerned in its appreciation, and the question, above all, of practice. The gravity of a condition that, without artificial relief, is almost necessarily fatal, and which formerly seldom proved otherwise, in spite of that relief, cannot possibly be over-estimated; and the traditional importance of the emergency may have not been diminished by the comparative infrequency of its occurrence; may rather, as I think, have been enhanced, seeing that a possible reduction in the mortality may have failed to

attract a deserved attention, through sheer poverty of the associated statistics. The amenities of experience (or of what, in default, has to do duty for it) sometimes uttered in the terms "he will never get better," or "such cases always die," are frequently more authoritative than trustworthy; and I confess that I have on that account now and then withheld the complete respect accorded by some to this familiar but despondent wail. In short, the frequent former fatality that attended herniotomy, as performed for umbilical strangulation, has never caused me to view it as the inevitable, or even as the most likely, prospective issue of such cases. But, after all, this statement of my impression must, like that of Mr. Chavasse, or of anyone else, be held subordinate to the great realities, in the light of which the mere impression may be criticised, and eventually justified or rejected.

The former death-rate of umbilical herniotomy, though absolutely high, has been in certain groups of statistics, especially in the hospitals of towns, almost if not quite equalled by that of inguinal and femoral. But an improvement has taken place all round, for reasons that will be differently explained under varying or imperfect impressions. It is certain, however, that of late years an immense immunity from death, in quarters where escape was previously more rare, has been enjoyed after the more common herniotomies; while there are records of conspicuous, if not numerous, successes even in umbilical cases. Much of this success is attributed, and fairly attributable, to the direct protective influence of the antiseptic system and the simplification and multiplication of its cures. But an indirect result of this success has been the removal of unwonted reluctance and delay; in fact, men operate earlier, and for some purposes oftener, than they did before, while operations are freely undertaken that were formerly avoided altogether. The causes of failure, and the means to ensure recovery, in cases of strangulated hernia are not all, however, summed up in the methods employed at the wound or hernial sac, since we have often to reckon with widespread disturbance of intestinal function, to administer opium and proscribe diet, for want of which precautions the most

perfect herniotomy, or the most successful taxis without operation, may alike be rendered useless.

I had occasion to cut an umbilical hernia for the relief of strangulation in the summer of 1879. The symptoms were quickly relieved, and the patient made a simple recovery. A complication subsequently arose in the formation of a fæcal fistula, which did not heal spontaneously, but which I effectually closed at a second herniotomy in the summer of 1880. The case is recorded in the *Medical Times and Gazette* for Feb. 18th, 1882, where details are given. A radical cure of the hernial protrusion did not occur (though I attempted it at the second operation), owing to the wideness of the neck, the thickness of its margin, and the inability of my sutures to obliterate the aperture. But the method that proved unsuited to mine succeeded in a case of much larger umbilical hernia, but with a smaller neck, previously operated on by my colleague, Mr. Banks, for the purpose of radical cure alone, and at which I assisted him, in the same summer.\* Eventually I was enabled to radically cure, by effectually ligaturing the sac alone as deeply as possible, an irreducible omental umbilical hernia,—a method I venture to recommend to all for simplicity and safety.†

I can see nothing in umbilical hernia, strangulated or not, to which the known principles of surgery, that apply to other herniæ, do not equally apply; still less do I see why such a hernia should be, under any circumstances, denied complete reduction, or the supreme advantage of a radical cure. Neither can I imagine that the three patients in these four cases were placed in special jeopardy by manipulation, under suitable precautions, of the umbilical sac or of its contents; or that their simple and speedy recovery can be viewed in the light of a narrow escape.

It is true that in only one instance was strangulation present, and even then of so mild and recent a character as to contrast favourably with similar cases more advanced. But the very fact that the woman was not left till she became moribund, or rather was promptly rescued

\* See the *Liverpool Medico-Chirurgical Journal* for Jan. 1882.

† See *Medical Times and Gazette*, May 27th, 1882.

before signs of actual danger were evinced, is one of the proofs so often and so truly adduced that we must not mistake for consequences of the operation symptoms that never occur when herniotomy is properly and promptly performed. Perhaps one cause of the desperate state into which intestinal irreducibility may drift, in umbilical cases, is the comparative wideness of the neck, facilitating descent, but not strangulation, which is consequently rather prohibited, and, what is worse, is from its more gradual onset apt to be insufficiently noticed by the patient, who fails to connect with the tumour, not differing, perhaps, from its usual daily state, the uneasiness, eructation, and other early symptoms, so much more appreciable to some non-medical intelligences than to others, and so instantly attractive of medical notice. It is truly bad enough for the patient if medical attention be delayed until the unequivocal strangulation has reached an advanced stage of constitutional and even local disturbance. Just the same, however, occurs in old inguinal herniæ, from many of which an umbilical differs only and simply in the single item of locality. Even at this juncture the successful advantage of operation is conspicuous enough, but it may go very hard with the patient if his surgeon has to think twice about cutting him, through a perfectly unfounded and superstitious dread of killing, by the means alone capable of keeping him alive. I cannot therefore entertain or further discuss the notion of the special vulnerability of the sac of a strangulated umbilical hernia as distinguished from that of the adjacent peritoneum; the onus of proof rather rests upon those who have invented the idea, which, I venture to think, is not based upon any intelligible principle of anatomy, physiology, or clinical experience. The method of operation related by Mr. Chavasse is at best, and under the easiest circumstances, a roundabout way of attaining what should be a straightforward, intelligent, and even simple end; in gangrenous cases it is the surest way to spill fæces into the peritoneal cavity, while in all it is an obstacle to radical cure, without which no herniotomy can now be said to be artistically complete, and to solely attain which many herniotomies are very properly undertaken.

*From the British Medical Journal, January 19th, 1878.*

CASE OF LARGE CALCULUS, WITH NATURAL  
PERFORATION FOR THE URINE: REMOVED BY RECTO-  
URETHRAL LITHOTOMY, AFTER EXTRACTION  
OF A PENILE URETHRAL CALCULUS.\*

The patient was a man aged 54, a native of the Edinburgh district, who came under notice and submitted to operation in the first week of July, 1877. Five years previously, he had suffered from difficulty of micturition and other urinary inconvenience, in consequence of which he had entered the Liverpool Royal Infirmary, where an operation was proposed and was on the point of being performed, but was frustrated on account of the fear and sudden departure of the patient. Since that time, he had had repetitions of the old trouble, but not to a severe extent until shortly before the date of the present observations, when he consulted his private medical attendant, Mr. T. W. Evans of Liverpool, who found a stone in his urethra, and brought him to me at the Stanley Hospital.

The penis was thickened, and very much hardened about its middle, and so tender that little examination could be endured. The urethra terminated anteriorly at the margin of the retracted prepuce, where it was wide enough to admit the point of a finger, being, in fact, now but a wide sinus. That part of the urethra which should traverse the glans penis had ceased to exist, owing to sloughing chancres which he had had many years ago in India. There was, moreover, a fistulous perforation of the urethral floor about an inch behind the preputial orifice, of the width of a crow-quill.

Under ether, on July 6th, the penis was explored with forceps, and eventually a triangular stone was removed, less than three-fourths of an inch long, more than half an inch wide, and a quarter of an inch thick. The surfaces were irregular; one concave and the other convex. This

\* Read in the Surgical Section at the Meeting of the British Medical Association in Manchester, August 1877.

stone lay in a space lined with granulations ; a wide sinus, bounded by a portion of the urethra and corpus spongiosum.

On passing a sound towards the bladder, it stopped in the prostatic region, and struck a stone or stones. By the finger in the rectum, it was felt that the foreign material was close above the mucous membrane of the roof of the bowel. The prostate felt hard, slightly enlarged, and of the usual shape. The patient was then turned on his side, and the stone cut down upon with a small knife in the middle line of the roof of the rectum ; the hole was enlarged forwards and backwards with a blunt-pointed bistoury, after which a calculus with several projecting lobes could be distinctly explored with the finger, but not easily dislodged. However, at last, with the aid of a scoop, the stone was removed.

The patient had a severe rigor shortly after the operation ; but, in other respects, he has been very well. The wound was left to take its course. In two or three days, he had a stool. He has complete control over his fæces, and urine when in small quantity ; the latter escapes partly by the penis and in part *per anum*.

The treatment adopted was the administration of morphia subcutaneously for the first few days regularly, and afterwards when required. The diet was at first warm sago and water ; afterwards bread and other farinaceous stuffs. Throughout, milk has been avoided.

The left testicle, which had years ago been swollen during his attack of syphilis, and which had dwindled down to small dimensions, became the seat of acute inflammation, which at its height was perceptibly relieved by the operation of a single leech. The complication was probably set up a fortnight after the original operation, in an exploration of the penis under ether, undertaken on account of persistent pain and tenderness in the organ, on the supposition that possibly some stone still lay unremoved. It was found, however, that the original operation had in this respect been complete. The case is still in progress, and the recto-prostatic aperture still remains ; but I have thought that, in view of the extraordinary size, shape, and general circumstances of

the stone concerned, its relation, at even this early period and in this imperfect form, would not be altogether inappropriate to the present occasion.

I have not been able to find any record of a prostatic stone, perforated in this manner and pervading the prostatic substance so completely as this has apparently done. The calculus has the shape of the prostate itself, with the addition of a promontory or spur at one end. Including the spur, the total length is  $1\frac{7}{8}$  inches; without it,  $1\frac{1}{2}$  inches. The greatest width is a little over  $1\frac{1}{2}$  inches—strictly speaking,  $1\frac{5}{16}$  inches. The remaining diameter is  $1\frac{1}{4}$  inches. The canal runs parallel to the side which I take for the upper, at a distance below it of three-eighths of an inch, having a length of about half an inch, and opening forwards into a shallow groove on the surface in question, and extending along the promontory before referred to. Its horizontal diameter is an eighth of an inch, but the vertical less, so that a no larger catheter than a No. 2 of the English scale will pass.

The stone weighs  $1\frac{3}{8}$  ounces, is of a pale yellow colour outside, and paler within. One or two chipped surfaces show a laminated texture.

*From the British Medical Journal, July 22nd, 1882.*

At the Manchester meeting of the British Medical Association in 1877, I shewed the calculus, referred to in the Journal on January 19, 1878, to Mr. Cadge, who expressed his conviction that it was not, as I had supposed, of prostatic origin at all, and that its situation in the prostatic urethra was due merely to the arrest of its passage. Mr. Cadge's opinion proved to be perfectly correct, and the calculus turned out to be urethral. This I had the opportunity of ascertaining in consequence of the death of the patient in December 1878, after an operation intended for the relief of recto-vesical and urethral damage.

At the *post-mortem* the prostate was found entirely unaffected, but of the smallest size known to the adult state, whereas the spot that had been occupied by the extraordinary calculus was that part of the perineum traversed by the membranous urethra, of which merely portions

remained, in what was really a spheroidal sinus. A section of the stone has been made and its composition determined by Dr. Campbell Brown, professor of chemistry in University College, Liverpool, who has kindly reported thus :—Chiefly phosphate, much ammonia, very little lime, a little magnesia, organic matter, only a trace of urates, possibly a little oxalate.

The small stone extracted from the penile urethra has a white phosphatic nucleus, excentrically attached to additional material, but with its own concentric layers. It has probably a composition not differing from that of the other.



# ABDOMINAL HERNIA

AND ITS CONSEQUENCES

WITH THE PRINCIPLES OF ITS  
PRACTICAL TREATMENT

BY

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## P R E F A C E .

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IN the accompanying glance at hernia and its consequences no attempt is made to repeat the uncontrovertible facts so much more ably related in the classical treatises of numerous authors. But certain points are here accentuated in a manner that is intended to be suggestive, if even assertive, rather than exhaustive.

Examples are given of various degrees of functional intestinal obstruction co-existing with, or supervening even after the reduction of, mechanical strangulation. For such functional conditions none but functional methods are of any use—the abrogation of ingesta from above, of enemata and finging from below; and the effective administration of morphia, of alcohol, or of both. Whatever the form of intestinal obstruction, however supplementary be the part played by functional treatment in completing the relief afforded by the reduction of hernia, this series of items can be seldom dispensed with, is generally important, and is often the sole accessible basis of a trustworthy hope. It may be fairly asked, Who neglects functional treatment; is its employment not part and parcel of existing practice? In reply I have to urge that it be more promptly, more thoroughly, and more frequently employed, not only in exaggerated and anxious cases, but in those that are but

slight, liable under neglect or undue postponement of effective control, to become serious. It practically comes to this, that any pains in the belly may require opium, and most, in addition, the restriction of food; and in the same category come most forms of diarrhoea as well as many examples of constipation. For an admirable account of choleraic diarrhoea, and its prompt suppression by morphia, the reader may be referred to several communications made to the *Lancet* of 27th September, 1879, 2nd and 30th October, 1880, by Dr. William Hardman of Blackpool. For the importance played by strict abstinence from solids during attacks of diarrhoea, under circumstances requiring a prompt rational remedy, in the likely absence of all drugs, reference may be also made to "The Art of Travel" by Francis Galton, F.R.S., a work abounding in special and every day knowledge under rational and scientific criticism.

The condition usually called strangulated omental hernia has been examined, and the fallacious pathology implied by this name shewn up as a contradiction in terms, while it is at the same time explained how obstruction of intestine may yet sometimes attend incarceration of omentum.

The difference between intra-peritoneal and extra-peritoneal "perforation" of intestine is gone into, and the occurrence of "collapse" attributed to the septicæmia of fæcal extravasation, not to the mere perforation which, without that important consequence, may be harmless or at least not fatal.

Finally, the attainment of radical cure by a method, applicable to all herniæ, the most modern and the simplest yet proposed, and one becoming widely employed in Europe, is explained in principle and practically illustrated.

*March, 1883.*

The following is a list of the names of the persons who have been admitted to the office of the Secretary of the Board of Education since the last meeting of the Board.

1870-71



Ice, discriminate use of . . . . .	5
Ligature of sac, high up, effects a radical cure . . . . .	50-55
Milk, objections to . . . . .	5, 15, 16
Omentum, strangulated, fallacious notions regarding . . . . .	17, 21, 22, 25
"      "      Scarpa's treatment of . . . . .	18
"      "      supposed symptoms of . . . . .	19
"      "      same symptoms in relation to ligature . . . . .	19
"      "      Sir W. Lawrence on . . . . .	19
"      "      Mr. Timothy Holmes on . . . . .	20
"      "      Mr. Birkett avoids the subject . . . . .	21
Perforation of intestine in fæcal fistula . . . . .	27
"      "      in gangrene . . . . .	36
"      "      in relation to collapse . . . . .	30
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# ABDOMINAL HERNIA,

BY RUSHTON PARKER, B.S., F.R.C.S.

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THE inconveniences of hernia are truly great when collectively considered, though individual cases or groups of cases may frequently be met with, in which these inconveniences are but slight. That a hernia may be borne for years uncomplained of by the possessor, unsuspected by others, is well enough known. The support of a truss is generally, but by no means always, an essential condition of prolonged harmless toleration, and the requisite instrument can be easily procured at the shop of any surgical mechanician or druggist. The ruptures that are amenable to a truss at all are often as comfortably kept from protrusion by an inexpensive article, as by more elegant and costly apparatus. In the umbilical hernia of babies, the most perfect truss is a plate of sheet metal or stout card sewn up in the infant's binder. Such herniæ seem to readily disappear in a few weeks or months, in nearly all cases. In adult life umbilical hernia is more frequent in women than in men, but is seldom effectually controlled by any truss. The inguinal hernia of boys, men, and women can often be comfortably held up by an inguinal truss, the result of which is, in some cases, after continual efficient use for several years, to bring about a complete cure of the hernia. Femoral hernia can be supported by a similar truss, in suitable cases occurring in male and female adults, female

children being exempt from femoral and inguinal hernia. These inguinal and femoral trusses are known as such at the shops; are made "right" and "left;" and can be procured of the requisite size by measuring round the hips just above the femoral trochanters. Thus, for a person measuring thirty inches in girth at this situation, a "thirty inch truss" will be required. Medical men and other subjects of hernia have told me that they prefer a "double truss," both for comfort and efficiency, even though the hernia be only one-sided.

Any one may be disabled, or seriously hampered in erect movements, by any of these herniæ; while even without disablement, the existence of a hernia in a man or boy disqualifies him for admission into the army and other occupations. But the great inconvenience and source of the urgent importance of hernia is the liability to intestinal strangulation, a definite form of obstruction, the accessible position of which renders it easy both of recognition and of relief. So definite are the symptoms in typical cases, and so unmistakable is the relief afforded by successful taxis or skilful herniotomy under average circumstances, that this particular form of intestinal obstruction constitutes a perpetual theme in medical teaching. But little is wanting to render complete all that is taught about the symptoms and treatment of strangulated hernia. Examiners never weary of it, and students dare not neglect it. So far so good; it is impossible to exaggerate its importance. But I am decidedly of opinion that too much is made of one side of the case, and too little of another. The typical symptoms

cannot be too well known, too searchingly analysed, or too early attended to. But they are, after all, the symptoms common to all forms of complete intestinal obstruction, *plus* the presence of a hernia that immensely simplifies the recognition or "differential diagnosis," facilitates the treatment, and increases the hope of success. Yet the beginner has good excuse for entertaining the impression that the symptoms are the special characteristics of a separate disease, according to the teaching usually provided for him. The brilliant and increasingly safe effect of successful reduction, the disappearance of symptoms, the restoration of the patient (often from serious illness and always from danger) to a state of speedy or immediate comfort, is indeed undeniable, and one of the greatest triumphs of healing. But this is a special treatment, fitted for this form of intestinal stoppage alone, being in other occlusions usually impossible, and always a most dangerous experiment. Yet surgeons continue to hanker after "abdominal taxis" in vain attempt at relief of conditions that are often due to functional causes alone, and are seldom capable of exact differential diagnosis. The specialization of the symptoms of strangulated hernia, and the generalization of the principles of treatment, are fundamentally erroneous, bringing disappointment to the practitioner and death to the patient. The very contrary requires to be observed. A generalization of the symptoms in all kinds and every degree of intestinal obstruction, mechanical and functional, very much facilitates both treatment and diagnosis; while the prompt recognition of the

hopelessness of all notion of taxis, except for hernia, will neither hinder the mechanical treatment of these, nor fail to improve the functional treatment of all.

The symptoms upon which reliance is placed, in the recognition of strangulation, are—

constipation, vomiting of all food and drink, and other sensations of the patient, such as griping pain, distress or discomfort in the middle of the belly, and the suspected or proved irreducibility of the hernia.

The constipation may not be conspicuous in an early stage of the malady ; and even after obstruction has come on, a stool may escape, either spontaneously or in response to an enema (which is still sometimes allowed, but which is here strongly deprecated). After the lapse of a day or two, or more, the existence of total constipation is more clearly evinced by the absence of the accustomed stools. But there is a symptom which indicates complete obstruction much more delicately than the absence of stool, and that is the non-escape of wind *per anum*. This is not only a valuable clinical guide, based apparently upon physiological truth, but is one about which the patient is generally perfectly clear. Whatever may be the doubt, the inaccuracy, or even the prevarication, attending the answers to various questions put to patients under these circumstances, I have hardly ever seen a moment's hesitation or the absence of clear conviction with regard to flatus, ever since my attention was first given to this detail, which happened after reading a communication to the *Lancet*, of Jan 8th, 1876, by Dr. William Hardman, of Blackpool.

The act of vomiting and even persistent retching may be a conspicuous feature ; may be confined to a single occurrence at the outset, never to be repeated ; or may occupy a middle degree of importance. If food or milk be given after obstruction has come on, so surely will there be vomiting, which may or may not be followed by retching besides. The symptom is not at all a necessary part of the malady ; it is often a purely artificial creation, due to the mistaken judgment of those who permit the administration of the food and drink, which do not in truth first cause it, but which may alone keep it up. In a properly managed case, therefore, this symptom may often not be repeated, though it is almost sure to occur at the onset. It is quite useless to give food to a person who is suffering from nausea, whether it be due to sea-sickness, or to other known or unknown causes. But in any form of intestinal obstruction it is not only useless, but is injurious, and may seriously prolong or exaggerate the symptoms, with sometimes fatal effect. As soon as the cue has been taken from this symptom, all ingesta are to be stopped, except the smallest quantities of water or simple fluid. It is a common routine practice to give ice under these circumstances, and if the patient craves for it and continues to accept it, by all means let it be given if it be at hand. But ice, or cold water, however acceptable to the patient during the extreme thirst that is common before relief has been procured, is better avoided afterwards. The patient now desires less, or even refuses, such very cold drinks, which set

up griping that is capable of being discriminated after some approach to comfort has been brought about. Warm or even hot water, and hot tea, are now (as, in fact, throughout) more rationally beneficial and more acceptable, when anything at all must be taken.

The abdominal griping, or other pain or discomfort, may be directly attributed to the irreducible hernia, or indirectly associated with it, by the patient. So much the more easy for the medical attendant. But the patient may not know of a hernia at all, which may have for the first time come down, or may be otherwise overlooked. In obstinate constipation with persistent vomiting, it is the first duty of a medical attendant to search for a hernia, in the presence of which alone can he discover strangulation; in the absence of which he may promptly recognise intestinal obstruction of some other form, though he may be not able to name it. In the majority of cases, if hernia be not the cause of obstruction, the latter will prove to be one of the milder and eminently curable degrees, in which rapid or at any rate sure recovery results from the prompt and total suspension of solid food (including milk, which is solid as soon as swallowed); the great limitation of watery drinks, with, if necessary, the efficient aid of morphia, of alcohol, or of both. To this must in all seriousness be added the unflinching avoidance of enemata, and even of the slightest manipulation *per anum*, the speedy effect of either of which is a griping pain, a vomit, or other symptom of injurious peristalsis.

Given, then, the symptoms of complete obstruction, and a hernia the ascertained seat, the relief of the constricted bowel is essential. Successful taxis may procure total removal of all distress, with speedy recovery, but persistent liability to hernia. It must, however, be understood that efforts at taxis ought always to be considerately, and at the utmost, only moderately employed, when strangulation has come on. It is better to abstain from taxis than to do it violently, and in some cases it is wholly inadmissible.

Speedy relief, then, is what all hope for and generally obtain, after timely taxis ; but all events should be anticipated, and one of these is the accident of reduction *en bloc* or *en masse*. It is fortunately not a frequent complication, but none the less insidious on that account, and still more so from the extreme and misleading facility with which it is sometimes produced. It is impossible to exaggerate the warning conveyed by this fact, though few can realise it without having experienced its occurrence by personal manipulation. I have once effected a reduction *en masse* in a case where this false and fatal replacement was accomplished most easily, and with as little force as that required for any reducible hernia that I ever saw. Much valuable time was lost before the still necessary herniotomy was performed, and the case terminated in death. In a subsequent case where I operated "when in doubt," in the absence of all pressing symptoms, and in the not very certain presence of a hernia, I had the satisfaction of releasing a reduction *en masse*,

and safely rescuing from this imminent danger a robust young man, as follows :—

[MEDICAL TIMES AND GAZETTE, *February 4, 1882.*]

*Case of Strangulated Inguinal Hernia—Reduction en Masse—Antiseptic  
Herniotomy—Fæcal Fistula Spontaneously Healed.*

Richard J—, aged twenty, admitted August 22, 1879. The patient, a farmer from Knowsley, had had a right inguinal hernia for three years, but had not worn a truss. The hernia had never given trouble until a month previously, when there had been difficulty in reducing it himself. On August 21, 1879, after a stool, he failed to reduce the hernia again, and having abdominal pains, went to bed and sent for a medical man, who also failed. The next day vomiting occurred several times, and, under chloroform, taxis once more proving unsuccessful, he was sent to the Liverpool Infirmary, where taxis under chloroform was a second time unsuccessful. Mr. Parker was sent for at ten the same night. There was now no vomiting, no abdominal distension, slight tenderness, little or no pain, but some uneasiness. A soft swelling in the scrotum seemed to have slight impulse on coughing, but was dull on percussion, and undiminished on gentle manipulation. Although something had been reduced, the House Surgeons were not satisfied that all was fairly back ; so, in spite of the absence of symptoms, the history, and the request of his medical man that the Surgeon on duty should see him that night, were responded to by immediate herniotomy under carbolic acid spray.

The sac was opened at once, and nothing but blood-stained clear fluid found in the scrotum. On searching upwards, and pulling down the neck, bowel was found constricted at the internal ring, and lying within the abdomen before being drawn down. The neck was held with the forefinger-nail and nicked with the tip of a blunt-pointed knife, and the bowel gently examined. This was found to be small intestine, moderately congested, slightly ecchymosed, but shining ; and it was reduced. A superficial catgut drain was put in, and another laid from the internal ring to the lower corner of the wound, and then sutures. Wet boric lint dressings were used. Wind passed the next day, and every day afterwards. The bowels were first moved twelve days after the operation, for the first half of which time nothing but beef-tea and a few doses of sulphate of morphia were ordered. Bread was added on the sixth day. No bowel symptoms, or any other symptoms, occurred, and

the patient made a slow but perfect recovery. On the fourth day, though the wound had appeared to be healing by first intention, a little sweet pus escaped on using pressure. On the fifth the discharge was fœtid, and the edges of the incision showing unnecessary inflammation, although (without always using the spray) precautions had been taken to prevent unpurified air reaching the wound from the ward at each inspection and change of dressing.

However, it was presumed that these precautions had been insufficient, though it was evident that the irritating agency had been working from within. Still the patient continued well, and the wound was now freed from sutures, made to gape, occasionally squeezed and wiped, and smeared with boracic ointment.

On the eighteenth day wind escaped from the wound, and on the day following some intestinal contents, though without a fœcal odour. This ceased in a few days, though wind continued up to the end of the fifth week. The wound was healed about eight weeks after operation, the bowels having hitherto acted twice or thrice a week, and after this daily.

He was discharged on October 24, free from hernia, but he returned in a week or two with a small bubonocœle. A truss was procured at once, and answered its purpose perfectly.

In November, 1881, he was seen again, with the truss still on, the hernia not having come down since, and was advised to continue the use of it.

*Note.*—It is not improbable that ulceration of the bowel proceeded from the mucous surface inside, and that the septic material which got into the deep parts of the wound, eventually spreading to the skin surface, were from this source originally, as they certainly were later on while the state of fœcal fistula lasted.

Thus, the symptoms continue unrelieved in spite of apparent taxis, in the event of reduction *en masse*, which is merely a veiled strangulation, requiring to be sought and mechanically relieved by manipulation. But the symptoms may continue even when the taxis has been more evidently complete; in fact, when it is certain that proper reduction has been effected. This is a state of things always requiring much clinical judg-

ment, and at best may be said to expose the patient to great danger. Many cases die exhausted from the symptoms thus continuing, and so easily capable of exaggeration, prolongation, and wearisome variation. Food, enemas, and the restless meddling that accompanies divided counsels or vacillation at this juncture, are generally at the root of the evil if now recovery fail. Such cases should be tended until they are well, and all hernia cases, after reduction of strangulation, however mild, should be watched until quite capable of resuming full ordinary diet with impunity. In fact, the after-treatment of a hernia, of which the strangulation has been released by taxis or operation, ought to be conducted on the principles applicable to intestinal obstruction in general. For want of this, and owing to great imprudence on the part of the patient in resisting the attention subsequently provided for him, I have known a patient die six months after successful taxis, with stricture, hypertrophy, adhesion of intestines,—a series of pathological changes that might probably all have been avoided, if he had been content to wait until his intestines were fit to resume their duties. The case has been quoted elsewhere among five others, of which the anatomical features were analysed in relation to the symptoms. (*Lancet*, 12th August, 1876, p. 220.)

The following case illustrates in a very complete way the persistence of some of the obstructive symptoms after successful taxis. It was judged at the time to be a case of functional laming, the result of prolonged strangulation, and

consequently not capable of immediately complete relief by mere reduction. It was treated as such, with the entire recovery of the patient.

[MEDICAL TIMES AND GAZETTE, *March 4, 1882.*]

*Case of Strangulated Inguinal Hernia reduced by Taxis—Continuance of Functional Obstruction—Puncture of Distended Bowel—Rest secured by Recumbency, Suppression of Food, and a little Opium—Complete Recovery.*

John D—, aged thirty-four, a labourer, from Earlestown, Lancashire, was admitted on October 8, 1880, on account of a right inguinal hernia, five days old and two days strangulated. Mr. Harrison reduced the hernia the same day at his visit, but was not perfectly satisfied with the feel and look of the parts; so, being about to leave town for a few days, he explained his impression to Mr. Parker, and requested him to watch the man in the event of renewed emergency. The following day vomiting had occurred, the patient was uneasy, the site of the hernia was a little swollen, but evidently devoid of contents, and the neighbourhood tender. But the pulse was about eighty and temperature about normal. No wind had now passed for three days; but there was no distension or hardness of the belly. Water and filtered beef-tea were alone permitted. Twenty-five or so drops of laudanum were given by the mouth, to be repeated night and morning unless obviously not required. He continued fairly comfortable and quite contented under this treatment for the following days, showing no change except an increasing fulness of the belly, with disappearance of the tumefaction over the inguinal canal; the pulse and temperature also remaining about the same. No wind was passing; but no abdominal symptoms were apparent, except a tympanitic condition with its consequent and increasing discomfort. The foot of the bed was elevated, and the relief to the abdomen was appreciated; but the size of the belly was increasing, and its tension too. Thirst was of course experienced, and it is not unlikely that it was too frequently and too copiously slaked.

On October 14, the sixth day after reduction, the abdomen was punctured with an exploring trocar and canula in three places, some foetid gas escaping. Though the issue was small the tension was lessened, and the patient was pleased at the relief. The punctures were repeated on the two following days, and the distension thus kept within bearable limits. Then a copious liquid stool followed, the belly flattened down, and the

patient continued to do well ; the diet being carefully restricted to bread, potatoes, and beef-tea or tea. The bowels remained sluggish after his diet was increased, and an occasional hot-water enema was used after they appeared to be otherwise sound and free from tenderness ; but a flabby and bagging condition of the lower abdominal front persisted almost throughout the convalescence. A local complication arose in association with the punctures, and prolonged the confinement to bed, though fortunately without masking the uninterrupted good progress recognised in the abdominal functions. Some *feces* occasionally escaped by the trocar, which was protected by carbolised oil, and manipulated with deliberate care to try to avoid intra-peritoneal effusion, with success. But a little escaped into the subcutaneous fat on the first day of puncture, and led immediately to a small putrid abscess, which was opened, but not properly disinfected or drained at once. There followed in consequence a serpiginous phlegmon round the abdomen and flank, which was then progressively incised and treated with terebene and oil, washed through, and covered with gutta-percha tissue without rags. Some subcutaneous sloughs occurred, but were thus speedily disinfected, and rapid healing followed their issue. On one of the few days on which the bowels were punctured, at the height of their distension, the tongue became dry and the breath sweet. Whatever be the real significance of the latter feature, one could not help recalling its usual association with collapse and other forms of threatened or impending extinction, nor resist the fear that failure was, after all, about to result. But as very little opium had been used—perhaps too little, considering the still increasing flatulence—an extra dose was now given. Not many hours later came the copious evacuation, preceded by increased comfort attributed to the opium.

*Note.*—The persistence of symptoms, after the release of the hernia, was regarded as the not unnatural result of an acute strangulation ; yet it was not easy to decide between that, a functional maiming the effect of bruise, and the physical constriction of a possible reduction *en masse*. The case forms an interesting and instructive contrast with that previously related, and it is obvious that but little was wanted in either patient, at the critical time, to turn the scale against him.

A still minor persistence of symptoms, very easily managed, but itself capable of being quite misunderstood, may be found after successful taxis. A young man had a strangulated

inguinal hernia reduced by taxis. The next day he had vomiting, griping, and quickened pulse, and was admitted into the Infirmary. I was called to him shortly after his admission, and gave him about  $\frac{1}{3}$  of a grain of sulphate of morphia subcutaneously. In less than an hour he felt well, and never complained again, leaving the hospital perfectly well in a day or two. In another exactly similar case which I saw in consultation with two professional friends, it was supposed that reduction *en masse* had resulted, an opinion that I however did not share. It was decided by the vote of two against me to give an enema, and if that brought nothing away, to then follow my advice and give morphia, as in the preceding case. Nothing but the water injected could be got to issue, and much griping was immediately occasioned and complained of by the patient. The morphia was thereupon given subcutaneously, and repeated a few times, with speedy complete relief and total recovery. From the appearance of both these cases, both generally and locally, it was evident enough that they were mere instances of "griping," after strangulated hernia, owing probably to the want of a sedative dose of opium in addition to reduction. There was no proving it, however, except by experiment, which in both cases appeared conclusive, and in the latter doubly so.

There are thus, after complete reduction by taxis, several degrees of functional disturbance or laming, that may give rise to symptoms more or less identical in kind and in degree with those that existed during full strangulation. The mechanical

attempt at relief having been effected, there remains to be adopted proper functional therapeutic means, which are simple and effectual when fully appreciated; but which must be thoroughly adopted if the utmost known success is to be attained. But these symptoms and this treatment occur repeatedly in persons who have no hernia; attacks of griping diarrhoea, flatulence, or constipation, singly, alternately or combined, in various stages of severity. All degrees and varieties of functional disturbance of the bowel have to be considered in estimating the importance of any one of them, whether present with a hernia or not. Apart from definite obstruction or impending strangulation, some of these minor ills may be of frequent occurrence as a distinct accompaniment of hernia, not unfrequently gradually culminating in actual strangulation. Under ordinary circumstances purgatives and enemata are both convenient and effectual in relief of these conditions. But they are full of danger when symptoms of obstruction have come on. Many cases of hernia, previously complicated by griping, constipation, or atony, and then relieved by purgation or enema, are easily strangulated or their strangulation exaggerated, when obstruction has commenced. As sure as this is even threatened, during the whole time of its continuance, and for some time after reduction or the cessation of all obstructive symptoms, purgation and enemas must be most zealously forbidden. It is now important to prevent or to diminish the peristaltic movements of the bowel. This is effected by preventing anything from

entering into it either by the mouth or the anus. All forms of enema, and even manipulation with the finger, must now be withheld from the rectum, otherwise painful peristalsis from above is immediately set up. Suppositories, in fact, *everything* must be withheld from insertion into the now morbidly sensitive rectum. As for food and drink, the former is *totally* stopped, and the latter as fully as possible. Warm tea, warm water, in trifling quantities to allay thirst, may be permitted when urgently desired, but as long as there is no thirst let them be stopped. Opium by the mouth, morphia under the skin, not only control spontaneous peristalsis, but also allay or prevent both hunger and thirst. It is useless to expect proper action of opiates if milk or other food be administered. The effectual action of the former requires the supplementary avoidance of the latter.

As long as it continues to be held permissible to administer milk diet, to inject enemas, or even to conduct digital explorations of the rectum, in *any* well ascertained or even doubtful instance of intestinal obstruction, be it organic or be it functional, be it definable or be it (as it often is at first, as it not seldom is throughout) entirely indefinable, so long will many of such cases, from a comparatively mild beginning, drift from bad to worse until beyond the hope of rescue. They may truly shew, in great perfection, every symptom known; they may illustrate without stint many eccentricities of function to which the disordered animal frame is liable; they may verily prove the most interesting of "typical cases,"

both before and after death ; but it is certain that they would generally be just as well off if they had no medical attendance at all. The most misguided assiduous friends could not do much worse for them, and not unfrequently the barest common sense does far better for them ; for the natural tendency on the part of the patients often is to abstain from food and drink entirely, in response to the instincts of the hour, which in these circumstances are not erroneous, and to following which alone and unaided people have owed their recovery. It is not enough that practitioners have begun to view with shame the notion of purging patients suffering from obvious strangulated hernia ; they must regard with equal shame the admission into the lamed intestine, at either end, of anything that excites peristalsis. Everything that requires to be digested excites peristalsis ; also cold water in copious quantities, to say nothing of flatus, now so easily generated in the smallest digestive efforts. As for milk, so extremely valuable a food in its proper place at the proper time, it is here a veritable poison. This liquid article of commerce is, when swallowed, a solid article of food, that is almost as unsuited to the circumstances as a piece of chewed meat. There are practitioners here and there who fully appreciate the immense importance of thorough "fasting," as the one and only essential to the speedy alleviation of the symptoms of intestinal obstruction. (The usefulness of opium is very much hindered without this absolutely necessary precaution, but combined with it supplements all still wanting in the conditions of relief.) But strange

Page 17, line 6, *for* "eruption" *read* "eructation"

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it is that among this number are not yet to be found those in "authority." And so the mild cases of functional laming, as well as the severe, are liable to be made worse by inappropriate traditional treatment.

Discomforts of various kinds and degrees such as constipation, flatulent distention, griping, eruction, loss of appetite or impaired digestion, may attend cases of hernia, as has already been stated. Although any or all of these symptoms are common enough in persons without hernia, and although they may coexist with hernia without being related as cause and effect, they are frequently fairly attributable to the direct influence of the hernia, especially in adult cases of some standing. Some of these cases are "reducible hernia" of which the contents may be bowel, omentum or both; while others are irreducible, in which event omentum is seldom absent, and often present alone. The presence of unreduced intestine in a hernia may easily explain any degree of disturbed bowel function, from strangulation down to the slighter interference indicated by the symptoms just referred to; but similar symptoms have been noticed in herniæ containing only omentum; in fact evidence of obstructed intestine has not been wanting in purely omental ruptures; so that "strangulated omental hernia" has come to be spoken of as something of which the symptoms are more or less identical with those of strangulated intestine, "only less severe." The cases are quite exceptional varieties of hernia, but it has become somewhat usual to accept their existence either upon the published

impressions of others or upon the superficial aspects of the cases themselves. In fact the existence of these cases has been held up as an argument against the ligature of masses of omentum, in such operations as may have appeared to demand it, on the perfectly obvious ground that no strangulation of omentum can be tighter than that caused by thorough ligation. So it was advised by many, as it is by some to this day, that redundant or irreducible omentum be cut off, and its bleeding vessels separately closed, without including the whole structure in a ligature. In the beginning of this century it was known that ligature of omentum might occasionally be done with impunity though it was so frequently followed by distressing symptoms and death, that many surgeons abandoned it on principle. Scarpa, admitting the apparent dangers, yet bearing in mind the occasional impunity, adopted a measure which in his opinion minimised the dangers without abandoning the practice, which he accordingly performed only after a delay of some days. He left the omentum lying in the wound, wrapped up in lint spread with ointment, until granulation was established, after which he applied his ligature without serious effect. It is probable that safe adhesion around the neck of the hernia, shutting off the main peritoneal cavity, took place during the delay; whereas immediate ligation with return of the stump and unprotected thread would easily set up septic peritonitis, and be followed by death. The peritonitis thus set up would be attended by disablement of bowel and symptoms of more or less complete obstruction, and was thus attributed to the

constricting ligature. Hence the deprecation of the practice altogether by Lawrence, who writes thus (Ruptures, 5th ed., p. 454):—

If strangulation of the omentum by the ring is sufficient to produce dangerous and mortal consequences, must they not be equally expected from that stricture which is caused by the ligature?

But the occasional impunity of omental ligature before the antiseptic era, has been replaced by invariable success under conditions increasingly understood, so that hardly any surgeon or student is now unprovided with demonstrated proof that the tightest ligature, multiple or single, of any amount of omentum, is in itself a harmless procedure. It is therefore evident that whatever symptoms may shew themselves in cases of unreduced omental hernia, they are never produced in consequence of artificial constriction of that membrane, ever so tight. If the ligature of omentum by the surgeon's hands produce no symptoms of strangulation, how comes it that the comparatively slack constriction of a hernial neck can be supposed to do so? Mr. Timothy Holmes is the only author I know of who, believing in strangulated omental hernia, yet confesses the contradiction involved. But as he cannot reconcile the conflicting assertions, he leaves the question unanswered, and gives adhesion to the unproved assertion, in face of the fact which belies it on his own shewing. In "Surgery: its Principles and Practice," 2nd ed., p. 620, he writes—

The strangulation, even of omentum only, produces symptoms identical in kind with those of strangulated bowel, though possibly not so severe, a

fact which I find it difficult to account for on purely mechanical principles, especially as the omentum, when exposed in the operation for hernia, is constantly tied tightly, in order to remove portions of it, with complete impunity.

It is indeed difficult to account for symptoms of obstruction in unreduced omental hernia on the supposition of strangulation or constriction of omentum alone, seeing that the utmost constriction of ligature fails to produce such symptoms. But this apparent clinical paradox is nevertheless not so unaccountable, I think, as Mr. Holmes makes it. In any such case where the symptoms, supposed to be due to the constricted omental hernia, are clearly proved to have been so due by their prompt disappearance on reduction, whether by herniotomy or by taxis alone, it is pretty clear that obstruction to intestine may have been brought about by the "dragging of omentum," the pull upon which is sometimes sufficient to obstruct the colon. It is not an uncommon thing to find the greater part or the whole of the omentum in a hernial sac, and held there under a tension sufficient to obstruct the transverse colon. I have seen *post-mortem* evidence of dragging marked by a distension of all intestine above the omental attachment, while all the bowel below this point was empty and contracted, in a case where death resulted after taxis. I have never yet seen a case suspected to illustrate this supposed omental strangulation, so that my information on the subject has had to be derived from published records, and from the conversational allusions of friends. None of the cases thus accessible to me, however, have afforded any proof

convincing me that the symptoms observed were due to mere omental constriction. Scarpa makes no allusion whatever to "strangulated omental hernia," a circumstance that truly conveys no disproof of its existence, but which is a significant omission by so accomplished a clinical observer. A similar omission is made by Mr. Birkett, from his article "Hernia," in Holmes' System of Surgery. He does not even discuss it, and is careful in using the word "strangulation," often to add "of intestine," in a way that is suggestive of a deliberate avoidance of the question, and of the utter contradiction involved in the accepted idea of "strangulated omental hernia." The notion of constricted omentum alone causing any of the symptoms that have been observed is quite unintelligible and incredible in the face of habitual harmless ligature, and some other explanation must obviously be given to the cases thus erroneously classified. The sources of fallacy which I would suggest are these:—(1) Certain cases have had taxis performed, but not having been entirely relieved, have been submitted to herniotomy with success, and only omentum found in the sac. I would submit that in some of these cases there has at first been strangulation of bowel, its subsequent reduction by taxis, omentum remaining unreduced. Persistence of symptoms has been attributed to the unreduced omentum, after the reduction of which in herniotomy it has appeared that relief has followed this process alone. Such cases are capable of the explanation that the previously strangulated bowel was all the while at fault, but had not recovered its function until

after the reduction of omentum. (See three cases of epiplocele from the practice of Mr. Hulke, "Medical Times and Gazette," Feb. 13, 1875.)—(2) Cases in which no bowel is protruded, but where the transverse colon is obstructed by the drag on irreducible omentum, as before mentioned. The bowel does not require hernial constriction, invagination, volvulus, or the presence of an intra-peritoneal band, in order to be incapable of transmitting its contents at any particular spot. There are other causes not effecting actual mechanical compression, that quite prevent the proper assumption of the tubular peristaltic attitude, one of which is a pull upon the omentum. It is already known that the similar pull resulting from adhesion of the intestinal tube itself may effect total obstruction without constrictive compression, and a sufficient pull upon omentum or mesentery is equally capable of abolishing the tubular passage, by suspension of the muscular functions of the canal at the locality thus under tension.

(3) Inflamed omental hernia with peritonitis may produce symptoms that some might describe as "strangulated omental hernia." The following case is an instance published in the

[MEDICAL TIMES AND GAZETTE, *April 15, 1882.*]

*Case of Inflamed Omental Inguinal Hernia—Peritonitis—Herniotomy—Subsequent Vomiting, Constipation, and Distension—Recovery, with Radical Cure of the Hernia.*

Daniel K—, aged fifteen, admitted September 8, 1880. Two years previously this boy was hit in the left groin by a cricket-ball, about six months after which there appeared a hernia, which he easily reduced two or three times a day. For a month previous to admission the hernia had been irreducible, but without inconvenience until September 5, since when

he had suffered pain and tenderness in the lower part of the abdomen, the bowels being open each day. He was attended by Mr. Richard Williams, who, finding that he was getting worse and showing evidence of partial peritonitis, transferred him to Mr. Parker's care at the Infirmary. Shortly after admission he lay on his side, with his knees and hips bent; his breathing shallow, accompanied by fretful sounds, indicative of pain. The belly was flat, concave, tender below, and somewhat painful. In the left scrotum was a swelling above the testicle, oval, smooth, and doughy, slightly elastic, not tympanitic, and not feeling as if holding fluid, without impulse on coughing, and itself quite devoid of pain or tenderness. The swelling was about the size of a small walnut, and nothing could be made out as to whether or not it had a neck passing up the inguinal canal. Ether was given, and herniotomy was performed the same night, two or three hours after his arrival, under the spray and all the proper precautions of Lister's carbolic acid method. The sac was cut into at once, and found filled with omentum, and a drachm or two of turbid sanious serum. There was no tightness of the neck or appearance of constriction in the omentum lying there, but this membrane was brightly and finely injected in patches, on which were smaller patches of greenish-yellow lymph. The omentum was tied in several places with catgut, cut off below the ligatures, and the stalk passed up into the abdomen. The thickened sac was left undisturbed. A catgut drain and catgut sutures were used; carbolised gauze dressings were applied, and changed on the second and fifth days. Rapid healing of the wound occurred in a few days, by first intention, except the site of the drain, which granulated and closed in a few more. Just before operation the temperature was  $103^{\circ}$ , and the pulse fine and weak, though its number is not recorded. After operation one-sixth of a grain of sulphate of morphia was given subcutaneously, and a hot bottle applied to the feet.

On the *second day* the abdominal tenderness was gone. The temperature  $100^{\circ}$  and the pulse about 120 at mid-day. He vomited green fluid and was thirsty. The tongue was rough and furred yellow, and ice was given to suck. Evening temperature  $99^{\circ}$ , pulse 128, and respirations 30 per minute. Still slight vomiting and thirst, but no tenderness. Sulphate of morphia subcutaneously, one-third of a grain at 1 p.m., and one-fourth of a grain at night.

*Third Day.*—1 p.m. : Temperature  $101.5^{\circ}$ ; pulse 120. Morphia half a grain, as before. 5.30 p.m. : Temperature  $100.2^{\circ}$ ; pulse 120. 8.45 p.m. : Temperature  $102^{\circ}$ ; pulse 132. Morphia one-third of a grain.

Green liquid vomit at 1 p.m., and about once again in the previous twenty-four hours. At night, distension of the belly noticed, and slight delirium, but no tenderness, vomit, or sleep all afternoon.

*Fourth Day.*—At 1 p.m., pulse 120; a single vomit of yellow-brown fluid. Tongue thinly coated with brown fur. Half a grain of acetate of morphia (in the temporary absence of the sulphate) under the skin.

*Fifth Day.*—Noon: Belly a little fuller, but quite slack, and free from pain or tenderness. Slept soundly now and then for two hours or so at a time during the last two days, during which the delirium increased and then declined. Morphia one-third or one-fourth of a grain thrice in the night under the skin, and two or three ounces of brandy with water in the last twenty-four hours. Temperature 99°, pulse about 100. The patient complained of hunger, and was ordered a little beef-tea containing pea-flour, to be repeated if held, but discontinued if any vomiting occurred.

*Sixth Day.*—Distension a little greater, but no pain or tenderness, though all along he had kept his knees up more or less. At the visit, ℥ss. of tinct. opii in ℥ij. of water swallowed (but vomited at once), in addition to one-fourth of a grain of sulphate of morphia under the skin night and morning. Temperature morning 99°, evening 100°; pulse about 100.

*Seventh Day.*—Temperature 101°; pulse 120. Belly fuller and more tense, veins over it enlarged; face dusky. No peritoneal pain or tenderness, but deep discomfort apparent in the bowels. This was relieved at once, appreciably, on raising the foot of the bed on blocks, and much satisfaction expressed also at the application of a thin rag, wetted with cold water, to the belly, where it instantly steamed. At 11 a.m. one-fourth of a grain of morphia had been given under the skin. At 2 p.m. one-third of a grain was so given and to be repeated at night. The quantity of beef-tea, having been increased, was now cut down to isolated teaspoonfuls, filtered, and alternated with tea, repeated only to suit the necessities of thirst. That evening he passed a costive stool and much wind, and had one-fourth of a grain of morphia under the skin later at night.

*Eighth Day.*—The belly smaller and slacker, and the pulse under 100. He had rested well all night, and altogether felt and was found better.

*Twenty-eighth Day.*—Up, and well in the main. After a continuance of a similar treatment, with a gradual disuse of opium, the employment of an occasional enema of hot water, followed by a resumption of more solid food, he had eventually improved. But his convalescence flagged at one

period, when it was ascertained that he had been for several days gorging himself between and at meal times. When he got up he was found to have a lateral spinal curve, so he was directed to lie down occasionally, and when up to stand at vertical arms' length, holding on to the top of the screen, several times a day. The diet was chiefly bread, potatoes, and butter at and after his discharge, which occurred about this time.

About three weeks later he had a relapse at home, with a return of all the symptoms, followed by the bursting of an abscess at the umbilical cicatrix. He was attended by Mr. Williams, and made another good recovery.

On February 24, 1882, there was no trace of a hernia, and not the slightest impulse on coughing, with a very faint cicatrix at the site of operation.

*Remarks.*—The notion of strangulated omental hernia, and the deliberate appearance of symptoms after its ligature, might appear to have in this case almost a demonstrated confirmation. The question is interesting in many ways, and not unworthy of discussion, though here there is neither place nor fitness for that. Out of deference to the historical importance of this traditional conception, however, one may be permitted to record its utter repudiation. The symptoms after operation were of course due to the functional lameness of the bowel, the result of peritonitis, though disappearing less quickly than it.

It may be noticed that no constipation existed until after the operation, and the relief of the acute peritoneal tenderness, of which however it was apparently a consequence. Obstruction from arrested muscular function of the bowel, as in peritonitis, may also occur in malignant disease of the peritoneum; or, as I sometimes call it, "malignant peritonitis." Three years ago I attended for a few weeks in the Infirmary a case in which one of my colleagues had recently performed colotomy for malignant stricture of the rectum. The patient was a woman, and became obstinately constipated with subsequent flatulent distension of the intestines. Accumulation increased until food had to be much reduced, but no stool could be procured.

Puncture was repeatedly done, with temporary relief, but the patient soon died, exhausted and emaciated, without vomiting or griping. At the *post-mortem* no mechanical obstruction was found, but the peritoneum was everywhere studded with small malignant nodules, the intestines being dilated and containing a large amount of liquid fæces, which could have easily escaped had the bowel been able to perform its peristaltic tubular functions.

Peritonitis, then, is an efficient source of functional obstruction of the bowel, and is characterised by the features common to all obstructions, with the addition of superficial abdominal tenderness. Constipation, if absent at first and slow to come on, may eventually be present. Vomiting, as in hernial obstruction, seems to depend upon ingesta inappropriately administered, though it may at any time come on as a sympathetic act. The combination of peritonitis with reducible hernia, though not frequent, requires to be borne in mind as a possibility requiring discrimination and the avoidance of unnecessary and fruitless herniotomy. There is a form of peritonitis set up by injury without wound, apparently a state of bruise, in which great tenderness and vomiting are present, and in which constipation may last several days, with paralysis of the bladder and retention of urine as well as of fæces. It is enough to hint at the malady and the requisite circumstances, to prevent its being mistaken for strangulation in the event of a co-existing hernia.

The occurrence of "fæcal fistula" is a complication that may supervene on strangulation of a hernia. Perforation of intestine is essential to the production of fæcal fistula, and the aperture results from ulceration, with or without accompanying gangrene. Sir Astley Cooper ("Hernia," 2nd folio edition, 1827, p. 45) relates the case of a woman, aged 60, in whom a strangulated femoral hernia suppurated, with issue of some inches of gangrenous bowel through two separate openings, resulting from sloughing of the integuments. A fæcal fistula existed three months, and afterwards spontaneously closed. The whole case is an instance of spontaneous recovery from unreduced strangulated hernia, a rare event, seldom to be expected and never to be deliberately awaited. But in some other kinds of intestinal occlusion, as for instance intussusception, volvulus, &c., the only chance of the patient's recovery lies in the occurrence of spontaneous re-union of the proximal and distal portions of living bowel, with passage of the intervening sphacelus along the bowel and its issue *per anum*. The duty of the practitioner is, in such cases, to do his utmost to keep the patient alive during the accomplishment of this momentous process, by withholding food and effectually administering morphia. In this way, and in this way alone, can it be hoped to assist the natural process, which generally tends to a cure, and in which it is so important not to permit the usual intestinal functions, for fear of the giving way of the bowel and the consequent intra-peritoneal extravasation of decomposing agents and products. In addition the protective

aid of the narcotic, of warmth, and of rest in every form, is required to the utmost, to guard against death from collapse and other nervous symptoms that may result from unrestrained peristalsis, or distension alone, even if septicæmia have been averted by preventing intra-peritoneal perforation.

One case of fæcal fistula has already been here related (see page 8). Another may be added.

[MEDICAL TIMES AND GAZETTE, *February 18, 1882.*]

*Case of Strangulated Umbilical Hernia—Herniotomy—Fæcal Fistula—  
Second Herniotomy, with Closure of the Fistula.*

Jane O'H—, aged thirty-eight, housewife, admitted June 14, 1879. The patient is very short, very stout, very florid, but of exceptionally healthy appearance; and had usually been quite well, except occasional biliousness. Three years previously she had been struck in the abdomen by a butting goat, followed shortly by umbilical pain and the perception of a swelling. She was laid up a fortnight at home and six weeks in hospital, and has had a hernia ever since. During the past three weeks the hernia had been protruding and irreducible. The bowels had been open every other day, though she had had nausea and vomiting all this period. The last stool was on the morning of admission, vomiting occurring throughout the day, and by evening becoming stercoraceous, on which Mr. Parker was sent for.

Under ether, on June 14, 1879, herniotomy was performed under carbolic acid spray, a swelling about the size of an orange being cut into. The sac was adherent to the skin in some parts, and filled with omentum, which completely surrounded the neck, and hid in its midst a loop of small intestine, congested, and at one part abraded. This was with difficulty returned, and the omentum was tied with many ligatures of carbolised silk. Sutures, drain, and Lister's gauze dressing were used, and the patient never had a bad symptom, the diet being carefully restricted, and opium administered as required. The bowels were moved on the third day, and at convenient intervals afterwards. A piece of skin, adherent to the sac, and itself cicatricial, sloughed early, and suppuration occurred, with the establishment of sinuses, during which boracic ointment and boracic lint were used, frequently changed. The patient was up and

about in less than two weeks after the operation, and constantly afterwards. About six weeks after the operation, some of the skin and the slough were removed under ether, and ten days later she went home. More or less discharge continued, and it gradually transpired that she had a fæcal fistula. This interfered with the retention of the hernia by a truss, and the two conditions combined were a source of much discomfort and inconvenience.

On June 11, 1880, a year after the strangulation, she was again placed under ether, and the sac opened. A coil of small intestine, adherent at the site of the fæcal fistula, was detached, and the aperture closed by inverting it and applying a glover's suture of catgut to the approximated peritoneal edges of the bowel. The neck of the sac was closed with carbolised silkworm gut, and the integuments were held with relaxation sutures quilled over rubber tubing, besides ordinary edge sutures. Rapid healing took place, and the patient was well in six weeks, a single sinus remaining. A truss, consisting of a plate of sheet zinc enclosed in a binder of swan's-down calico, was worn at once. Four months after the operation one of the sutures of silkworm-gut escaped, with the knot and loop unaltered, as if it had been wire. The hernia still protruded when unsupported, but was rendered quite comfortable, and kept reduced by the truss above referred to.

In this case the fistula remained open for nearly a year, and might have been open still if it had not been closed by operation, whereas in the previous case spontaneous closure resulted in less than three weeks. In the first case the fistula produced no inconvenience, while in the second it was much less so than in others I have seen. I attribute this greatly, if not entirely, to the careful selection of a diet that produces little or no fæces. If patients be allowed to fill themselves with the materials of ordinary meals they will almost inevitably harbour a quantity of fæces, that more easily escape by the fistula they thus dilate, and tend to prevent from spontaneously closing, to say nothing of the filth and cutaneous excoriation

around the aperture. But neither was there in these cases any "collapse" or anything resembling it, although "perforation" must have occurred before a fæcal fistula was possible. It is often said that perforation of intestine is speedily followed by collapse, which is shortly followed by death. So it is, sometimes, but why not always? If the collapse is the consequence of perforation *per se*, it ought never to be absent. Which are the cases, then, attended by collapse, and in which do we not find that catastrophe? It is pretty plain that collapse is usually the result of those intestinal perforations only in which the contents of the bowel are largely admitted into the peritoneal sac. The effect is a rapid and appalling sapræmia with its attendant and necessary collapse. The collapse is due to rapid and excessive pollution of the blood, brought about by direct absorption or drainage from the peritoneum. But collapse never appears when perforation occurs so as to let the fæcal fluids escape elsewhere. If they issue from the sac of a hernia, or if they set up a foetid gaseous abscess between the tissues, even if death occurs eventually, it is never preceded by collapse. It is not therefore the actual perforation that is so much to be dreaded, as the wholesale admission into the circulating fluids of the myriads of poisonous organisms that swarm so near to it in the intestinal canal, but so perfectly separated from the vital fluid when no direct receptive communication is established between them. But when largely spilt into the peritoneum, fæces at once establish in it a vast putrid lake, drained by innumerable outlets into the lymphatic,

and thence into the general circulation. Hence the collapse is that of putrid absorption, and corresponds to that produced under various circumstances, with or without fæces, when putrid fluid accumulates in the peritoneum. Cases in point are met where impaction of some concretion in the vermiform appendix is followed by ulceration and perforation, with or without gangrene, of that, in the main, most inconvenient diverticulum. Everybody knows of these cases, the offending body being a cherry stone, an intestinal calculus, or even a small lump of fæces. When perforation takes place, as it unfortunately generally does, into the peritoneum, the usual collapse and death result, with fæces and the rent discovered after death. Should it, however, occur on the extra-peritoneal side, or should it occur gradually enough to be accompanied by a protective wall of even intra-peritoneal lymph, the effect is a putrid abscess, with a fæcal fistula, followed in some cases by recovery. I have a patient now living, in whom I treated such an abscess of the right loin and groin three and a-half years ago. A fæcal fistula resulted in both situations, and a calculus was removed through the wound in the loin, from the immediate vicinity of the cæcum. It was about the size and shape of a large horse bean, on analysis was found free from urinary salts, and almost certainly may be attributed to the source I am now referring to. The two fistulæ have both long ceased to be fæcal, and the sinus in the loin healed about three years after it formed. That in the groin still discharges a little more or less turbid serum, while the patient, a man aged

forty-four, is in good health and strength, and able to exert himself in every way. No "collapse" ever shewed itself in him, though he had distinct "perforation of the intestine."

Although the case of "gangrene" related by Sir Astley Cooper terminated in spontaneous recovery, such a termination may easily fail to occur. It is generally supposed, with every reason, that the prevention of death is due, under similar spontaneous circumstances, to the protective effect of intra-peritoneal adhesions, shutting off the fæces and other putrid materials from the peritoneal cavity. This prevention may fail to occur in some cases where gangrenous intestine is left in a hernial sac, and is almost sure to occur if intestine become suddenly gangrenous while still in contact with adjacent healthy peritoneum, in the absence of a protective layer of lymph. Hence the very proper practice, resulting from a correct appreciation of the antiseptic principle, by which gangrenous bowel discovered in a hernia is now assiduously cut away, to prevent progressive contamination of the neighbouring or adjacent peritoneum. Tissues that are dead do not under all circumstances putrefy, but when the putrefactive organisms are not successfully shut out from a dead tissue, putrefaction inevitably occurs. Non-putrefactive gangrene of tissues previously perfectly disinfected is a phenomenon now familiar in surgery, and may be witnessed in external wounds of tissues that have been maintained perfectly aseptic. In fact small areas of commencing gangrene, without wound, may be preserved free from putrefaction and consequent spread, and

then may undergo resolution or a dry exfoliation by scabbing, even when disinfection has not been undertaken until after the gangrene has commenced. (See Mr. Lister's *Papers*, and Watson Cheyne, on *Antiseptic Surgery*.) But in the bowel, by the time gangrene is discovered, putrefaction has already had a chance, and is generally well advanced, owing to the invariable presence of the organisms which set up the process, if not of the very process itself, in the intestinal contents. Death in gangrene of the bowel is also due to blood poisoning, which, however gradual, is eventually generally characterised by collapse, owing to the continuous absorption of putrid materials. Even when direct escape of fæces into the peritoneum occurs, its gradual issue has to be inferred rather than proved, owing to subsequent absorption. Hence the frequent absence of all intra-peritoneal fluid, even where there is evidence of putrid peritonitis, owing to the great draining capacity of that membrane. Some years ago I failed to account for death in several consecutive cases of herniotomy which I performed, and in all of which the gut was gangrenous. The patients were young, middle-aged, and old; the obstruction was relieved in each case; and the gangrenous bowel was opened and left lying in the sac; yet the patients all quietly died in a few days, as if nothing had been done. They died from sapræmia or direct pollution of the blood. (See Ogston, on *Micrococcus Poisoning*, *Journal of Anatomy and Physiology*, July and October 1882.) The following case shews the modern treatment of gangrene in strangulated hernia, affecting

the bowel, the omentum, and the sac. It failed owing to the existence of intra-peritoneal gangrene, in addition to that removed.

[MEDICAL TIMES AND GAZETTE, *June 3, 1882.*]

*Case of Strangulated Inguinal Hernia—Gangrene—Excision of Omentum, Mesentery, and Gut, with Re-union—Death.*

J. G——, aged sixty, a hard and previously healthy brickmaker, admitted March 3, 1882, had had a right scrotal hernia for years, always reducible until February 28, on which day he had his last stool, and had passed no wind since. On the 29th Dr. Parry was called in, and found him vomiting, and tried to get him to go at once to hospital for the relief of his strangulated hernia; but the patient took a course of his own, and tried an unstinted assortment of purgatives for two more days, during which vomiting persisted with frequency. After admission he lay on his left side retching, and sometimes vomiting fœtid intestinal fluid.

The breath was cool and sweetish in odour, in addition to the fœtor ejaculated; the pulse was under 110, and soft, with moderate volume; the hands were cool and clammy, but the covered parts were not; and his grisly, unshaven, somewhat pinched facial appearance, seen on a ground of healthy ruddiness, and associated with some mental vigour, were thought to suggest the dilapidation of fatigue rather than the misery of collapse. The right scrotum was distended, hard, and red; the swelling extended up the inguinal canal, and was free from impulse on coughing. No taxis was, of course, undertaken, but the parts were shaved, cleansed with ether, and carbolised. Herniotomy was done over the outer side of the inguinal canal, under ether and Lister's spray and complete carbolic acid method. On reaching the sac fœtid bloody fluid issued, and was quickly evacuated, with black fœtid clots, the fixed internal parts being freely swabbed with hot carbolic lotion. A mass of omentum, partly gangrenous (grey), and all covered with the fœtid bloody fluid, was tied with catgut above contact with gangrenous parts, cut below the ligatures, the stump well washed with lotion, and reduced. A coil of gangrenous small intestine (black and in part shreddy and perforated), very fœtid, was washed, enveloped in a carbolised rag, pulled down with more gut, and the healthy parts washed and kept under the spray. A piece of gut about six inches long was excised, with some attached mesentery, in cutting free of the gangrenous portion. Forceps and fingers were used to clamp while the vessels were

tied. Subsequently about six inches more of gut, purple and untrustworthy looking, were removed, and the stump clamped as before and its vessels tied. The two ends of gut were then inverted, and stitched together with catgut all round by interrupted and continuous suture. The gap in the mesentery was also closed with catgut sutures, chiefly continuous, and all was again washed and then returned into the abdomen. The sac being foetid, green and black, in the scrotum, was stripped and cut away, being tightly and doubly tied at the internal ring, where its vitality was preserved. The incision was then extended down the scrotum to the lowest limit occupied by the sac (which proved to be acquired, and above the testicle and its coverings). Strong chloride of zinc solution was soaked into the tissues now exposed, and into the stump of peritoneal sac, and the wound filled with gauze steeped in cream of salicylic acid, suspended in carbolised glycerine, packed over with wet and dry gauze, and covered in a gauze dressing, including a perineal pad, according to Mr. Lister's excellent plan.

The patient began to look intelligent before leaving the table, and hot bottles were put to him in bed. He was not very long in becoming comfortably warm, and a satisfactory night was passed. On the second day the dressings were changed, and dry iodoform was rubbed throughout the wound, which had already imparted a slight foetor to the lining plug. The tissues where putrefaction had existed were black, presumably from combination with the zinc; and very dry, owing apparently to the glycerine. A fresh plug, with salicylic cream, was laid in over the iodoform sprinkling, and the dressing renewed as before.

The patient had not vomited a single time since the operation; the tongue was now moist, and nearly clean; the belly was slack, and free from tenderness. The pulse was 120, and the thirst great. A little morphia was given subcutaneously a few hours after his return to bed, but nothing was administered by the mouth. To allay his thirst he had only been permitted to suck a wet towel, but was now allowed an occasional tea-spoonful of water. He was quite himself, and wanted a pint of ale or water to drink, complaining greatly of thirst. He lay talking easily, folding his arms, and looking well; moreover, he paid an earnest tribute to Dr. Parry and to the anxious efforts that gentleman had made on behalf of earlier operation, assuming to himself the whole responsibility of the disastrous purging to which he had submitted himself. He began, however, to get low about twenty-four hours after the operation, and sank quietly after about thirty-six hours.

At the post-mortem, the reunited parts were found secure, and the bowel-junction apparently water-tight, all adhering together and to the obliterated entrance of the sac by fibrinous lymph free from yellow or green colour. The intestinal coils above the site of the hernia lightly adhered by a thin layer of fibrinous lymph, and were injected a little along intervals between the adherent surfaces. The peritoneum was free from fluid, and the lymph exuded showed no trace of puriform admixture. The rest of the bowel lay contracted and almost empty behind. No further damage was noticed now, but subsequently came to light on re-examination of the foot or two of intestine adjacent to the seat of operation which was preserved.

*Remarks.*—The death is naturally attributed to septicæmia, of which the commencement was suspected before operation. The satisfactory condition on the following day led to the supposition that any incipient septicæmia had been arrested, or had perhaps not even taken place. So, when death after all occurred, the source of a fresh dose of septic poison was looked for at the post-mortem, but not unmistakably found. The wound, though not yet totally free from decomposition, had almost completely yielded to disinfection, and was thought to be no longer a source of danger; while re-infection by way of the peritoneum seemed at first quite unproved. Then again, the original dose of poison before operation, if any at all, seemed to have been exhausted in the face of such decided temporary improvement. Yet the intra-peritoneal lymph, though scanty and free from puriform change, seemed to tell a tale. Some days later, on re-examining the portions removed subsequent to death, after they had lain in spirit, commencing gangrene was distinctly found in patches and without properly established lines of demarcation. In some places the mucous coat was involved as well as the serous. From these patches there must have been abundant source of continuous intra-peritoneal absorption of putrid fluid. The condition of the patient was truly desperate—more so than could be recognised, and much more so than the symptoms suggested. He was very nearly rescued, and that by a method of treatment which is one of the irresistible developments of the antiseptic principle.

The effect, then, of unalleviated gangrene of the bowel is “perforation,” and this may result, as in ulceration alone, in extra-peritoneal effusion of fæces with abscess, or in intra-

peritoneal effusion. The intra-peritoneal effusion is, if copious, always promptly followed by collapse; while if slight and gradual the collapse may be so late and so gradual as to be merged in the signs of "death by exhaustion."

Among the sequelæ of strangulation, when successfully relieved by reduction, especially with herniotomy, it may be as well to mention the return or persistence of the hernial protrusion. Not that this has inevitably followed, for an occasional result of herniotomy, from time to time, has been a total radical cure as welcome as it was unexpected and unsought. Of this more in detail later on. Given, then, a chronic hernia, strangulation and even successful herniotomy may be repeated when the necessary circumstances occur. The following instance is peculiar as illustrating an old femoral hernia strangulated and relieved, followed by inguinal hernia on the same side, also strangulated and relieved, the two sacs communicating with each other. If it serve no other purpose, the case cannot fail to impress upon surgeons the advisability of not being content with merely saving the patient's life in the relief of strangulation; but of effecting, if possible, a total cure of the hernia, and thus averting, for ever, a repetition of the former danger.

[MEDICAL TIMES AND GAZETTE, *March 4, 1881.*]

*Strangulated Old Femoral Hernia—Successful Herniotomy—Strangulated Inguinal Hernia on same side two years later — Communication between this and former Sac—Successful Herniotomy again.*

Mrs. D., aged seventy-two, had had a right femoral hernia for twenty years, and no truss. The hernia was generally protruding, but not incon-

venient until about July 1, 1874, when constipation and vomiting attracted her attention. She took two doses of castor oil between that and the 7th, when herniotomy was performed, immediately after incomplete reduction by taxis under chloroform. The sac was opened, and a small piece of gut, reddened and lightly adhering all round, reduced after nicking the neck, which was very tight. The operation was performed under a spray of carbolic lotion (one in eighty), carbolised waxed silk sutures were used, carbolised gauze dressings were applied, and a simple recovery took place. The first stool passed on the fourth day. She wore a truss after six weeks, and for a time the hernia failed to return in the erect posture, even on the removal of the truss. A year later she became very stout and less active than before. About two years after the operation an abscess formed in the hernial region, burst, and healed up; and a hernia appeared above the old site. This always went back when she lay, until November 17, 1876, when it remained down and pain accompanied it. The hernia was clearly inguinal, tympanitic all over, irreducible, and evidently very thinly covered. Gas was drawn off by puncture with an aspirator-needle the size of a No. 2 catheter. The hernia collapsed, but could not be reduced. Morphia was given under the skin, and temporary relief produced. Vomiting and pain, however, occurred on the 19th, and the hernia had filled again. Puncture was repeated, and liquid contents of bowel issued. Herniotomy was then at once performed, and the sac opened at the first incision, being adherent to the skin. The gut, being discoloured with green-brown intestinal matter at the site of puncture, was now fairly punctured with the knife, emptied, tied up with catgut, and washed. The stricture was divided with a blunt-pointed knife, and the bowel reduced (small intestine). The sac led also into that of the old femoral hernia, and the finger was passed into the abdomen by the inguinal canal and by the femoral. A thick catgut suture was put into the inguinal neck, and another into the deep part of the wound, of which the rest was left open. No dressings were used, except a piece of American cloth with the waterproof side laid on the skin. The diet was carefully restricted, and morphia given in small quantities subcutaneously. The wound was kept open by the finger. Barley-water and tea alone were given for four days, then a little gruel was added, and two days later a little biscuit. The usual diet was resumed about the twentieth day, when she got up. The first stool passed on the seventh day; a week later they became daily, and the recovery was altogether uncomplicated. She died about four years later, at the age of seventy-eight, of some other complaint.

## HERNIOTOMY,

FINISHED BY RADICAL CURE.

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There is no remediable accident which more certainly endangers life than strangulation of a hernia, and none is, therefore, more dependent upon the prompt resources of the surgical art. No patients more willingly, as a rule, abandon themselves to the operative will of surgeons, than those well under the influence of this untoward condition; and no department of operative surgery shews a greater variety of anatomical detail, or a more changing series of unexpected incidents. When success was less frequent than it has become, it was at least conspicuous; it is now the rule to which exceptions are increasingly few. In advantage to the patient and in interest to the surgeon, herniotomy for the relief of strangulation is a source of extensive satisfaction. The improved control over adverse conditions, the successful introduction of the catgut ligature and the spread of the antiseptic principle generally, the substitution of deliberate promptitude and even alacrity for the reluctance of a *dernier ressort*, have brought about the further achievement of sound radical cures. And this not merely in persons already endangered by strangulation, and thus preserved from repetition of the danger, but also as undertaken beforehand, "in cold blood," in many from whom that danger is thus permanently averted.

Radical cure, however, is not confined to hernia submitted to operation for the purpose. The effect of a truss is in some instances the cessation of all protrusion of the hernia, and total immunity from all evidence of liability, as tested by lapse of many years, and the repeated resumption of attitudes, movements and exertions, favouring a re-appearance of rupture.

After herniotomy, performed without the intention or even hope of a radical cure, that welcome event sometimes occurs, owing, evidently to the existence of circumstances favouring the occlusion of the protruded sac by coalescence of the inner surfaces lying in contact with each other. These favouring circumstances would appear to be a state of adhesive inflammation or granulation of the serous lining, with an undisturbed maintenance of contact, during a time and over a surface convenient for cicatrization. The records of herniotomy published in the medical journals furnish examples of effectual cures that have happened thus, and one of the cases related above apparently also illustrates the same principle (see page 22).

It is probably correct also to attribute to similar agency the occurrence of radical cure in the following case, after the employment of a faulty method, tending to fail in some, perhaps most, instances, and so being undeserving of reliance. As an instance of failure, under conditions closely resembling those in which it succeeded, a case is also given.

[MEDICAL TIMES AND GAZETTE, *May 20, 1882.*]

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*Prophylactic Herniotomy for Radical Cure—Imperfect Method,  
but Complete Cure.*

Robert C., aged twenty-eight, a joiner, admitted June, 1879. A fluid collection, not unlike a hydrocele of the cord, was tapped on admission and once previously, but not followed by disappearance of all the swelling on either occasion. What remained was soft and quite irreducible up the inguinal canal, though not having an unequivocal neck or other local characters clearly suggestive of a hernia. But, on the grounds of probability and exclusion, it was nevertheless presumed to be an omental hernia with a narrow pedicle, and its attempted cure by operation was decided on, and performed under Lister's arrangements on June 20, 1879. The diagnosis was verified on opening the sac, where lay much adherent omentum, of which the pedicle was tied in several places with stout carbolised silk, and reduced after severing and removing what lay beyond. The sac was detached, folded up, and stitched in the inguinal canal, and the wound closed by sutures. To avoid further detail, it may be added that eventually sound healing occurred, though not until after suppuration up the cord and the formation of an acute abscess in the iliac fossa. The patient never wore a truss after, and never experienced or manifested any further hernial protrusion. More than a year later he had on the same side a hydrocele, which was tapped and injected with strong iodine liniment, resulting in the usual acute inflammation, effusion, and re-absorption. On December 1, 1881, he was well and strong, without a sign of hernial protrusion or appearance of liability.

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*Prophylactic Herniotomy for Radical Cure—Imperfect Method and only  
Imperfect Result.*

John M., aged twenty-four; had a left inguinal hernia at the age of two, wore a truss, and eventually dispensed with it. In 1870 the hernia came down, and had existed ever since, though always reducible until a week before his admission on October 1, 1880. Ever since the hernia became irreducible he had had pain and general local discomfort, but no interference with the functions of the bowel. Rest in bed was followed by speedy and complete relief of all discomfort, but the hernia remained as a scrotal and inguinal tumour, and was known to have resisted repeated efforts at taxis before admission. On October 8, herniotomy was performed

somewhat as in the preceding case. The omental protrusion, being too large for reduction without widening the neck of the sac, was tied in several places with stout carbolised catgut, and the stump reduced after cutting off the portion beyond. The sac was folded up, tied, and also reduced. Catgut drain was used, sutures put in, and carbolised gauze dressings applied, with Lister's precautions. But the same unsatisfactory incidents in the after-treatment occurred as in the previous case—namely, retention of discharge, extra inflammation, suppuration, and decomposition, with iliac abscess; though in neither case was it made out at the time in what way the probable error had been made. In this case, too, healing eventually resulted, and for a time he went about and worked as a baker without return of the hernia. But early in May, 1881, the rupture reappeared, and he allowed it to protrude for a fortnight before reporting the fact. A truss was applied, and has acted well. He was seen well in March, 1882, wearing the truss, and failing to show a hernia when standing and coughing without it.

*Remarks.*—The former case was from the first considered unsatisfactory, in spite of the perfectly successful result, on account of the faulty progress of the wound, and the consequent hazard to the patient, though no dangerous symptoms were encountered. The latter case was still more so, and further proved, besides, that no uniform confidence could be placed in a mere tucking-in and sewing of the protruded sac as a means of occlusion. The two cases, however, have both been really acceptable to the patients, and are of this value, that they represent one of the steps by which the operation of radical herniotomy has been so vastly improved in utility and safety.

The failure of sutures to effect the radical closure of a hernial sac has also been shewn in the umbilical case recorded above.

There would be no occasion here to say anything about the method of procedure in herniotomy, were it not for the finishing details involved in the radical cure. There is only one method of radical cure applicable to all herniæ alike, femoral, umbilical and inguinal, reducible and irreducible, and that is by HERNIOTOMY WITH FIRM OCCLUSION OF THE SAC. There is only one method by which the sac can be confidently

occluded, in a majority of cases, that is little short of totality, and that is by LIGATURE OF THE PERITONEAL LINING, with or without other coverings, at the offset of the former from the main peritoneal pouch, by means of antiseptic catgut, or other similarly protected animal fibre, as in the ligation of blood-vessels. It is unnecessary to discuss other methods, however successful, since no other is suited to all kinds of hernia, and since this method is more successful for all than any others are for some. Sir Astley Cooper thought of this plan, and would have done it, if he had known any means of tying the tissues, without the process being spoiled by sloughing at the point of ligature. Having failed with suture he predicted a similar issue for ligature not without reason.

The process is most simple in femoral hernia. Herniotomy is done, as it has been done in times past, in most of the manipulative details, and the sac is of course opened nearly always. In case of strangulation this is advisable, in order to properly inspect, and more safely reduce, the bowel. In case of adhesion whether of bowel or of omentum, it is necessary as a prelude to reduction. If the bowel be wounded, it is to be sewn up, or a puncture tied, with catgut ; if gangrenous, the sloughs are to be excised, the bleeding vessels tied with catgut, and the severed tube and mesentery pieced with catgut sutures, by joining the serous surfaces and inverting the mucous and cut edges. Omentum should be reduced, either entirely, or after ligature and excision ; and there should be no avoidable chance of subsequent hæmorrhage permitted. It is a matter

of perfect indifference whether healthy omentum be reduced whole or after excision, provided it be aseptic, and provided none of its vessels, if wounded, be left untied. The ligature of catgut may be single or multiple, according to the thickness of the stalk ; but there must be no mistake about the tightness and security of the tying. After the reduction of all contents, in a perfectly aseptic condition, the sac must be tied at the point where it joins the peritoneal main pouch. In cases operated on for the prophylactic attainment of radical cure, before the occurrence of strangulation, or after the successful reduction of strangulated bowel or incarcerated contents, this occlusive ligature of the neck of the sac may sometimes be done without opening it at all. This is not a matter of the slightest importance and is only possible in a minority of instances, but it is simply a fact that it may be occasionally practised. It is well at this point to thoroughly understand what is the purpose and effect of ligature, in order that the surgeon may not drift into error or failure in exceptional cases. It is just as easy to strip up and tie the entire hernial protrusion, peritoneal lining and all coverings together, in many cases, as it is impossible to effectually do this in occasional large ruptures. The essential detail is the *ligature of the peritoneal lining*, which in even enormous herniæ is not a very bulky structure after being stripped. I have assisted at prophylactic herniotomy in one femoral hernia as large as a child's head, with a neck as wide as a man's wrist, and with coverings a quarter of an inch thick. The ligature of this mass would have required the string of a

bass or perhaps of a double-bass fiddle for its effectual closure by tying, whereas by stripping the peritoneal lining and tying that alone as high up as possible, the outlet of the peritoneum was safely and completely shut with the thickest ordinary surgical catgut, and the other structures left to fall together at leisure. This ligature of the peritoneal lining stripped up from the other coverings of the sac is not only essential in all large herniæ, but renders the radical cure feasible and very certain in some (probably most) umbilical cases. By stripping up the peritoneal layer until the *inside of the abdominal wall* is reached, the very root of the hernia is annulled. In average femoral cases the hernia is so small, and the crural aperture is so narrow, that general ligature of the whole concern is simple and effectual. But large ruptures with wide necks are the test cases, those in which the cure is most required, and in which it most easily fails. The "principle" of cure is truly "ligature of the neck of the sac," and in small femoral cases this is all very well when done by roughly including the whole protrusion. But the detailed stripping of the serous lining and its separate ligation flush with its offset from the peritoneal pouch is a point in practice essential to the attainment of the "principle" concerned, and one particularly valuable, and probably all-essential in umbilical cases. These herniæ, whatever their size, are thus really amenable to the same operation of ligature and occlusion, after the reduction of their contents, that is so easily applicable to the femoral variety.

Precisely the same procedure is required for inguinal hernia when cut either for the relief of strangulation or for the prophylactic radical cure. These herniæ are the most numerous, and most various; but their curative treatment is undoubtedly complicated by the "pillars of the ring." Not that the pillars of the ring are in themselves any real obstacle in the generality of cases; but on account of the traditional prejudices with which these pillars are associated. Earlier operations for the purpose of radical cure having been suggested for inguinal hernia alone, and having had for their object the occlusion of the sac by and with the attempted approximation of the pillars of the ring, these structures have still a hold upon the imagination of surgeons, and are a source of, I think, unnecessary complication, and probably of error. Not that I presume to deny that widely-gaping pillars of the external ring may favour the re-descent of an inguinal hernia, how well soever the sac may have been tied at the internal ring. But the majority of cases have not widely gaping pillars of the ring, and a good many inguinal herniæ that come to operation, whether previously strangulated or not, have the pillars just as tightly braced up and as closely apposed after reduction, as can be required. In inguinal hernia occupying the non-congenital or so-called "acquired" sac, the whole sac with its coverings should be, if small, stripped up along the inguinal canal, pulled well down, and tightly tied high up, with catgut once, twice, or even thrice if the surgeon choose, after due attention to the proper

disposal and reduction of contents as suggested under the head of femoral cases. The sac is cut below the ligature, and is found to slip well away into the iliac fossa. If the hernia be large, its neck be wide and its covering bulky, the peritoneal lining alone is pulled down, tied, and reduced. The wound is treated according to the taste of the surgeon, with due regard to the attainment of aseptic progress and results. A complete gauze dressing on Lister's plan, with sutures and drain may be chosen; or the wound may be left unsewn, well smeared with a suitable antiseptic, say eucalyptus petroleum ointment, and covered with a piece of gutta percha tissue, bound on with a folded draw-sheet. This dressing permits perfect aseptic healing by granulation, with constant immediate access for inspection; and is as safe and comfortable to the patient as it is convenient for the surgeon. It is time enough to interfere with the pillars of the ring if they be extremely lax or widely apart, or if, as now and then happens, the sac be backed by a piece of colon the protrusion of which necessitates ligature low down, below the bowel, and require forcible confinement within the abdomen. The attainment of cure under these circumstances I have not yet been able to witness, having assisted one of my hospital colleagues in one such case and having operated on one myself. Both however were fatal. In my case I had to sew up the pillars of the ring in order to keep the hernia reduced, but that is the only case in which I have done so. What is it that separates the pillars of the ring? Surely the hernia. If the hernial protrusion be removed the pillars of the

ring may fall together. But the very existence of a smooth serous tube as a funnel depending from one of the lowest corners of the peritoneum, gives ready admittance to bowel or omentum, under abdominal pressure, which need not be great to produce an almost irresistible separation of the pillars of the ring as soon as ever the hernia enters the inguinal canal, pretty much after the way in which as the foetal bag of membranes opens the *os uteri* during expulsion. Tie this serous sac at or above the internal ring, and the most violent expulsive efforts in struggling, vomiting, or coughing, are found to be most effectually abolished so far as the inguinal canal is concerned. I have noticed this in some of my operations upon inguinal cases. The patient has happened to struggle before the sac was exposed, and the hernia not only came down, widely separating the pillars of the ring, but required one person's entire attention to hold it back and prevent the extensive expulsion of intestine after the opening of the sac. Some of the operations happened to be continued during the struggle, but after the sac was tied and the hernia thus prevented from issuing through its neck, there was nothing to separate the pillars of the ring which were then pulled together by the expiratory muscular exertion. What I contend for is that in the majority of cases, in all but extreme cases, the absence of the hernial protrusion from between the pillars of the ring is all the subsequent treatment they require. But I am quite prepared to find, and to admit, that in selected cases the pillars should be sewn together in addition. In

my first inguinal case, treated thus by ligature, the sac was tied too low down, its neck was very wide, and a return of the hernia occurred. Perhaps there the pillars of the ring ought to have been sewn together. In all my cases, except the fatal one I have referred to, the pillars of the ring were left alone, and of them all have perfectly succeeded except the first. If the inguinal hernia be in a congenital sac, the latter should be divided at about the external ring, and then be stripped up from the spermatic cord to which it is attached, and tied separately at the internal ring. In cases of undescended or imperfectly descended testicle it may sometimes not be worth while to preserve the testicle, in which case the cord and the hernial sac may be tied together ; but with a little perseverance and adequate patience I consider it generally *possible* to detach the hernial sac from the spermatic cord, when lying merely in front of the latter as usual. If the cord pass through the sac, like the tendon of the biceps passes through the synovial capsule of the shoulder, there can be no independent ligation of the sac. But this is a rare eventuality though I have seen it once. In one case of omental femoral hernia with a very narrow neck, I tied the sac and omental pedicle all together. A perfect radical cure has resulted, but not more perfect than in all the femoral cases in which the sac was tied alone. I do not intend to do this again, however, for although no harm has resulted, the better practice seems to me to be the avoidance, when possible, of all unnecessary bands and adhesions that might favour intra-peritoneal constriction of intestine.

In illustration of this principle are the following cases, five femoral, two umbilical, and seven inguinal.

[MEDICAL TIMES AND GAZETTE, *May 20, 1882.*]

*Prophylactic Operation for Radical-Cure Treatment of Irreducible Femoral Hernia—Ligature of Neck of the Sac and Omental Pedicle together—Complete Cure.*

Mary A., aged forty-five, a strong working-woman, having a right omental femoral hernia the size of a hen's egg. Herniotomy was performed on January 4, 1881, under all Lister's precautions; the sac opened, and a very narrow neck and omental pedicle found. These were both ligatured together outside the sac with carbolised catgut as high up as possible, and the parts below cut off. Catgut sutures and drain were put in, and gauze dressings applied. On the tenth day these were changed, and the knots of the sutures and the protruding ends of the drain found lying loose. A small amount of granulating surface healed in the next three days. No truss was worn, and after a few weeks' rest the patient went about as usual. On February 12, 1883, she was well, and free from hernial protrusion.

*Incarcerated Omental Femoral Hernia—Ligature of Sac alone, after Reduction of Omentum by Taxis—Complete Cure.*

Sarah R., aged fifty, admitted March 29, 1881: had had a small left femoral hernia two years, unsupported by a truss, but irreducible. For the two previous days the hernia had been down, no stool had passed, and vomiting had come on with pain. Wind had passed, however; and this fact, and the evident purely omental character of the protrusion, were duly appreciated, on her admission, by Mr. Meeson, the House-Surgeon, as excluding the likelihood of strangulation, though he sent for assistance on account of the somewhat equivocal symptoms, and at the same time refrained from taxis. The hernia was evidently omental, and apparently reducible. The belly was undistended, and the bowel symptoms slight, so under ether Mr. Parker reduced the hernia easily. Seeing, however, that at any time the incident might be repeated, with even intestinal accompaniments of severity or danger, herniotomy was at once decided upon for the purpose of radical cure. The empty sac was opened, separated, and then tied tightly and high up with carbolised catgut, being cut off beyond. Two or three dressings sufficed, with catgut drain and sutures, resulting in

speedy and simple healing, without further illness. The patient was in her usual health on December 1, 1881, but, being habitually bronchitic, was not robust; the hernia, however, showing no sign of existence or tendency to reappear, though she had been up and about without a truss within a month of the operation. She was still free from hernia on 10th February, 1883.

Three more femoral cases have been done recently. All are quite well, and so far free from hernia up to 15th February, 1883.

Woman, aged fifty-two, operation 26th June, 1882. Right femoral hernia (strangulated).

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Woman, aged forty-two, operation 21st November, 1882. Right femoral hernia (strangulated).

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Woman, aged sixty-four, operation 28th Dec., 1882. Right femoral hernia (strangulated).

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[MEDICAL TIMES AND GAZETTE, *May 27, 1882.*]

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*Irreducible Omental Umbilical Hernia—Prophylactic Herniotomy—  
Excision of Omentum—Ligature of Sac alone—Complete Cure.*

Catherine W., aged fifty-seven, having a hernia about the size of a hen's egg, being also a confirmed bronchitic, submitted to operation under ether on July 16, 1881. Adherent omental bands were severed, and tied with catgut, but the whole mass not proving reducible after some efforts, the pedicle was tied in several places with carbolised catgut, and the stump reduced after cutting off the mass beyond. The peritoneal lining of the sac was now stripped up to the innermost margin of the abdominal opening, and tightly tied with two thick ligatures as nearly flush with the inner surface of the abdominal wall as was possible, and the residue beyond the ligatures cut off. Some of the skin was removed, and the layer of subcutaneous fat closed over the stump of the sac by deep skin sutures quilled over rubber tubes, thus approximating the gaping skin edges, into which interrupted sutures were put. Lister's precautions, with due drainage and gauze dressings, were applied, and all proceeded safely by first intention and granulation without suppuration. On July 30 there remained only a few granulating points unhealed, with boracic ointment on

boracic lint for dressing. A plate of sheet zinc in a swan's-down calico binder was worn as a truss pending firm cicatrisation. She went home in August, healed. On October 15 she called and showed a depressed white cicatrix, firmly adhering to the deepest parts of the umbilicus, and perfectly resisting all intra-abdominal pressure. She has suffered more or less from bronchitis ever since, and on 23rd Feb., 1883, she was again seen. The umbilical cicatrix was now reduced to about the usual size, and in place of hernia or any trace of it, every time she coughed, the umbilicus was drawn in.

The seventh case was an irreducible umbilical hernia, of large size, containing bowel and omentum, protruding through two necks, one wide. The patient was a woman, aged forty-two, stout, and of good physique, introduced to me by Mr. J. Kellett Smith, of Liverpool, and operated upon, in private practice, 5th October, 1882, shortly after recovering from her third or fourth attack of severe obstruction, this time short of complete strangulation. The bowel was detached and its bleeding surface sewn with catgut. Much omentum was tied and cut off. After reduction the peritoneal lining of the sac was stripped and tied separately at the two necks (which were adjacent), and tied again singly round the necks thus tied, all three sets of ligatures being left on. The ligatures came away and the stump of the sac sloughed partly off, though a firm knob remained closing the outlet on the deep side of the abdominal wall. The patient made a simple recovery without a bad symptom, and the resulting cicatrix was dimpled down to the linea alba, as a proper umbilicus once more. She was up in three weeks, about the house in four, and out for a walk in five, and so far remains sound and free from hernia; but this report is only four months after operation.

*Congenital Inguinal Hernia in a boy—Radical Herniotomy, with Ligature of Sac—Imperfect Result.*

Robert R., aged twelve, had a very large right scrotal hernia, over six inches long and four wide, of the congenital variety. On March 15, 1881, under ether and Lister's antiseptic precautions, the sac was separated from the cord and tied with catgut; a small residue was left around the testis in an attempt to construct a closed tunica vaginalis, and the intervening portion removed. Catgut drainage and sutures and gauze dressings were used; but suppuration and even decomposition were not prevented, though speedily allayed and perfectly controlled on removing all dressings, smearing on boracic ointment, and frequently squeezing out discharge. In

the operation the sac was inadvertently tied rather low in the inguinal canal instead of at the internal ring, but it was hoped, on recollecting this shortly after, that subsequent precautions might suffice to prevent a return of the hernia. But all control of the lad utterly failed, as he got up and danced and turned somersaults in bed, as soon as ever he could do so without pain to himself, whenever the nurse's back was turned. Notwithstanding that, the absence of hernia and the apparently successful cure existed up to six or eight weeks after operation. He was seen on December 1, 1881, however, with quite a moderate hernia, and was said by his mother to be an utterly wild and hopelessly unmanageable street-arab.

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*Inguinal Hernia—Ligature of Neck of Sac—Perfect Cure.*

Patrick R., brother to the previous case, having a left inguinal hernia, was submitted to a similar operation on May 24, 1881. The incision in all these inguinal cases was made over the inguinal canal, rather than the scrotum, for easier access to the internal ring. On this occasion the ligature of catgut was tied high up, the sac below being stripped and removed. A similar but perfectly harmless course of the wound followed, and a totally successful result, without the faintest sign or threat of return, was maintained up to December 1, 1881, when he was last seen.

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*Inguinal Hernia—Ligature of Neck of Sac—Perfect Cure.*

William Kelly, aged eight, submitted to operation on the right side, as in the latter case, for a scrotal hernia the size of a large hen's egg, on June 7, 1881. In the last two cases the boys were up and about considerably under a month, and no truss or mechanical precaution was attempted or appeared necessary, even on account of the cicatrix, after superficial healing was completed. He was last seen on December 1, 1881, free from hernia and from all evidence of likely return.

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[MEDICAL TIMES AND GAZETTE, June 3, 1882.]

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*Strangulation of Old Inguinal Hernia—Symptoms totally Masked—  
Herniotomy—Radical Cure.*

George S., aged forty-seven, had had a left inguinal hernia for about ten years, always reducible until April 16, 1882, when he thought he walked too far. However, he vomited his breakfast on his return at noon, and vomited or retched four other times the same day; being visited by Dr.

Hardman at Blackpool, who, failing to reduce the hernia, proscribed all food, and gave a hypodermic injection of morphia, repeated at night. The next day taxis again failed. The scrotum and inguinal canal were moderately distended by a hernia, devoid of resonance and expansible impulse on coughing; but the patient was free from pain, abdominal distension, vomiting or retching, and in fact from all symptoms except local tenderness and uneasiness, and a certainty that he had passed no wind, and could pass none, since the descent. Elevation of the pelvis and total abstinence from food left the hernia still down, its size being about eight inches by four outside the skin.

On the third day (April 18) herniotomy was done by Mr. Parker, the patient being put by Dr. Hardman under chloroform, followed by a mixture of alcohol, ether, and chloroform. The sac was cut into, and several ounces of bloody serum let out, the only other contents besides red fibrin being a coil of small intestine of light purple colour. From the feel of the sac previously it had been confidently supposed that there was omentum too. The neck had to be enlarged to permit the return of the gut, after which the sac was divided in the canal, a little below the internal ring, stripped up, and tightly tied above that ring with strong carbolised catgut. The peritoneal stump was pushed up, and the edges of the skin in the lower half of the wound were stitched with catgut to the edges of the peritoneal lining of the sac, which was left in its place in the scrotum; the skin opposite the inguinal canal was stitched to the other coverings of the sac that here alone remained, by which means the subcutaneous fat and all the exposed planes of connective tissues were shut up again.

The parts had been sponged from time to time with warm carbolic lotion. The only vessel divided had been twisted at both ends, and the gap thus left was allowed to fall together, a drain of folded gutta-percha tissue being laid between the sides of the cavity, leading out from the ligatured stump of peritoneum along the lower part of the wound. The drain and interior of the wound were kept smeared with a beautiful form of eucalyptus petroleum ointment used by Dr. Hardman, and made with chrisma instead of vaseline. A piece of gutta-percha tissue was laid over the wound and covered by a folded towel.

Morphia was given subcutaneously night and morning, and nothing except filtered oatmeal-and-water and weak brandy-and-water for four or five days. Everything went on perfectly. Wind passed the day after operation, and daily afterwards. The first stool passed on the eleventh day. No pus or anything resembling it formed in the wound, which began

to adhere, where apposed, in a few hours. A little bloody serum was conducted out by the drain during the first twenty-four hours, but none after, though it was retained for safety three days. On the exposed surface there gradually appeared, in succession to the "glaze," a formation of fibrin in patches of the cleanest white appearance, and totally devoid of yellow, green, or other puriform evidences. The translucent granulations only showed slowly and in patches the injection of vascularity, and the discharge was confined to the bloody serum referred to in the first few hours. A little induration was felt in the edges of the wound on the second day, but this gradually diminished, though it never disappeared, during the healing process.

Morphia was discontinued on the third day after operation. The diet was increased to custard and blanc-mange on the seventh day, and to meat a very few days later. In a fortnight the patient came downstairs, and went out a fortnight later.

On May 21 he was in his best health, walking out every day, and free from any tenderness, weakness, or other local appearance suggestive of favouring a fresh protrusion, though a corner of the wound remained not quite healed. Precautions are taken against careless violence or excess of exercise, but no truss is worn.

On February 12, 1883, he was seen and examined by Dr. Hardman, who reported him free from hernia.

Three more inguinal cases follow, the sac having been tied at the internal ring in all with simple recovery, and so far, satisfactory freedom from hernia, in the erect posture and in progression, both resumed shortly after operation.

Man, aged twenty-five. Left inguinal hernia, strangulated in congenital sac of a testicle undescended below the inguinal canal. Testicle saved, and sac stripped from the cord.

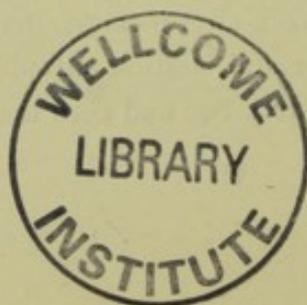
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Man, aged seventy-five. Right inguinal hernia of recent standing. Operation, for radical cure only, 5th January, 1883.

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Man, aged twenty-two. Left inguinal omental hernia. Operation, 26th Jan., 1883, a week after incarceration of bowel, which was reduced by taxis. Sac congenital, testicle atrophied and down in scrotum, but descent some years late. Sac and cord tied together and testis removed.

Though the method, here advised, of attempting radical cure, is to be commended above all others hitherto suggested, it must be added that a few failures, besides the one here related, have occurred in the experience of other surgeons. In any case a few more years must elapse before complete confidence in it can be established. But in the meantime, ligature of the sac high up is at least a fitting and advantageous termination, to herniotomy, that simplifies the course of the case and permits the patient to get up and about, without immediate risk of re-descent, at a very early date after operation, in those cases (and they are a majority) to which it is applicable. In the event of a fæcal fistula being probably imminent owing to severe injury of the bowel, short of obvious gangrene, it may now and then be prudent not to tie up the peritoneum, but rather to keep it open for free exit of fæces, should the bowel give way. In such case I would advise plugging the sac with the antiseptic dressings that may be employed, in order to ensure abundant granulation, and the best chance of subsequent close and extensive coalescence along the sac's interior, as the next best way of securing a permanent and firm occlusion.



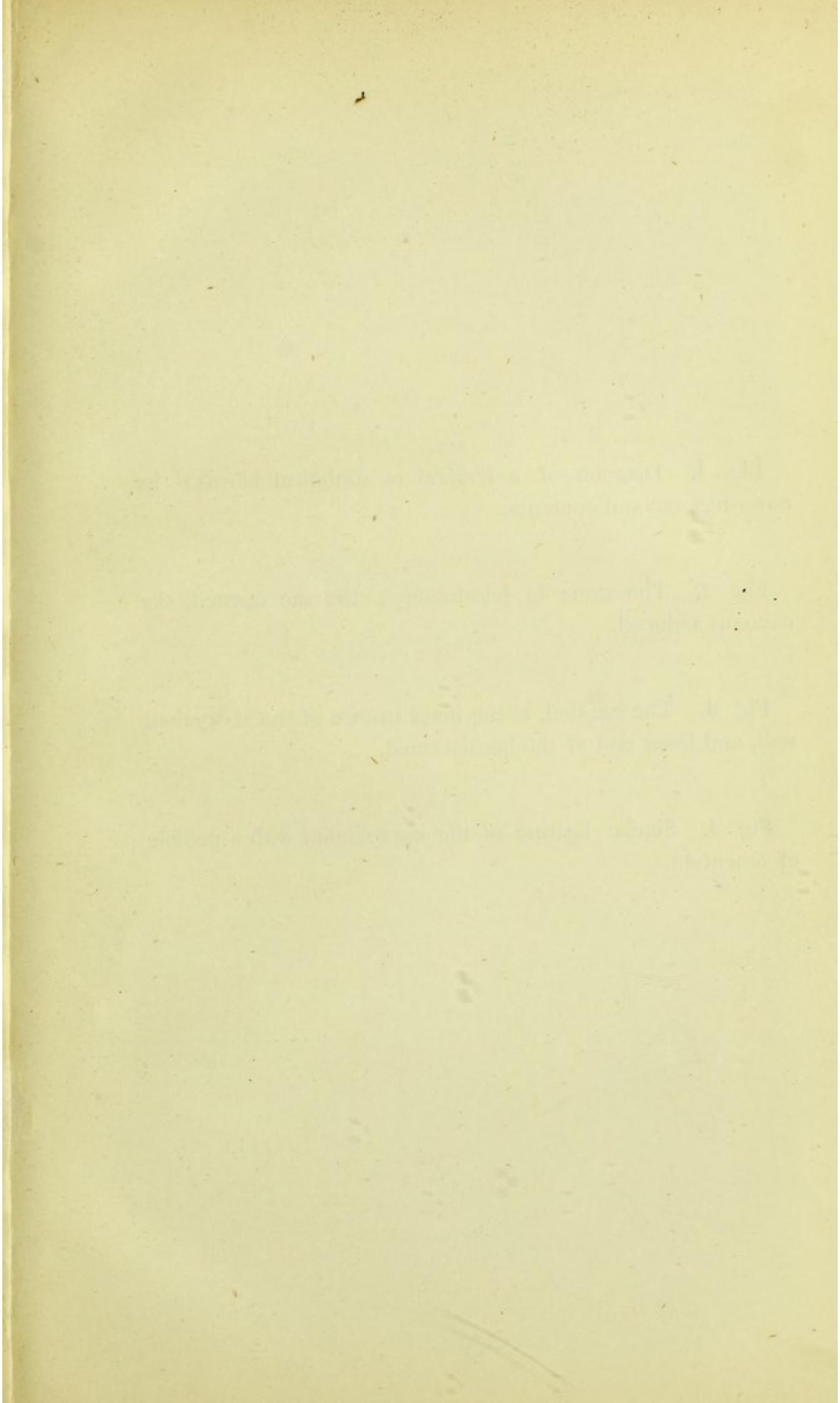


Fig. 1. Diagram of a femoral or umbilical hernia; its coverings, sac and contents.

Fig. 2. The same in herniotomy; the sac opened, the contents reduced.

Fig. 3. The sac tied, at the inner surface of the abdominal wall, and inner end of the hernial canal.

Fig. 4. Similar ligature of the sac together with a pedicle of omentum.

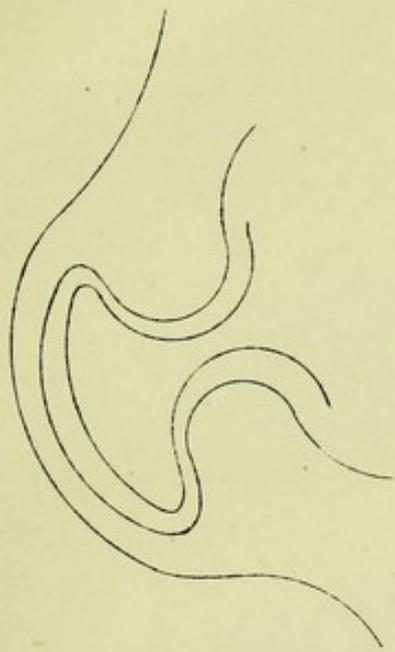


FIG: 1.

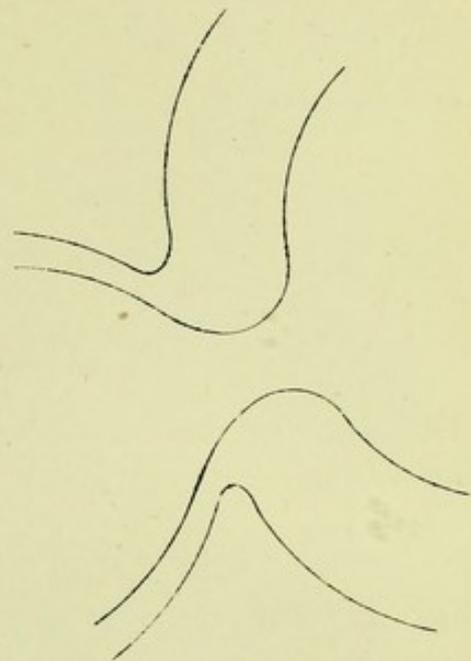


FIG: 2.

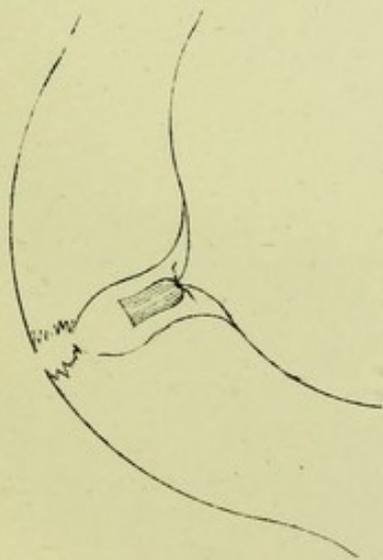


FIG: 3.

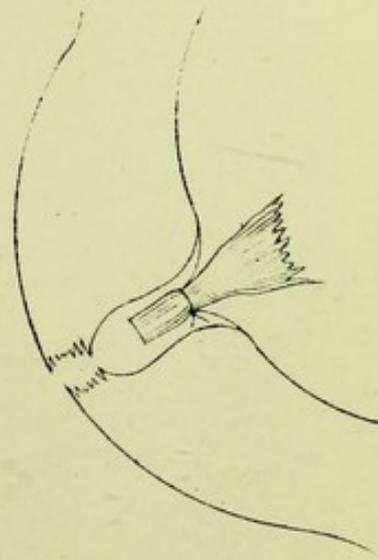
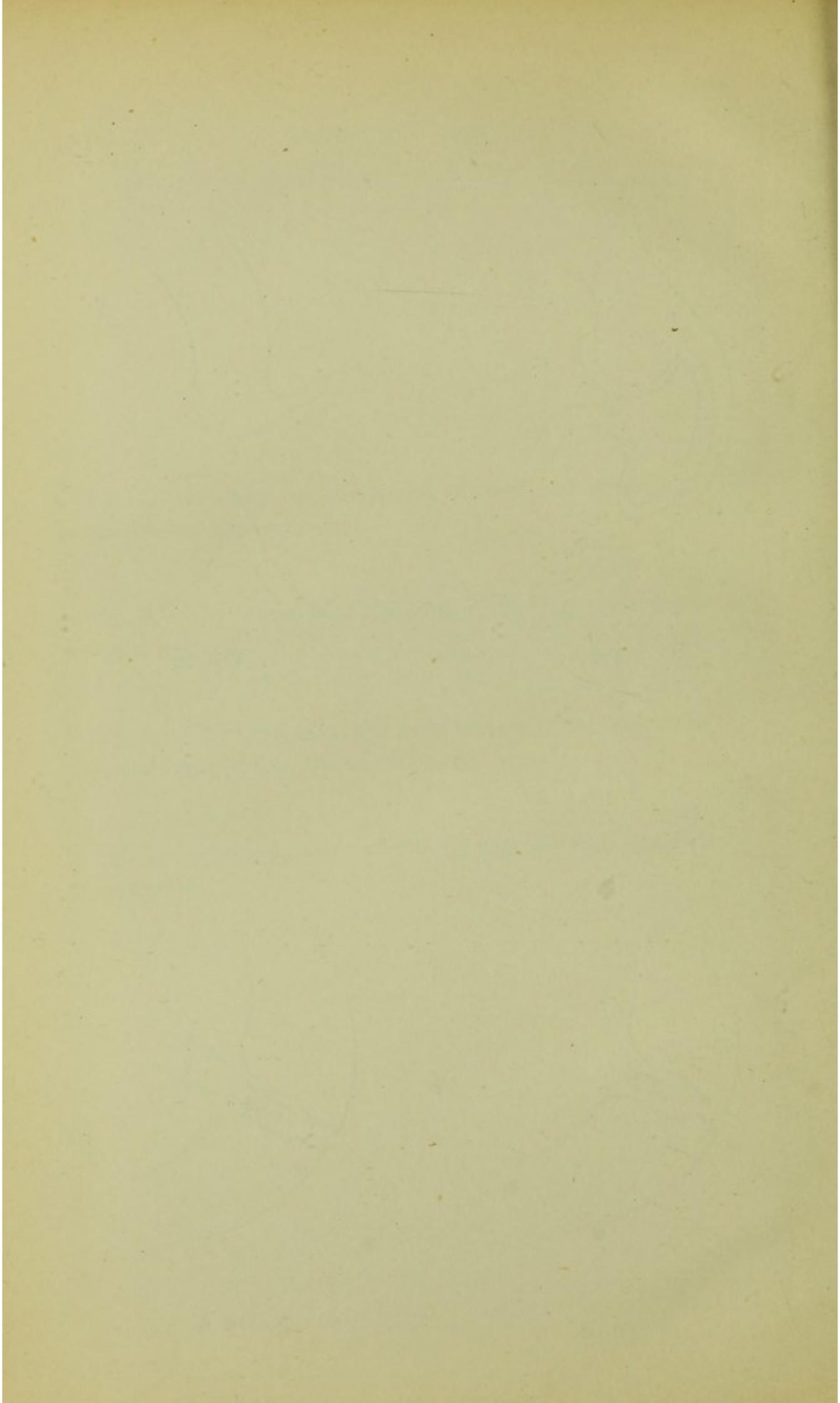


FIG: 4.



1875  
The following is a list of the names of the persons who have been admitted to the office of the Secretary of the Board of Education, since the last meeting of the Board, on the 1st of January, 1875.

1. Mr. J. H. [Name] [Address]  
2. Mr. J. H. [Name] [Address]  
3. Mr. J. H. [Name] [Address]  
4. Mr. J. H. [Name] [Address]  
5. Mr. J. H. [Name] [Address]  
6. Mr. J. H. [Name] [Address]  
7. Mr. J. H. [Name] [Address]  
8. Mr. J. H. [Name] [Address]  
9. Mr. J. H. [Name] [Address]  
10. Mr. J. H. [Name] [Address]

Fig. 5. Diagram of inguinal hernia; its coverings, sac, and contents. An "acquired" sac indicated by the presence of the dotted line; a congenital sac, by its absence.

Fig. 6. The same after herniotomy; the sac tied in front of the spermatic cord. The dotted line absent in a "congenital" sac.

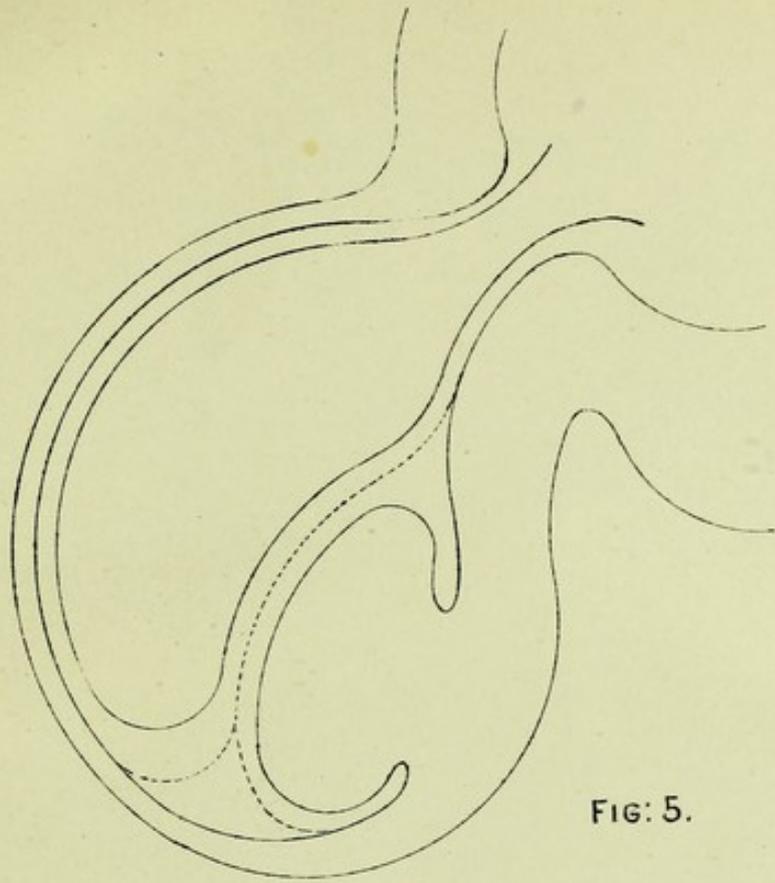


FIG: 5.

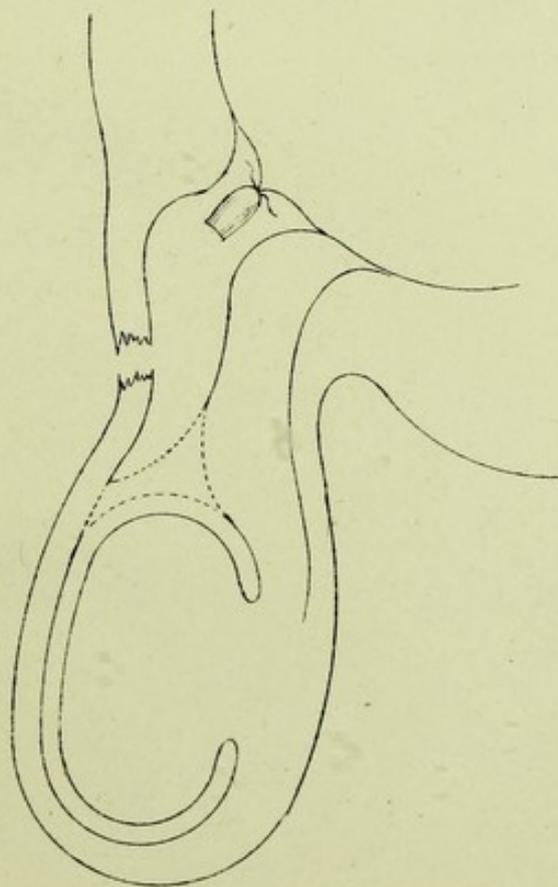


FIG: 6.

