Lessons from surgical practice / by B. Wills Richardson.

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Compts

LESSONS

FROM

SURGICAL PRACTICE.

BY

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LESSONS

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SURGICAL PRACTICE.

Entero-vesical Fistula, with Disease of the Descending Colon, Sigmoid Flexure and upper part of Rectum—Muscular Fibre as a Urinary Deposit.

Mr. ———, aged sixty-six, suffered for thirteen or fourteen years from periodical fecal accumulations, the result of thickening and narrowing of the descending colon. According as the feculent collections formed above this portion of the bowel, the latter, as well as the distended part above, became the seat of increased pain and tenderness. To the touch the feculent mass felt globular, and about the size of a large orange. Each collection, under the use of mild laxatives and emollient enemata, gradually broke

up and was voided *per anum*, leaving nothing to be felt but the indurated and thickened gut.

Temporary relief followed the removal of the accumulation.

Every lodgment took about three months to form, and the patient was taught by experience that laxatives and enemata very much lessened his sufferings—for a time at least. Feculent masses, however, continued to form in spite of this treatment, and as the case progressed, required more active remedies for their disintegration and evacuation. Moreover, as time wore on, they formed with increasing rapidity, *pari passu* as it were, with the increasing diminution in the calibre of the bowel, and occasionally caused symptoms resembling those of internal strangulation, but which ceased when the feculent mass was discharged.

In May, 1871, the pain and tenderness in the left iliac region had become almost constant. Purpuric spots, some of which were half an inch in diameter, appeared over the body, being in largest number on the lower extremities. They disappeared under the use of lemonade, well-cooked vegetables, and some tonic medicine. At this stage of the case the countenance became anxious and the skin changed to a sallow hue.

The patient came to Dublin in August, 1871. I then found that since I had last seen him the local symptoms had received an addition, viz., a very tender tumour could now be distinguished projecting above the brim of the true pelvis, and felt as if it were wedged between the bladder and the indurated bowel, but continuous with the latter. When the forefinger was passed up the rectum as far as it could reach, I imagined that the lower part of the tumour could be at times distinguished—when, for instance, it was pressed downwards by feces accumulated above it.

It had somewhat the feel of an enlarged prostate.

Below the tumour the rectum felt soft and healthy.

The intervals of ease were now very short, owing to the diseased bowel forming a more obstructive barrier to the onward passage of the feces, notwithstanding that emollient enemata were cautiously administered with a soft rectum tube, procured specially for this case.

The pulse at this period averaged 68 in the minute.

Early in the following month (September) he began to complain of uneasiness at the neck of the bladder and of increased frequency with difficulty in micturition. The urine was free from sediment, and did not contain albumen. Thinking it possible that

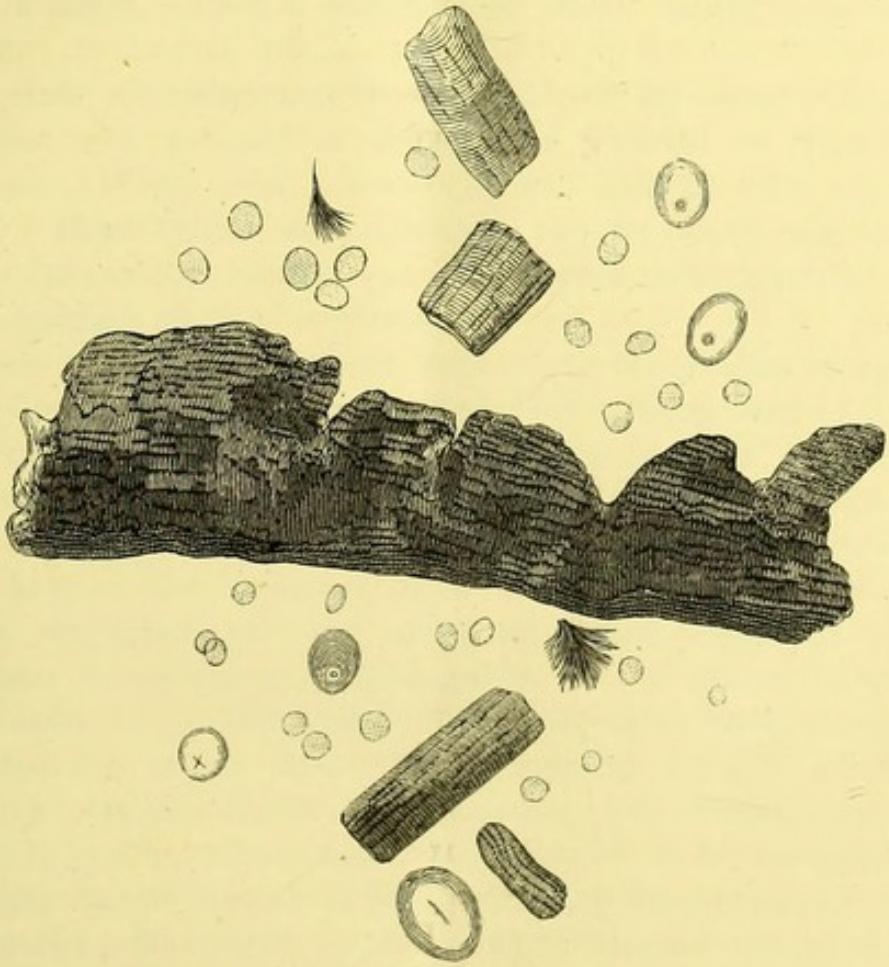

Fig. 1.—Striated muscular fibre; starch granules; feathery-looking bodies, and mucous corpuscles, from specimens of urine passed by Mr. ———. The large fibre in the centre of the figure was partially disintegrated, but striation was visible in the portion represented. Some of the fibres were more finely striated than others. Drawn with Nachet's Camera. 230 diameters.

a calculus might be present, I explored the bladder, but with negative result.

About the 4th September the bladder became exceedingly irritable at intervals during the day. Soon afterwards the catheter had to be used for the removal of small quantities of urine he was unable to expel, and the retention of which caused him much suffering.

He derived temporary ease from hypodermic injections of acetate of morphia with sulphate of atropia, and hydrate of chloral by the mouth. When thus relieved he was able to take carriage exercise. These truces were, however, very transitory, and in the intervals the frequent calls to pass water were most harassing, the urine resembling whey in appearance.

Between the 7th and 27th of September the bladder remained tolerably quiet, having been injected daily with extract of belladonna, rubbed up with tepid water. The catheter had to be occasionally used to counteract retention. It was observed on one occasion during this interval that a good deal of air was expelled *per urethram*. The existence of a vesico-intestinal fistula was therefore suspected, and the urine was again examined (27th September) for evidence on this point. As I had anticipated, it was found to contain some easily-recognized constituents of feces, amongst which were: (1), undigested striated muscular fibres; (2), partially digested and disintegrated striated muscular fibres; (3), hyaline tubes, which I considered to be composed of sarcolemma, in consequence of their exhibiting some traces of transverse striation; (4), starch grains; and (5), mucous corpuscles and feathery-looking bodies (Fig. 1). These only are represented in the figure, but there was also much amorphous matter, many crystals of triple phosphate and a good deal of oil. No doubt the triple phosphate crystals may have had their origin in the urine, and the oil may have been derived from the catheter; still they are both constant constituents of the feces.

Before I leave this part of the case let me observe that every precaution was taken against fallacy both in collecting and preserving the urine specimens for examination, and that striated muscular fibre was found in every specimen examined, even down to a few hours before death.

From the 27th September to the 11th October the vesical irritation was greatly alleviated by morphia suppositories, by the morphia and atropia hypodermic injections, and by vesical injections of the

extracts of belladonna and conium in water. During this interval, also, retention demanded occasional catheterism.

12th October.—Nearly pure and intolerably fœtid thin fluid feces were passed *per urethram* this day. There were much vesical irritation and hypogastric tenderness.

15th October.—Flatus passed almost constantly *per urethram.*

23rd October.—Congestion of lower and posterior part of right lung and rapidity of respiration. Pulse quick.

15th November.—The congestion of lung subsided under the apparent influence of repeated turpentine stupes to back of thorax, and frequently repeated doses of sulphate of quinine in Burgundy wine—the wine he was taking at the time, and which he preferred.

On the 15th November he had diarrhœa, which ceased under ordinary treatment.

19th November.—The urine contained much feces, the odour being most sickening; and the evening previously the vesical tenesmus was most tormenting. The catheter had now to be used three times daily, from his complete inability to empty the bladder. The urine had cleared in appearance by the following morning (19th November).

20th November.—Pulse 108; catheter used three times.

21st and 22nd November.—Pulse 120; great drowsiness, and he did not complain of the bladder. The catheter was used on three occasions during the latter day, but no fluid was found in the bladder until the third catheterism, when some disgustingly fœtid feculent urine was withdrawn.

24th November.—The pulse had gradually risen to 160, and was correspondingly weak. It gradually became imperceptible, and he died on the morning of the 25th November.

A *post-mortem* was made on the evening of same day.

The lower fourth of the descending colon was much indurated and about an inch in diameter, feeling like a rope rather than an intestine. The canal in this portion of the bowel was diminished in calibre. Below and continuous with the indurated part, the sigmoid flexure seemed to be elongated, and formed a semi-solid irregular-shaped tumour, about the size—and somewhat the shape—of a small beef kidney. This was itself continuous with the rectum, which was of normal calibre.

The tumour on section here and there was semi-gelatinous resembling fœtal brain in appearance. These semi-gelatinous portions broke up under the slightest pressure with the fingers. The

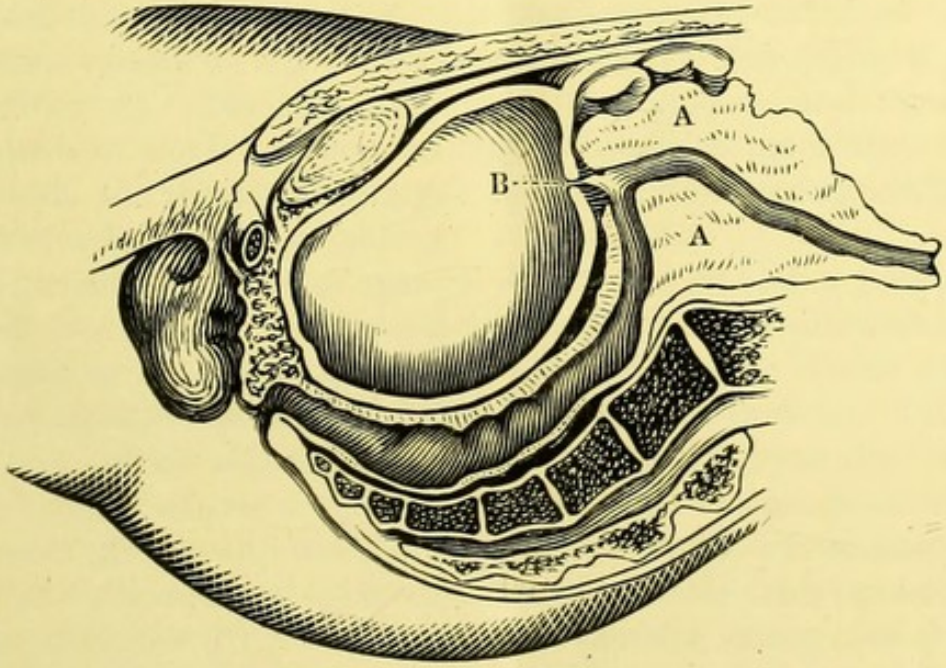

Fig. 2.—Vertical median section through the pelvis, and its contents. A A.—The tumour formed by the infiltrated wall of the bowel, with section of the intestinal canal passing axially through it. B.—Bladder, with the minute vesical opening of the bimucous fistula, or termination of the funnelled passage between the bowel and bladder.

remainder of the mass was more opaque and more solid, the whole resembling one of the forms of medullary cancer. The intestinal canal coursed along the axis of the tumour, but owing to the unevenness of the latter it was unequally surrounded by it. The lower and anterior part of the tumour was adherent to the upper and back part of the bladder, by means of an almost black, sloughy, and horribly fœtid medium, that tore under very slight traction. An ulcerated circular opening, a quarter of an inch in diameter, had formed in the diseased wall of the gut, corresponding to the centre of the intestinal portion of the adhesion. This opening led to a funnelled passage of nearly an inch in length, which passed through the wall of the bladder, and terminated on its mucous surface by a hole that barely allowed a fine probe to enter it (Fig. 2). Through this canal the gaseous and semi-fluid contents of the bowel were enabled to pass from the latter into the bladder, the mucous membrane of which was intensely inflamed, and of a dark mulberry colour.

Cruveilhier mentions that it is not rare to find a knuckle of small intestine, or the sigmoid flexure of the colon adherent to the summit or to the posterior wall of the bladder. There are not many cases, however, to be found in our records in which a fistulous passage existed between this portion of the bowel and the bladder. Cruveilhier alludes to one case, indeed, of adhesive union of the sigmoid flexure with the bladder. It occurred in an old woman:—"The walls of the bladder were entirely wanting corresponding to this adhesion." There was no direct communication between the bladder and bowel, for he observes that it "is probable that the gangrenous inflammation which had destroyed the whole thickness of the bladder would have soon destroyed the corresponding wall of the colon, if death had not occurred."[a] He also mentions that in "man a recto-vesical fistula might be produced by an abscess situated between the rectum and the bladder, opening simultaneously into those cavities;" but usually these entero-vesical fistulæ "are the consequence of alteration which propagates itself from the rectum to the bladder. The sigmoid flexure or any other portion of the cancerous intestine may likewise open into this organ which has itself become cancerous."[b]

In the third volume of the *Proceedings of the Pathological*

[a] Traité D'Anatomie Pathologique Générale. Par J. Cruveilhier. Tome deuxième A Paris. 1852. P. 533.

[b] Ibid.

Society of Dublin (1st series, page 300),[a] there will be found the description of a very interesting case of recto-vesical fistula that was exhibited by Dr. Banks at the meeting of the Society held on the 20th February, 1858. In this case, also, feces were passed *per urethram* during life. The middle portion of the rectum was "closely bound by old adhesions to the bladder, and contracted to so small a size that a catheter could not be passed through the gut. On cutting into the bladder its mucous coat was found to be much thickened, deeply ulcerated, and in part coated with ash-coloured lymph. Immediately behind the trigone an opening existed between the bladder and rectum, through which a large-sized catheter could readily be passed; this opening was between, but posterior to, the mouths of the ureters. The inside of the bladder closely resembled a piece of ulcerated intestine; the upper and lower portions of the rectum were also extensively ulcerated.

The symptoms observed in this case were:—Difficulty in micturition; the passage of fecal matter and air *per urethram;* the urine being never unimpregnated with fecal matter; dysenteric evacuations, and, at times, costive bowels, at which periods the greatest amount of feces passed by the urethra. Frequently an enema, soon after being thrown up into the rectum, was ejected through the urinary passages, and then followed casts of the urethra; but in general the excrement was fluid. Flatulent distension of the bladder. Retention of urine occurred occasionally, and was often the result of the presence of some solid body in the urethra. On one occasion a piece of yellow elastic ligament, which had been taken in soup and had found its way from the intestine to the bladder, was arrested in the urethra. and caused much distress. Mucopurulent discharge from both rectum and urethra. One day he was seized with severe rigors and retention of urine, when it was found that an obstruction existed to the passage of the contents of the bladder by the urethra. The pain felt at the seat of the foreign body was very acute. After many efforts, and with much trouble, a piece of bone, presenting many sharp points, was extracted from the urethra. The urine eventually passed away involuntarily *per anum*, very little coming by the urethra. At last he sank exhausted, worn out by this terrible malady, combined with thoracic and other complications.

[a] For the early history of this case see the Dublin Hospital Gazette, Vol. iii., p. 209.

In the description of Mr. ———'s case, I mentioned that his symptoms received an addition by the formation of the tumour discovered in August, 1871, projecting above the brim of the true pelvis. It might be argued that this tumour, formed in great part by the sigmoid flexure, commenced simultaneously with the induration of the bowel above it. I am myself inclined to the opinion that it was a superadded disease, because for years after the discovery of the indurated colon the patient remained unaltered in appearance, and enjoyed life as soon as he got rid of each feculent lodgment. I date the commencement of the cancerous disease to either the end of 1870 or the beginning of 1871, when emaciation first set in, when he altered in colour and lost strength rapidly; in fine, when his malaise was almost constant—a condition of health which leads us to suspect the existence of malignant disease when occurring either in or after middle age.

Direct Scrotal Hernia, having primary, secondary, and tertiary Sacs—Several inches of the protruded Bowel suspended in the Sac proper by radiating Bands, prolongations of one long Band that descended from the Abdomen through the Ring—Both Testes at the upper and anterior part of the Tumour.

J. A., aged fifty-five years, a very pale cachectic man, was admitted to the Adelaide Hospital on the 20th November, 1871. He was a cook on board a vessel, and while raising a very ponderous iron box full of coal, his rupture was suddenly forced from the groin into the scrotum. The taxis, and the inverted position were tried for its reduction, but with only very partial success; still he was able to return to his occupation after a few weeks, with the hernia supported by a bag truss. As time elapsed, however, it gradually enlarged.

When he came into hospital the hernia was fourteen inches in its longest or vertical diameter, and twenty-four inches in circumference at its widest part (Fig. 3). If, however, he changed from the recumbent to the sitting posture, the tumour, being unsupported, it increased so much in size as to reach nearly to the knees, and its surface became very uneven. This unevenness was at the time attributed to pressure by the intestines against the walls of a thin and thinly covered sac, but was subsequently found to be produced by the secondary and tertiary sacs hereinafter mentioned.

The testes were situated nearly at the same level on the upper

and anterior part of the hernia. The cord of the right testicle could be easily felt passing backwards and inwards towards the root of the penis.

About a third of the hernia was reducible, and when this was returned into the abdomen, the remainder felt like slender sausages in the scrotum. There was fluctuation in the most depending parts of the abdomen, and as the hepatic region was abnormally clear on percussion, the existence of cirrhosis of the liver was suspected. The hypogastrium was tender when pressed.

Castor oil and compound tincture of rhubarb effectually opened the bowels.

From the 20th November to the 8th of January, 1872, there was scarcely any abdominal uneasiness, with the exception of occasional flatulent distension, which a carminative draught usually relieved.

On the 9th of January the area of the hypogastric tenderness had enlarged, and tympanitis was distressing. Bran poultices were applied to the abdomen, and some carminatives given. The next day there was constipation, and he vomited once. A little above the right abdominal ring there were increased pain and tenderness. The abdomen was larger, apparently from augmented peritoneal effusion and tympanitis. The hernia was soft and free from tenderness; the pulse 80, and the tongue natural. He had a turpentine and asafœtida enema with the long tube, and a grain of opium in pill twice daily. The 12th of January he felt better; the enema brought away a good many feculent masses. The hernia continued soft, the pulse quiet, and the tongue natural. The enema and pills were repeated.

13th January.—The enema brought away only a few scybala. Although the hernia continued soft and communicated an impulse to the fingers when the patient coughed, it was less reducible and more painful during the cough. The tenderness above the ring, however, had lessened. Hypogastric and iliac regions painful. Stomach quiet. Turpentine and asafœtida enema, and repetition of the pills.

15th January.—Some scybala were voided with the enema. Occasional hiccup and bilious eructations. Tongue natural. Pulse 100. Abdominal fluctuation very pronounced. He turned in bed without pain, except in the hypogastrium, where also pain was produced by coughing. Hernia larger but not tender, and had become very transparent anteriorly and at the left side. The

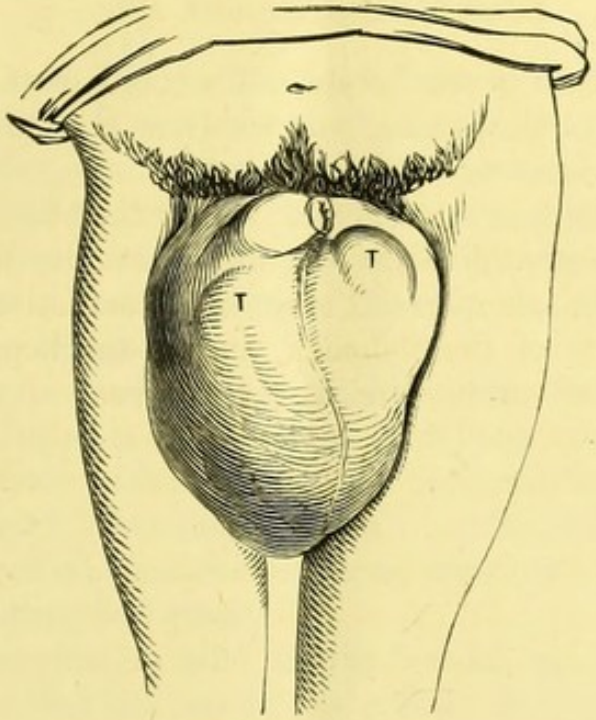

Fig. 3.—Right direct inguino-scrotal hernia, with the testes on the upper and front part of the tumour. T T.—The testicles. The drawing was made while the man was in the horizontal position.

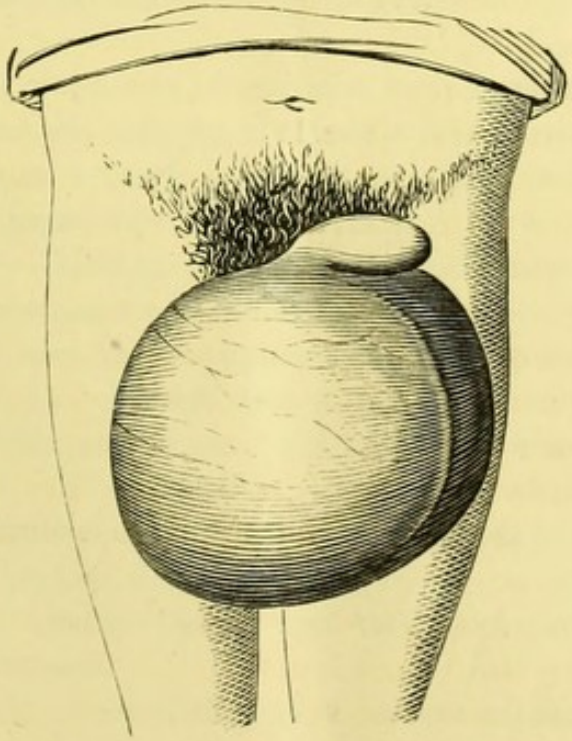

Fig. 4.—Hernia on the morning of the 17th of January.

scybala. At 9 o'clock p.m. the hiccup, which had ceased for several hours, returned. Hernia of vast size. Less draining through the punctures. It was now so tense and hard at the ring, we thought it advisable to explore this region by operation. Accordingly, assisted by my colleagues, Drs. Walsh and Barton, I cautiously dissected down to the ring, the patient being fully under the influence of chloroform. The neck was then found so tense and unyielding that I opened it by a short incision. A good deal of whey-like fluid gushed out, and small intestine was exposed. It was intensely inflamed, and covered by yellow purulent lymph, which cemented its coils together. The abdominal ring was very large, and allowed three fingers to be passed into the abdomen alongside the mesentery and intestine, which were not compressed in the slightest degree by it, the tension having been caused by fluid pressure. When we reflected for a moment upon the enormous size of the protrusion, and its hopelessly inflamed condition, the bowel was no further exposed, and the wound was united by sutures.

Opium treatment continued.

18th January.—Bilious vomiting three times after the operation. Increased thirst and frequent hiccup. Pulse 108; tongue natural; bowels unmoved. Had but little sleep, and the countenance was more sunken. Hernia measured thirty-one inches in circumference at its widest part.

An opiate pill with creosote every fourth hour; ice; whiskey and champagne. Hiccup recurred in the evening, but there was no return of the vomiting; belly soft and not tender; pulse 124.

19th.—Slept a good deal; stomach continued quiet; pulse 110, weaker; constipation; tongue natural. Coughing caused impulse in the upper and anterior part of the tumour. Death took place on the following morning.

The *post-mortem* was made on the 21st January, when pathological anatomy was enriched by a most curious, instructive, and rare specimen of hernia.

On laying open the abdomen the following appearances were noticed:—(1.) Intense injection of both the lining and investing peritoneum, which was more or less concealed by a coating of yellow purulent lymph. (2.) Great thickening of the peritoneum lining the anterior abdominal wall, and evidently of some standing. It was the probable seat of the leather creak felt during life. (3.) The lower edge of the great omentum was turned upwards

Fig. 5.—The hernial intestine, with the radiating bands attached to the portion of bowel found in the sac proper. The fingers grasp the long single band at its termination in the fibrous nodule.

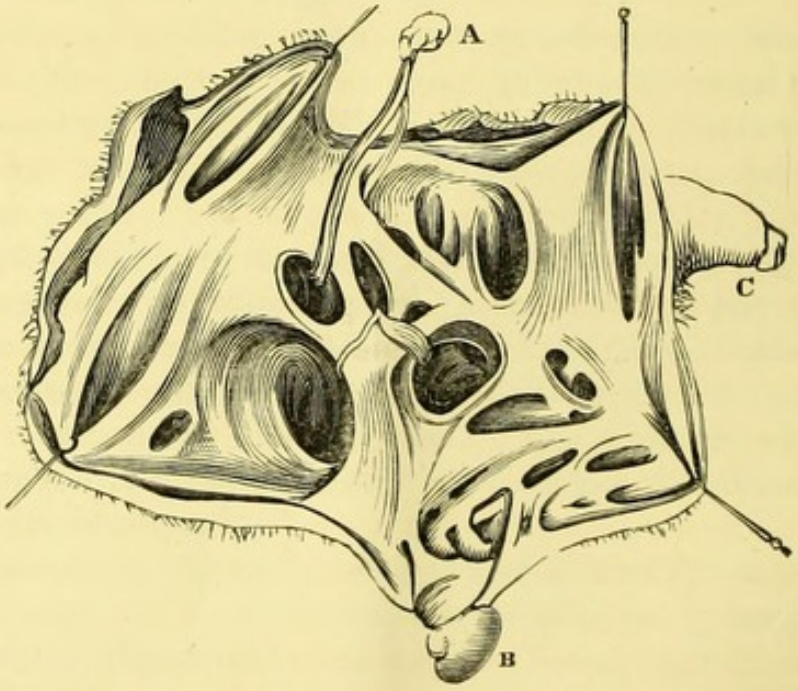

Fig. 6.—Sac proper, laid open, and moderately stretched with hooks to expose all the openings and depressions. A.—A second fibrous nodule from which two fibrous bands passed, each to enter a secondary sac, where it was lost on its wall. B.—Right testicle which in the figure seems as if it were originally below the hernia. This position in the drawing is owing to the incision having been made above it, so that when the margin of the cut wall was turned down for the artist, the testicle passed with it. At the time of death the testicle was found adherent to the middle and anterior part of the hernia, having descended from its first position as the rupture enlarged. C.—Penis.

towards the diaphragm. (4.) A small quantity of whey-like fluid, with yellow lymph flakes, in the most depending portion of the abdominal and pelvic cavities. (5.) A very nodular, hard, and contracted cirrhosed liver; and (6) an enlarged spleen.

The hernia, of the ordinary direct variety, was formed of mesentery and all the small intestine, excepting the first four feet and a few inches between the ring and the cœcum. A portion of the non-hernial jejunum for about two inches was diminished in calibre to that of a swan quill, but without induration. The external abdominal ring, as disclosed at the time of the operation, allowed three fingers to pass without impediment alongside the uncompressed mesentery and intestine from the abdomen into the hernial cavity. When the latter was laid open it was discovered that instead of being a single sac it was composed of a primary sac or sac proper, of secondary, and of tertiary sacs. All of these contained fluid similar to that found in the abdomen. The longest portion of intestine was in the sac proper, and the remainder in secondary sacs, nearly every one of which had its portion. The mesentery was much thickened.

The bowel in the sac proper was suspended both by its mesentery and by a series of fibrous bands arranged thus:—A long firm fibrous band descended from the portion of mesentery remaining in the abdomen, along with the intestine and mesentery, through the external abdominal ring, into the sac proper. After passing a little distance downwards in front of the intestine it enlarged into a dense fibrous nodulated mass, having the size of a walnut (Fig. 5). From this nodule thirty-one separate fibrous bands radiated downwards to the convexity of the intestine, where having arrived, each band spread out into a fan-like form, and was inserted into the bowel opposite to the insertion of the mesentery. None of the intestine was strangulated, but the whole partook in the general inflammation. There were a few dark patches in the mesentery of the portion of bowel in the sac proper.

None of the gut passed between any of the bands.

When the intestine was removed the sacs were then examined. The *sac proper* (as I have called it for clearness of description), was of large size and alone communicated directly with the abdomen. Its wall was perforated with innumerable openings, both oval and round, of various dimensions, and which, with the intervening thickened structure, gave to it the appearance of the inside of an enormous highly columnar cardiac ventricle (Fig. 6). Several of the openings led

into secondary sacs, two of which were likewise highly columnar. The two largest of these secondary sacs would each hold a good-sized orange. In the wall of the sac proper there were depressions, each of which, like the openings, had a thickened margin or rim. The largest secondary sacs were situated at the left side of the sac proper, both behind and below the left testicle, which was pushed forwards and raised by the uppermost one; indeed, this sac, it is probable, at its early formation, insinuated itself behind the right testicle also, and tilted it forward, in its course to the left side. The walls of the largest secondary sacs were perforated by openings, and all were marked with depressions; the openings led into distinct pouches or tertiary sacs, most of which were immediately under the skin, and one of which was probably the seat of the tapping on the evening the three pints of fluid were removed from the sacs. The sacs were lined by a smooth serous-looking membrane, of which the walls of the tertiary sacs seemed to be alone composed.

It may be of interest to record the measurements of the orifices leading into the chief secondary sacs—one of these, an oval opening, measured three and a-half inches in its long diameter, and three inches in its short diameter; and the second, a circular opening, measured two inches in diameter. The pouch into which it led was sub-divided into two pouches by a complete fibrous septum, one of these pouches was intersected by a strong fibrous band having its extremities only attached to the wall of the pouch. Finally, a third opening, circular also, measured one and a-half inches in diameter, and led into a secondary sac somewhat smaller than those just mentioned. The following diagram will assist the reader in understanding the relations of the sacs to one another.

There was no evidence of a hydrocele of the tunica vaginalis.

It would be rash to affirm that herniæ similar to this one have not hitherto been observed. Nevertheless, that a multilocular sac, with an accessory mesentery, of pathological origin, assisting the ordinary mesentery to suspend the intestine in one of its divisions, must be an occurrence of extreme rarity, is evident from the fact that I cannot find anything analogous described in the writings of Garengeot, Pipelet, Pott, Hey, Sir Astley Cooper, Samuel Cooper, Lawrence, or even in Holmes's Surgery. Sir Astley Cooper, no doubt, has illustrated a case of umbilical hernia, in which there were four holes in a hernial sac, through two of which omentum passed outwards from the sac into spaces or secondary sacs outside it. In another case (umbilical also) several pouches were found on

the wall of the sac, in one of which a separate portion of the colon had been strangulated. He makes no mention of tertiary sacs.

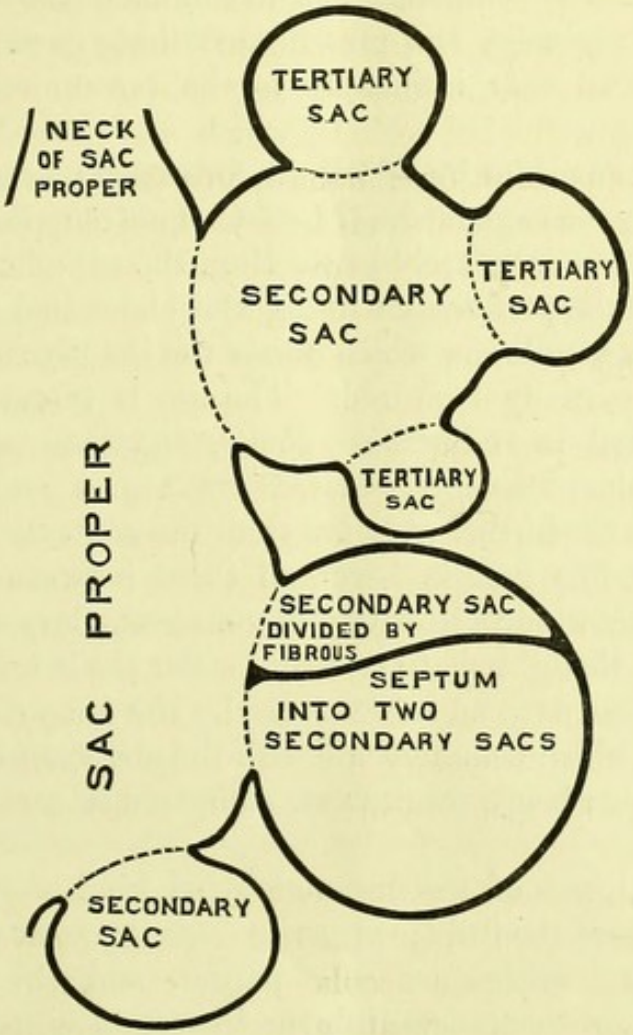

Fig. 7.

Cloquet,[a] however, in his excellent description of multiple hernial sacs, describes and illustrates primary and tertiary sacs occurring in the same hernia. In one of his cases (42*nd Observation*) the sac was unequal, having protuberances on its exterior, the neck was round, fibrous, thick, very resisting, and was continuous with other prominent obliquely descending bands, which were attached to its wall, and which were similar to it. An inch below the neck there was a large round cavity, the entrance to which was bordered by a rim. This cavity was directed upwards and outwards, and terminated in three *culs-de-sac*.[b] Below it there were two other *culs-de-sac*, the entrance to each of which was provided with a

[a] Recherches sur les Causes et L'Anatomie des Hernies Abdominales. Par Jules Cloquet. Paris, 1818.

[b] Ibid., Plate II., Figs. 4 and 5.

fibrous rim. One of these formed a species of cœcum, its cavity being very irregular, and gave insertion to elongated, round, reddish filaments formed by omentum. The fundus of the sac was united to the tunica vaginalis, and presented nothing particular; the vas deferens adhered very intimately to the posterior aspect of the tumour.

There are two modes by which the formation of the multilocular hernial sac may be explained. If, as Cloquet supposes, the orifice of the sac adheres intimately to the ring, the adhesions oppose the locomotion of the peritoneum lining the abdominal walls, and the portion of this membrane which forms the sac becomes distended, thinned, and partially ruptured. The sac is thereby dilated, its walls are frayed in numerous places, and covered by whitish, fibrous, reticular filaments, united by a fine and transparent pellicle.[a] A little further pressure from the contents might readily force out this fine pellicle here and there between the reticular filaments, which would ultimately become secondary sacs. Cloquet seems to have thought that the multilocular sac is formed in many cases by sacs that descend successively by the same ring beside one another, all of which communicate with the abdomen by means of a common opening; hence results a sac composed of several secondary cavities.[b]

In his description of the first-mentioned kind of hernia he says that in some cases the displaced peritoneum does not distend in all its points; its frayings are only partial, and the sac becomes irregular with protuberances, thinner in certain situations than in others. "It is, therefore, by the distension and fraying of the weakest portions of the hernial sac, that most of the bulgings and certain secondary cavities are formed. This diminished resistance which it offers in certain situations may depend upon the disposition of the peritoneum itself, or on that of the neighbouring parts. Under the influence of an equal pressure the most feeble points, or the least supported, yield more, and enlarge the cavity of the sac in several directions by forming species of appendages, the depth of which varies. The peritoneum all round the part which has yielded returns upon itself, becomes thicker, and constitutes a form of circular ring or neck. The sac thus distended unequally is thinner and less susceptible of resistance at the situation of the depressions than in the remainder of its extent."[c]

[a] Ibid., p. 46. [b] Ibid., p. 63. [c] Ibid., p. 46.

The latter explanation of the mode by which secondary sacs may be formed appears to me to be more applicable to the case of J. A—— than the view which would refer it to "successive locomotions," to use the phrase of Cloquet, of the peritoneum from the abdominal ring.

The tertiary sacs were probably more recent formations than the secondary sacs, and also probably were the result of fluid pressure against the walls of the secondary sacs, in the same way that the bladder becomes sacculated from urine pressure. Pouches are formed sometimes at the abdominal rings by the pressure of ascitic fluid, and therefore this explanation of the tertiary sac formation is by no means improbable.

None of the writers that I have mentioned, Cloquet not even excepted, describe a fibrous band having radiating processes like those illustrated by me (Fig. 5). As this band passed through the ring with the intestine it may be assumed that it, together with the radiating suspensory fibres, originated in an old attack of peritonitis previous to the descent from the abdomen, of the portion of bowel to which they are attached. This opinion is strengthened by the fact that the peritoneum of the anterior abdominal wall was much thickened from peritonitis prior to the fatal attack.

I cannot find a case recorded in which such a disposed band, with radiating processes, existed in combination with a sac proper, and with secondary and tertiary sacs in the same hernia.

The uneven appearance of the rupture when the patient changed from the horizontal posture, and which, without the evidence afforded by a *post-mortem* examination, would have been attributed to intestinal pressure against the walls of a thin sac, resulted, on the contrary, from distension of the secondary and tertiary sacs by their fluid contents.

Although the *post-mortem* examination proved that in this case the simulation of strangulation followed upon serous inflammation, nevertheless cases of this kind are calculated to cause us great anxiety and embarrassment. "The want of tension," says Lawrence, "and of pain at the ring, while the swelling itself is painful, and a previous attack of feverish rigor might lead us to suspect inflammation of the hernial contents. If the ring afterwards becomes tense, and the included parts considerably painful, we should conclude that strangulation had supervened, and act accordingly."[a]

[a] A Treatise on Ruptures. By W. Lawrence, F.R.S. London: 1838. Pp. 66.

In this case the neck of the sac became almost suddenly tense and painful, and yet this was caused by fluid pressure, and not by strangulation, and is an exemplification of the difficulty we meet with in attempting to lay down unerring rules suitable for every case of hernia requiring active interference.

In conclusion, I think it will be conceded that I have not gone too far in my assertion that the case of J. A—— is one of the most curious, instructive, and valuable specimens of hernia on record. This will be still more evident from the following summary of its peculiarities:—

1. Its enormous size, although a direct hernia. Lawrence never met with a direct hernia that reached the bottom of the scrotum, and Sir Astley Cooper never saw one of more than moderate dimensions.

2. The passage from the abdomen, through the ring, of a fibrous cord, which divided into thirty-one suspensory bands, which were attached to the intestine in the sac proper opposite to the insertion of the mesentery.

3. The multilocular nature of the sac, being composed of a primary sac, and several secondary and tertiary sacs.

4. The position of the testicles on the upper and anterior part of the tumour, and the passage of the right spermatic cord upwards and backwards on the inside of the partially developed neck of the sac proper to the ring, its situation in most instances being on the external and posterior side of the sac. This disposition of the cord differs from that of the case described by the late Mr. Todd in the 1st vol. of the *Dublin Hospital Reports*. In his case—a direct hernia by-the-by—the testicle was situated behind the sac, and the spermatic cord extended, in an undivided state, across in front of the upper part of the sac, to its pubal side, and descended on that side to the posterior surface of the sac to reach the testicle. In this way it formed a sort of arch, embracing the neck of the sac for nearly two-thirds of its circumference. The reader will please observe that it was the *whole* cord that was situated abnormally in my patient, as well as in the case dissected by Todd. It is so rare to find any portion of the cord abnormally situated in a direct hernia that even Erichsen, in the recent edition of his "*Science and Art of Surgery*," says that it never occurs.

5. The translucency of the greater portion of the tumour, which

enabled me to remove three pints of fluid indirectly from the sac proper by tapping one of the accessory sacs.

6. The sudden tension of the neck of the hernia from the pressure of fluid within it. In ordinary doubtful cases of inflamed hernia this alteration in the condition of the neck is considered to justify operation, but in cases like that of J. A—— it would be deceptive.

7. The inversion of the omentum.

8. The narrowing of the jejunum.

9. Finally, it may be fairly assumed that the condition of system consequent upon the cirrhosis of the liver had a deteriorating influence in the evolution of the low form of inflammation that occurred in this case.

Colles's Operation for the Relief of Stricture at the Orifice of the Urethra.

Whatever difference in opinion may exist as to the most advisable treatment of stricture seated in the urethra posterior to the orifice, there is no question that ordinary dilatation, divulsion, and even rupture, are not suitable for the cicatricial constriction that follows upon circular or ring chancre engaging this opening.

To remedy this intractable form of stricture a cutting operation seems to be essential, and then comes the question :—What operation would most likely conduce to the permanent enlargement of the orifice ?

I think it questionable, whether mere division of the stricture with the knife is often followed by permanent cure, such a cure as would enable the bougie to be altogether laid aside.

It is not thus with the operation devised by the late Mr. Colles for remedying this stricture, which, as he observes, " does not in any instance admit of a cure by the ordinary treatment of strictures."[a]

The following is Mr. Colles's description of the operation :—

" Having detached the skin from the end of the urethra, to which it is generally intimately adherent, I divide the urethra below, to the length of half an inch, I raise the mucous membrane from each lip of the incision, then cut away a portion of the bared corpus spongiosum, to such an extent as will allow the raised mucous membrane to cover the cut edge. I stitch down this membrane upon the corpus spongiosum, and thus, having covered each lip of

[a] Practical Observations on The Venereal Disease, and on The Use of Mercury, by Abraham Colles, M.D. London, 1837. P. 95.

the wound by mucous membrane, I have effectually guarded against the possibility of re-union of the lips of the wound, or subsequent contraction of the opening."

The permanent benefit derivable from the operation has been proved by cases occurring in Dublin as well as by cases of Ricord, and of Weber, whose operations for stricture of the orifice left after amputation of the penis, and for congenital narrowing of the orifice, is the same in principle as that of Mr. Colles.

This operation having been overlooked by many authors of standard works on Surgery, induces me to place the following evidence of its efficacy on record, particularly as it has been tested by time, the only criterion by which a question of this kind should be decided.

J. A., aged thirty-two years, came under my observation on the 21st of June, 1871, and stated that five years previously he had a clap together with chancre that surrounded the urethral orifice. On examining the glans, there were cicatricial depressions consequent upon other sores, although, as well as he could remember, he had the sore at the orifice only.

The prepuce somewhat resembled the prepuce of hypospadias, still the contracted orifice (Fig. 8) was nearly in the axis of the normally situated opening.

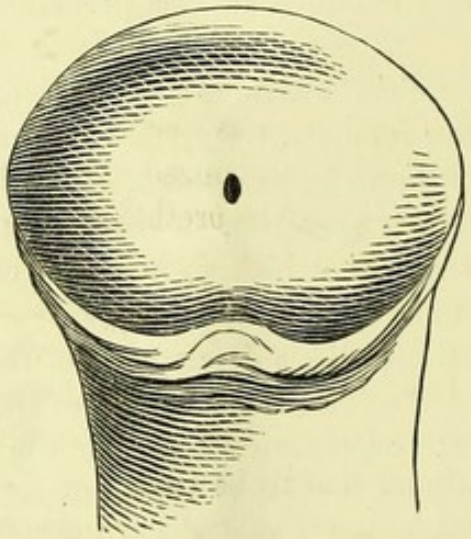

Fig. 8.—Glans penis and the contracted orifice, which was surrounded by dense cicatricial substance.

Where the prepuce was deficient, laterally and inferiorly, there were unmistakable evidences of previous ulcerations. A good deal of gleety discharge flowed from the urethra.

22nd June.—With considerable difficulty I passed a small bougie

through the orifice and on to the bladder. The point of this instrument is not more than No. ½ of Weiss's gauge.

On this occasion evidence was afforded to the touch that the contraction extended from the orifice backwards for about an inch or a little more.

Considering the length of the contraction I determined, in the first instance, to enlarge the orifice according to Colles's method, and when the wound had been healed for a few weeks, to divide the remainder of the stricture either with the *bistouri caché* or the urethrotome.

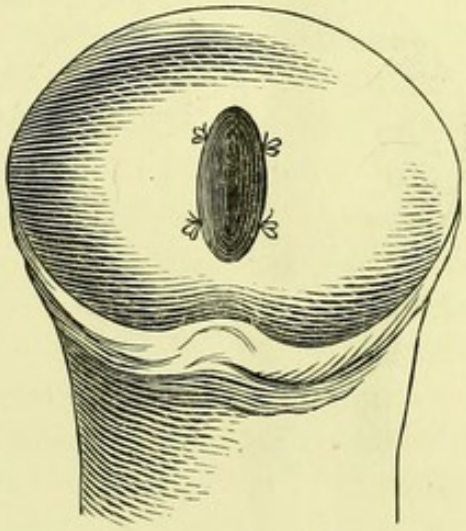

Fig. 9.—Shape of the orifice and the funnelled passage formed by the operation.

Colles's operation (Fig. 9) was performed on the 24th June, 1871, the patient being fully narcotized by chloroform.

The operation was tedious, the urethral lining membrane having to be dissected from the corpus spongiosum very slowly, so that the bleeding caused by each cut might cease before making another. This is an important precaution to take in the operation, lest the lining membrane, when concealed by blood, be hopelessly injured by the knife or the scissors. One small artery in the site of the frænum was divided and had to be tied.

When a sufficient amount of the corpus spongiosum had been removed, and bleeding had ceased, the edges of the partially detached urethral lining membrane were everted and secured in contact with the margin of the cut glans by means of four fine silk interrupted sutures (Fig. 9).

The healing process was so rapid, I was enabled, although reluctantly, to allow the patient to return to the country in a few

days, where he had to give evidence on a trial at the assizes. He promised to come to Dublin, at the end of three months, for the completion of his treatment. This, however, he failed to do, and I did not see him again until June, 1872. This procrastination, on his part, was, in regard to the value of this record, rather an advantage than otherwise, a year being a much more satisfactory test of the operation than an interval of three months.

At this date the condition of the orifice was most satisfactory. It had the appearance of an antero-posterior slit (Fig. 10), and looked

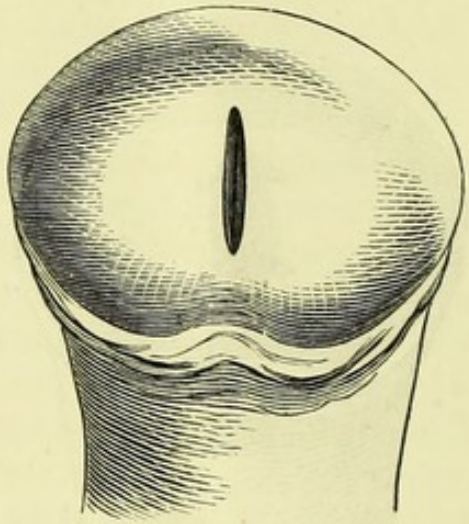

Fig. 10.—Orifice twelve months after the operation.

so natural that were it not for four small red suture marks in the glans, near its margins, few would suspect it to be of artificial formation.

27th June, 1872.—A No. 13 bougie (Weiss's gauge) could be passed with ease down to the posterior contraction, which was three quarters of an inch from the orifice. I had no difficulty in passing a No. 6 conical bougie through the contraction, and on into the bladder. As the urine deposited a good deal of ropy mucus, some benzoic acid, ergotine and extract of hemlock were ordered in pills. These were changed on the 28th for a mixture composed of infusion of pareira, tincture of hyosciamus, and dilute nitro-hydrochloric acid.

29th June.—I divided the posterior contraction from behind forwards with a small urethrotome, a grating sound being audible while the blade was cutting the stricture. The blade felt to me as if it were dividing gristle. A No. 12 black bulbed catheter (*à demeure*) was introduced, and he was given a full opiate.

Contrary to directions he removed the catheter in three hours.

A very trifling bleeding followed upon the operation. In the evening a rigor ushered in a slight attack of urinary fever, of which there were no traces on the 1st of July.

A No. 13 bougie was passed on the 1st, 2nd and 3rd of July. He then rebelled against the further use of instruments, so that it is probable, unless he resumed their use after he left hospital, a relapse of the posterior stricture is exceedingly probable. This, however, is immaterial in the question as to the value of Colles's operation in permanently enlarging the orifice of the urethra.[a]

It must, I think, be conceded that a year's test of this method is sufficient; and as no re-contraction of the funnelled orifice has occurred to diminish its calibre to less than No. 13 of Weiss's catheter gauge, it may be considered a most satisfactory trial of the method.

At a meeting of the Surgical Society of Ireland, on the 17th of April, 1841, the late Mr. Robert Williams gave the histories of two cases in which he performed Colles's operation. With these exceptions there will be found but little evidence of its having been performed by others, which is surprising when we consider that it is both an easy and certain cure for this most distressing affection.

Mr. Williams's operations were performed on the 21st January, and 4th February, 1841, and brought before the Society the following April.[b] If we had no further information regarding them the interval would have been too short to enable us to form an opinion on their permanent results.

A few years ago, however, more evidence transpired regarding these cases, and of one of them in particular. In the second edition of Sir Henry Thompson's work on Stricture,[c] he mentions that Mr. Williams told him that he had "recently seen" the patient, and found the urethral orifice perfectly free from contraction. This information must have been imparted by Mr. Williams shortly before his death, so that the result of the operation in that case, at least, must have been tested by a period of several years, and is therefore most conclusive evidence in favour of the operation.

M. Ricord and Weber, as already mentioned, performed an operation similar in principle to that of Colles. Ricord had recourse to

[a] Within the last few days J. A. wrote to me saying he can pass a No. 13 bougie with ease.

[b] Dublin Medical Press, April 28, 1841. P. 257.

[c] The Pathology and Treatment of Stricture of the Urethra and Urinary Fistula. Second Ed. London, 1858. P. 250.

the operation to prevent coarctation of the urethra after amputation of the penis, and Weber performed it for congenital narrowing of the urethral orifice with phymosis.

The following operation was performed by Weber on his patient. The phymosis "having been operated upon, a triangular flap three quarters of an inch in length was cut at the posterior part of the glans, by making with a scissors two divergent incisions, having for a common point of departure the narrowed orifice of the urethra. This flap was then denuded of its epidermis, turned back in such a way as to evert its mucous surface, and fixed in this position by three points of suture, probably after having raised the epidermis from the corresponding portion of penis upon which the flap was turned or folded. To prevent the edges of the lateral wounds from uniting at their summit, the mucous membrane was turned towards the external skin, and united to it by a point of suture at each side. Cicatrization was obtained in great part by the first intention. No sound was introduced to prevent the contact of urine with the wound; but they had recourse to a very simple and ingenious proceeding: to micturate, the patient submerged his penis in a vase full of water; in this way the urine was diluted to a degree to be no longer irritating."[a]

Colles's operation was at that time (1855) apparently unknown in Paris, if we may judge by the following question by the editor of the *Bulletin:*—"This procedure, does it belong to M. Ricord or to M. Weber? This is a question it is of little consequence for us to resolve; but we do not wish to allow a very simple and ingenious practice to fall into oblivion, and one which is applicable as well to the urethra after amputation of the penis as to congenital narrowing of the meatus."[b]

Dr. Charles Benson having put a very pertinent question, bearing upon Colles's operation and amputation of the penis, to Mr. Williams, the evening he brought his cases before the Surgical Society, it may be advisable to reproduce here the description of M. Ricord's operation:—"One of the most unfortunate consequences of amputation of the penis is the increasing contraction of the urethral orifice, the result of the cicatricial process which takes place from the circumference to the centre. . . . . The frequency of this accident has led surgeons to the section

[a] Bulletin Général de Therapeutique. Tome 49. Paris, 1855. P. 333.

[b] Ibid.

of the urethra at the moment of the operation; no operation practised hitherto has secured the patient from this inconvenience. According to M. Calvo, M. Ricord has succeeded in filling up this gap, in the invention of the following procedure:—After having practised amputation of the penis with a hot iron, this surgeon removed from the inferior part a V-shaped flap of skin, setting out from the wound. The urethra thus exposed was in its turn divided to an extent equal to that of the wound made in the skin. This section was made with Civiale's urethrotome. The division effected, the lips of the urethral wound were everted in such a way as to be easily united to the cutaneous wound, by means of three points of interrupted suture. The result was an artificial hypospadias. The procedure has succeeded perfectly in the two patients to whom M. Ricord has applied it; it was not necessary to keep sounds in their urethræ; the only precaution taken was micturition in cold water, to avoid the unfavourable influence of the urine upon the lips of the wound, which united by first intention."[a] It is quite evident that when the above observations were penned, the editor of the *Bulletin* was not aware that during the discussion on Mr. Williams's communication at the Surgical Society's meeting (April, 1841), Dr. Charles Benson, then Professor of the Practice of Medicine in the Royal College of Surgeons, Ireland, inquired if Mr. Colles's operation "was applicable to that form of stricture which occurs after amputation of the penis," and received in reply from Mr. Williams that "he had not seen it tried in such cases, but he could not see any reason why it should not, and it would be even more easy of application to them."

Intimate Mixture of Cancer with Enchondroma.

There could scarcely be a more interesting question in surgical pathology than the correlation of cancer and enchondroma with one another. It has long been known that they may co-exist as separate and well-defined masses in the same tumour. Of this combination, an excellent example occurred in a patient who was admitted to the Adelaide Hospital a few years ago. He was thirty-five years of age, and was operated upon by my colleague, Dr. Albert Walsh, who removed from the right side of the scrotum a large tumour that on section was found to be formed inferiorly of a well-defined encapsuled mass of enchondroma, and superiorly of

[a] Ibid. Tome 48. 1855. P. 89.

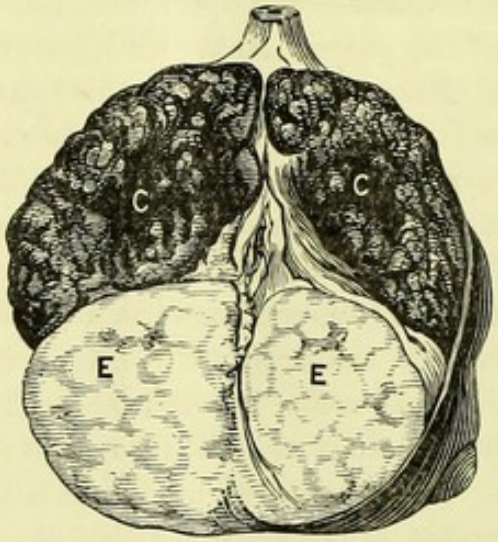

Fig. 11.—Enchondroma and cancer of right testicle. C C—Medullary cancer. E E—Enchondroma, isolated from the cancer by a firm cyst. Reduced from one of the Adelaide Hospital pathological drawings.

most decided medullary cancer (Fig. 11). There was no trace left of the right testicle. The patient recovered, but subsequently died from a large medullary cancer implicating the right kidney. Again medullary cancer has followed upon the removal of an unmingled enchondroma. Not only may enchondroma be mingled with cancer in the primary tumour, and followed by cancer as a secondary disease; but there is evidence on record in favour of the opinion that the cartilaginous tumour, in the same way as cancer, is itself capable of infecting the constitution. Those who consider that enchondroma has this infecting influence attribute it to its heteroplastic nature and occasional richness in juices. Indeed, Virchow maintains that enchondroma may reach the extreme malignity of cancer, and observes, that if all malignant tumours are to be called *cancer*, this should be called cartilaginous cancer.

The life histories of enchondroma and cancer are sometimes so alike that operation for the removal of an enchondroma may be followed by the appearance of cartilaginous tumours either on or near the site of the ablated tumour, or even in more distant parts, either on the outside of or within the body.

Some interesting examples of the recurrence of the cartilaginous disease after removal of the primary tumour are mentioned by Paget.[b]

[a] Pathologie des Tumeurs, par R. Virchow, Traduit de L'Allemand, par Paul Aronssohn. Tome, Premier. Paris: 1867. P. 498.

[b] Lectures on Surgical Pathology, Vol. ii., 1st edition. London: 1853. P. 205.

Vascularization of cartilaginous tumours, *telangiectasic enchondroma*, as it is called by Virchow, to such an amount as to cause pulsation, is calculated to lead to great embarrassment in diagnosis. Vascularization and pulsation being also met with in purely cancerous tumours, and in the mixed cancerous and enchondromatous tumour the difficulty in the diagnosis may become still more puzzling.

With regard to the commingling of enchondroma with other structures, an accurate pathology requires that the distinction should be made between cases of primitive combination, in which the different types of tissue appear beside one another, although independent of one another up to a certain point, and cases of, according to Virchow, secondary transformation of one tissue into another in such a manner that, either the enchondroma becomes mucous, medullary, or osseous; or else that, *vice versa*, mucous or fibrous tumours cartilaginify. This writer explains the appearance of cancer with enchondroma in the following way:—As long as the character of the enchondroma is not changed, the new cells continue to excrete new intercellular substance around them. If this, on the contrary, diminishes, or if it cease completely, as in the cancerous forms, in which the secretion no longer consists only of a certain liquid juice, then there is change in the type of the tissue, or a transition towards a new type, and there is only occasion for a more advanced development of young cells towards the epithelial forms, in order to produce "a cancroid or a true cancer."

Mixed or composite tumours, *teratomes*, are peculiarly fond of developing themselves in the glands; and sometimes in the same organ, beside one another, there may be four, five, or six different tissues, so that the resulting tumour presents a different aspect in different situations. A rather frequent combination is that which takes place particularly with medullary cancer. If the tumour be mixed there are found most often in it nodules or isolated lobules distributed in very small portions and in points very distant from one another.[a]

In the following case the unassisted eye was unable to discriminate between the cartilaginous and cancer structures which were so intimately commingled in the tumour that it required careful and repeated examination to differentiate their cellular elements from one another.

[a] Virchow. Ibid., p. 503.

Case IV.—E. M., aged about thirty-five years, was admitted to the Adelaide Hospital on the 24th August, 1872, to be treated for a smooth-looking tumour seated over the lower portion of the right temporal region and the zygoma, as well as over the greater portion of the superficial boundary of the parotid region (Fig. 12). Measured with the calipers the greatest vertical diameter of the tumour was three and a-half inches; the antero-posterior diameter being two and a-half inches. It was very prominent, and its investing skin was livid in colour, and beset with numbers of minute veins. At the most prominent part of the tumour there was a circular opening in the skin about an inch in diameter, through which a vascular-looking fungus protruded. This fungus emitted a fœtid odour, and bled from slight injury.

The tumour was very movable on the underlying structures, and pulsated softly and synchronously with the arterial pulsations. A varicose vein coursed along the outer boundary of the orbit. There were no enlarged glands in the neighbourhood of the tumour, neither was there any buccal obstruction.

The patient gave the following history of the tumour:—Five years previously she discovered a small lump, about the size of a hazel nut, in front of the right ear, and without discolouration of the skin over it. Increase in size gradually took place, and at the expiration of two years and a-half it changed in colour, began to throb, became more painful, and grew more rapidly. About this time a heavy shutter fell against her forehead and right temple, but she is not certain if the tumour was struck by it. Three months before admission to hospital bleeding to a considerable amount took place from the protruding fungus, and she was thereby much weakened. The bleeding was eventually stopped by local applications, and did not recur, but the tumour has ever since been more painful.

When the patient had been in hospital a few days I examined a small scraping from the surface of the fungus, and found that it contained some large, clear, plump-looking nucleated cells.

Her general health appeared to be good.

9th September.—The patient being fully under the influence of chloroform I removed the tumour, assisted by my colleague, Dr. Barton, and by Dr. Wharton, who kindly lent his assistance in the absence of Dr. Walsh on the Continent. The skin appeared so altered, and was, moreover, so adherent to the tumour, that even if inclined to do so, none of it could be saved. The tumour was

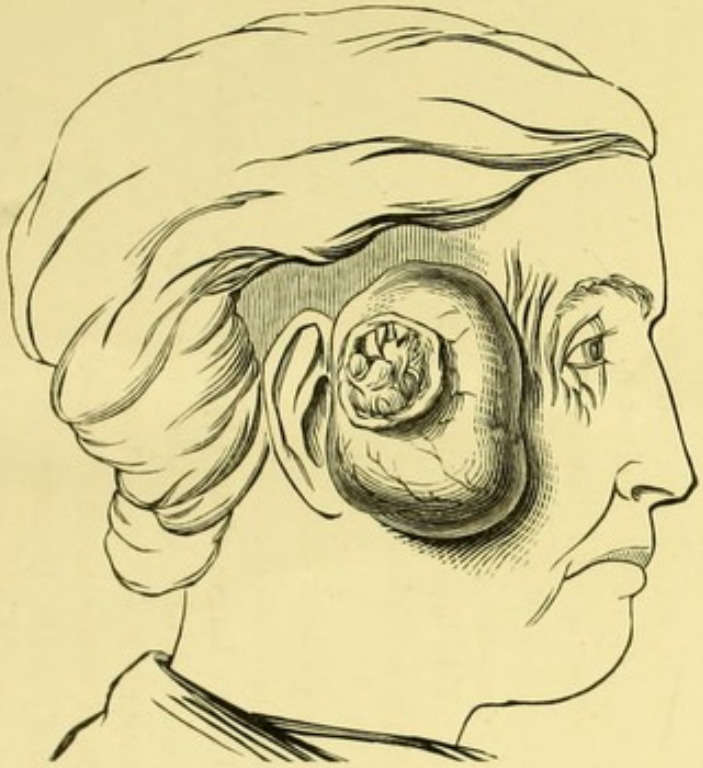

Fig. 12.—The tumour of E. M. before operation.

Fig. 13.—E. M. when the wound was completely healed.

Fig. 14.—The cancer cells from E. M.'s tumour. The large dark bodies are granu'e cells. One of these being encapsuled with more than one layer of capsule is probably fatty metamorphosed cartilage. Drawn with Nachet's Camera. 230 diameters.

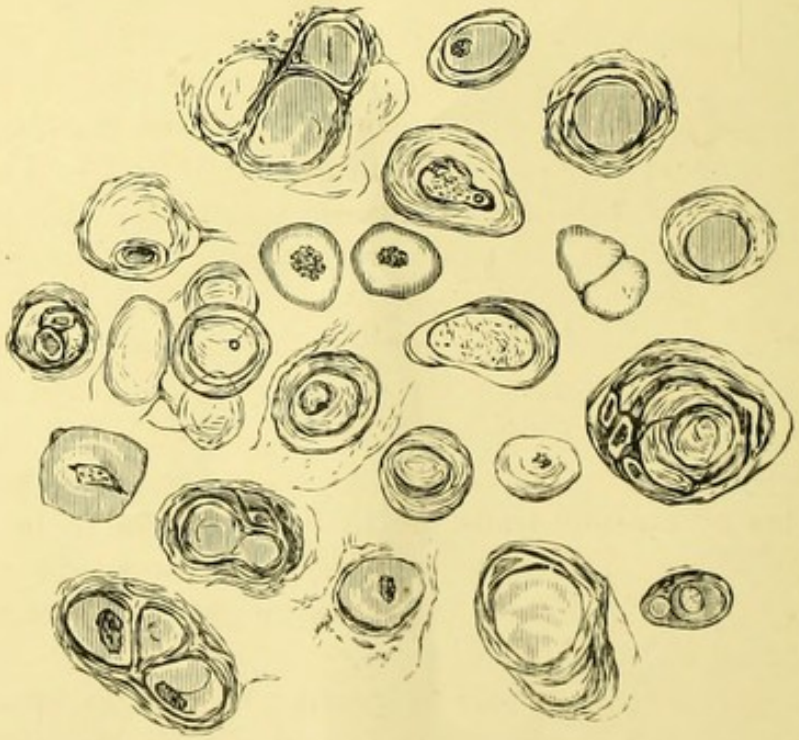

Fig. 15.—The cartilage cells from E. M.'s tumour. Drawn with Nachet's Camera. 230 diameters.

perfectly isolated from the underlying structures by a thin, but firm cyst, and slightly indented the parotid gland. Seven vessels were ligatured, all of them having retracted too much for satisfactory torsion, and, as there was a good deal of oozing, a strong solution of perchloride of iron was applied. Carbolic dressings were subsequently used, and by the end of November the wound had completely healed (Fig. 13).

Pathology of the Tumour.

The tumour was invested by a thin firm capsule, which was intimately adherent to it by the inner surface, and by its external surface to the portion of skin that covered it. The tumour having been laid open by a long incision, the two halves were then fully exposed by tearing, which was effected by very slight traction The separated surfaces were buff-coloured, the torn portions being granular. They were beset with small openings, resulting from the division of blood vessels, which were very numerous in the tumour.

Some thin sections having been made and stained for microscopic examination, revealed, when examined, what I believe to be an intimate mixture of cancer with enchondroma. For instance, there were numbers of multiform-shaped nucleated cells, numbers of oval and of round clustered nuclei, and many large dark granule cells. One of these having two or more layers of capsule, I am inclined to consider metamorphosed cartilage (Fig. 14). There were also a good many cholesterine plates, which, together with the presence of the granule cells, show that fatty metamorphosis had taken place in parts of the tumour.

Here and there in the different sections examined there were cells that contrasted remarkably with the thin cells seen in Fig. 14. Those cells were separately, or each, embedded, as it were, in masses of cancer cells, and their being encapsulated within one or more layers of capsule, leads me to believe them to be cartilage cells (Fig. 15). The cells of this figure were derived from different sections of the tumour, and were placed in one figure for convenience of illustration.

The history of this tumour is not like the history of a tumour primarily cancerous, having been discovered by the patient five years before her admission to hospital. It was then the size of a hazel-nut, and must have been there for some time previously.

Presuming that my view of the nature of this tumour be correct, its change from indolence to a more rapid development points to the period when the cancerous element was superadded to it.

If the cartilaginous elements predominated over the cancer elements in the tumour, I should hesitate to give so positive an opinion regarding its nature, believing that enchondroma alone may be highly vascularized, may ulcerate and fungate, may grow rapidly, and there are reasons for supposing, may infect the system.