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ON THE PATHOLOGY AND TREATMENT
OF OVARIAN DISEASES.

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V.

THE after-course of a case of ovariectomy is subject to many rude checks, which alter its history very much from the fortunate career supposed in the preceding sentences. There are many dangers in the path of every patient submitted to this operation, and there are many indications of their approach, but none so trustworthy as those derived from a close observation of the patient's temperature-curve. It should be the invariable practice of the surgeon to have a temperature observation of his patient made night and morning for a few days before the operation, and afterwards this ought to be repeated every four hours. Nothing has been to me more instructive than a comparison of a group of such charts; and I have repeatedly seen grounds for a prognosis in a case by the comparison of its temperature-range with those of former cases. It will almost invariably be found that, immediately after the operation, the temperature falls considerably. I have seen it do so as much as two degrees, indicating the risk the patient has to run in the form of shock. To obviate this, it is always well to place hot-water bottles to the sides and feet, and, if depression be severely marked, to administer a diffusible stimulant. By far the best is an enema of diluted champagne with a little brandy. I make it a rule always to administer a small dose of morphia, a third or a fourth of a grain, immediately after the operation by subcutaneous injection, and by this I believe I ward off shock, in great measure, and prevent the after-sickness which is often so distressing a condition. Since I have discontinued the use of chloroform, this latter accident has been almost entirely absent from my practice. From the twelfth to the twentieth hour after the operation, the temperature slowly rises, unless the patient succumb to the shock; or, in the still rarer condition, where the operation has had to be undertaken on an emergency due to cyst-inflammation or an attack of peritonitis, in which case the temperature falls. In a case of the latter, where I operated with a temperature of nearly 40 degs. centigrade, it fell in twenty-four hours to 37 degs.

After the recovery from shock, the patient generally breaks out into a gentle perspiration, and this should be slightly encouraged, and the temperature may vary from 36.8 deg. cent. to 38.5 without giving rise to any alarm. If it rise, however, above the latter point, especially if accompanied by an increased pulse frequency, dry tongue, pain, and inflation of the abdomen, green vomiting or hiccup, and anxious face, the access of peritonitis, in some form or other, may be taken for granted. The treatment of this must vary very much according to the circumstances of each case. Where I thought bleeding would be borne, I would not hesitate to put two or three dozen leeches over the abdomen, or even to bleed from the arm. I have several times painted large surfaces with blistering fluid with most excellent effect, but my staple remedy is opium. This may be given either as laudanum by the mouth, or in a rectal injection or suppository, and is most useful in small doses frequently repeated. Some authorities recommend calomel and opium in pill at the onset of peritonitis, but usually there is too little time to afford delay for the action of such a remedy; and, if mercury is to be of any use, it must be given in the form of mercurial inunction. I have found a combination of opium and quinine of signal service.

For the first twenty-four hours after an ovariectomy, I allow the patient no other sustenance than ice or iced water, and, perhaps, in the case of sickness, a little soda-water and brandy, or champagne. Nutrient may be given cautiously on the second day in the form of chicken-broth or beef-tea, in small quantities frequently administered, so as to obviate vomiting. I seldom allow any solid food to be taken till after the fourth day, which seems to be a sort of critical time; and I have found fish, such as a plain boiled sole, to be the best form to begin with. After that time, more latitude of dietary is admissible, but always with the precaution that any fresh article is to be tried carefully in very small quantities, lest it be found to disagree.

During the second or third day we may find symptoms of exhaustion appearing in the form of restlessness, vomiting, and hiccup, sunken and pinched features, and frequent sighing. Under such circumstances, food and stimulants may be allowed more liberally, especially champagne with a little brandy in it; and very often great benefit may be derived from frequent small enemata of beef-tea and brandy.

In the event of the occurrence of symptoms of peritonitis, special interference may be requisite, such as opening the recto-uterine *cul-de-sac* from the vagina, for the purpose of draining any purulent or other fluid that may be collecting in the peritoneal cavity. Dr. Marion Sims has recently proposed to pass a drainage-tube in this way in every case of ovariectomy, before the closure of the abdomen, in order to prevent such collections. He is of opinion that they are the cause of the peritonitis instead of, as it seems to me, the result; and, though it is extremely probable that their evacuation may prevent subsequent purulent infection, yet the presence of a seton in the peritoneal cavity in every case of ovariectomy is far more likely to increase the number of cases of peritonitis than to diminish them. In none of the *post mortem* examinations that I have seen of fatal cases of peritonitis after ovariectomy, could Dr. Marion Sims's suggestion have been of the slightest use in securing the escape of the effusion. In all of them, the lymph and pus were out of reach of any tube which would pass between the parietal wound and an aperture in Douglas's pouch.

Septic poisoning is no more a peculiarity of the after-course of a case of ovariectomy than it is of an amputation; but it seems an accident to which it is liable with extreme readiness, if submitted to any sources of infection. Thus we find the mortality of ovariectomy in large hospitals so great as to render its performance in such institutions perfectly unjustifiable. Before operating, and during the period of his attendance on a case of ovariectomy, the surgeon ought to take the most especial pains not to perform any *post mortem* examination or dissection, nor to handle any patient suffering from purulent infection. Indeed, he ought to conduct himself as if he were engaged in a large midwifery practice.

Septicæmia is generally ushered in by rigors, and is indicated by an exaltation of temperature. If it take an acute form, a few hours may suffice to end the case. If it be of the subacute variety, beginning on the fourth or fifth day after the operation, it runs a longer course, and is more marked by nocturnal exaltation of the temperature curve, night-sweats, diarrhoea, dry, brown and furred tongue, green or coffee-ground vomiting, hay-smelling breath, and tenderness over the liver; pneumonia often occurs in its course, and death usually takes place in four or five days. The chronic pyæmia, resulting in abscesses of joints, etc., is rare after ovariectomy; there seems not to be time enough for its development.

Vomiting is a frequent and often troublesome symptom after ovariectomy, and may arise from any of the complications I have mentioned. It is absolutely necessary to stop it, if possible, for I have seen the straining tear the wound open. There are many remedies that may be employed, as prussic acid, creasote, iced champagne, sinapisms over the stomach, etc.; but by far the most useful, in my experience, has been Morson's pepsine wine, given in drachm-doses every ten minutes with a little ice-water. This has been especially beneficial in bilious vomiting.

Flatulence is often a very distressing symptom, and, if accompanied by a high temperature, is pathognomonic of peritonitis. Milk and lime-water often mitigates it very much, and the passage of an O'Beirne's tube as far as possible up the rectum will often give much relief. Failing that, I have several times punctured the distended bowels with a fine exploring trocar, and kept it in for some hours with great relief. An irregular menstruation comes on very generally within forty-eight hours after ovariectomy, and seems to be a relief; for many of my cases where it has not occurred have died. It is often a source of alarm for the patients, and they ought always to be informed of the probability of its occurrence.

Inflammatory attacks in the chest sometimes occur during the convalescence after ovariectomy, and they are always sources of anxiety. After an operation in which a very large tumour has been removed, especially in a patient advanced in life, a short irritating cough is not unusually noticed in a few hours. This rapidly increases in severity, and I have seen it carry off a patient in thirty hours. It is evident that we have, in such cases, to deal with something very like the passive suffocative catarrh of old age. The expiratory muscles, probably chiefly the diaphragm, from long want of use have become atrophied, and, missing their *point d'appui* in the tumour, are unable to carry on the process of expectoration of mucus. It is one of the many reasons for preliminary tapping, that we may gain time for the muscles to recover their strength.

Acute pneumonia, bronchitis, and pleurisy are sometimes met with, and two of my patients have been nearly lost by the first of these com-

plications. In one case, I hesitated for some hours as to whether I should not bleed from the arm; and, though the case recovered without it, I think the issue would not so long have been doubtful if I had bled her. The full administration of nutriment and stimulants is most to be trusted to, aided by the wrapping of the whole chest of the patient in jacket-poultices. With this necessary precaution, if once begun, they must not be left off until the crisis is over; and, in their use, it is most essential that, in changing them, the old poultice shall not be disturbed until the fresh one is ready for immediate application.

Diarrhœa may set in about the third or fourth day, and prove most irksome. It is often the indication of septicæmia, but more frequently it originates in some hard fæces lodged in the lower bowel. In the latter case, it is easily remedied by warm water enemata, followed each time by a morphia suppository.

For three or four days after the operation, the patient should not be allowed to pass urine without the catheter, which ought to be used every six or seven hours. Great care must be taken to clean the catheter well after each time it is used, for it is not unusual to see severe cystitis set in from the introduction of an uncleaned catheter containing a drop of foetid urine. If this accident should happen, its most appropriate treatment consists in the liberal administration of quinine, and the washing out of the bladder every six or eight hours with a weak solution of acetate of lead at about 38 degs. cent.

The intention of the use of the catheter is to keep the pelvis as quiet as possible, and for this purpose it is also well to administer occasional small doses of opium, to prevent any action of the bowel for seven or eight days, even though there be no pain to necessitate the opiate. In some cases, the bowels may remain without action for ten, twelve, or fourteen days after the operation without giving rise to any uneasiness. After such a time, the fæces which have collected in the lower gut may have become hardened; so that, when there does come on an inclination to have a motion, a small emollient enema ought to be given to facilitate its passage.

After the action of the bladder and rectum have been fairly established, the clamp loosened, and the wound healed, the further convalescence of the patient does not differ materially from that of one on whom any other serious operation has been performed. I have sometimes noticed a peculiar rapid emaciation, which comes on about the end of the second and beginning of the third week of recovery, which, on one occasion, the first time I saw it, was a source of anxiety to me. After the wound has so far healed that it has begun to contract, the patient may be allowed to leave her bed for a little every day, and in due time to assume the erect position. There is one precaution always advisable, that the patient should wear a tight-fitting abdominal belt instead of stays; for, in spite of all care in inserting stitches to include all the layers, and to have immediate union of the abdominal walls, there is a proneness to the formation of ventral hernia in the cicatrix for many months after the newness of the union has passed off.

Sometimes we open the abdomen to remove an ovarian tumour, and find that we are unable to complete the operation. This has happened only once to me, the first time I attempted ovariectomy, and the case was an instructive one in many respects. In May 1868, I saw Mrs. H. in consultation with Mr. Kemp of Castleford. She was 37 years of age, considerably emaciated, had always menstruated regularly, had been married seven years, and was the mother of four children. About six months previously to my seeing her, she had noticed a lump in the left iliac fossa. This increased very rapidly, and, on her consulting Mr. Kemp, he diagnosed an ovarian tumour. The increase was so rapid, that he tapped her, removing a large quantity of clear straw-coloured fluid; and I saw her seven days afterwards, when there was a considerable reaccumulation. Percussion elicited a perfectly dull note all over the abdominal wall, below a transverse line passing an inch and a half above the umbilicus. Partly above this line, but mostly below it and to the right of the umbilicus, I felt through the thin parietes a floating tumour, about four inches in transverse and three inches in vertical measurement, which I believed to be secondary growth in the wall of the major cyst, the latter being regarded as unilocular. The uterus was normal in position and freely mobile. She had a very well marked ovarian face and a shrunken dry skin.

I made the usual incision, but I had much difficulty in recognising the peritoneum from the cyst-wall. I found that they were intimately adherent, and it was only by diverging a good deal to the right under the rectus muscle that I came upon a point of separation. Slitting open the peritoneum, I found that on the right side the tumour was free, and that I could readily reach the ovary and fundus uteri on that side. The ovary was healthy, but the uterus was tuberculated and somewhat fixed in front. I found that the cyst was adherent throughout to the left side and above the umbilicus, and that it had a long pedicle

running from the left corner of the uterus into a firm mass at the brim of the pelvis. The flat floating tumour which I had felt near the umbilicus was a mass of soft cancer in the omentum. Long before I had made out these details, I had satisfied myself that the case was one of unilocular ovarian cyst complicated by general cancer of the peritoneum; for all over the peritoneum of the pelvis, and less abundantly on the parietal peritoneum, and on the free cyst-wall, were scattered little flat and wart-like patches of a light pinkish red colour, and very friable. They did not bleed when torn in breaking down the adhesions. This process I only partially attempted, and soon desisted. I then emptied the cyst, and, finding its contents perfectly limpid, I removed a piece of it, so that its cavity should communicate with that of the peritoneum. This I did because the fluid in the peritoneum was darker and more dense than that of the cyst, and it seemed possible that the exhaustive process of tapping would not be so frequently required, if the effused ovarian fluid were drained into the peritoneum to dilute the denser liquid. I had to secure two large vessels in the parietal wound, and it was closed by silver wire sutures after the cavity had been carefully sponged. I saw her ten days afterwards, and found that the wound had suppurated profusely, the two ligatures had come away, and that there was no reaccumulation of fluid in the peritoneum. The wound closed completely in three weeks, and she died a month afterwards from extension of the cancer, Mr. Kemp having written to me, to say that the enlargement of the omental tumour had been most marked, and that there had been no re-secretion of fluid. We were not allowed to examine the body.

The piece of cyst-wall which I removed I placed in a one per cent solution of chromic acid, and then examined thin sections of it, stained and unstained, to determine the character of the peritoneal patches.

I found that they were cellular throughout, and that the cells were more or less flattened, irregular, and of an epithelial character. The patches seemed to be continuous with the epithelial layer of the peritoneum, and, indeed, to be constituted by a malignant proliferation of the normal epithelial cells, many of which were evidently immaturesly formed and freely intermixed with free nuclei. I could trace no vessels in the patches, which peculiarity would explain the absence of hæmorrhage when the adhesions of the tumour were broken down, these adhesions being evidently the coherence of opposing peritoneal surfaces by cancerous cell-growth. In some places, the patches, varying in size from a millet-seed to a pea, had split on the surface, and presented a villous appearance. Occasionally, a patch undergoing fatty degeneration was found. Nowhere was any capsulation of the cells noticed, as is seen in skin-cancer, though otherwise the microscopic appearances strongly resembled those of ordinary epithelioma.

Since writing the foregoing part of the essay, I have met with another case, where none of the ordinary signs were available for an accurate diagnosis, and where an exploratory incision was the only course. I am quite sure that each exploratory incision an ovariectomist makes gives him a great addition to his personal skill in diagnosis, and will lessen for the future of his practice the need for such a tentative measure. Not that I recommend all beginners to practise needless abdominal sections, but that, having carefully considered the propriety of an exploratory incision and performed it, the experience the operator has gained from it ought to assist him in avoiding its necessity in similar doubtful cases.

A month ago, I saw Mrs. C., aged 32, in consultation with Mr. Croft of Snitterfield. She had a large abdominal tumour with the intestines above it and to each side, forming the characteristic ovarian coronal clearness of percussion. The tumour was fairly movable, and gave indistinct indications of fluid contents. It had no intimate relation to the uterus; it filled the pelvis, could be pushed upwards out of it, and extended three inches above the umbilicus. I saw her again in a month, when I found the tumour had much increased in size, and that some of the other conditions had been much altered. She was suffering a good deal, and we were anxious to relieve her. I expressed the opinion that the tumour was either a colloid semi-solid tumour of the ovary, or malignant cystic degeneration of the kidney. By none of the signs present could I determine which, for the tumour seemed to me much too pelvic to be a tumour of the kidney, and its relation to the intestines was indicative of an ovarian origin. Further, the history given, both by patient and by attendant, pointed to the right ovary as the seat of disease. There was, however, a fixity about its upper part that made me hesitate between the two alternatives and recommend an exploratory incision. As soon as the peritoneum was opened, the dull pinky-white colour of the tumour decided me to the view that it was a case of encephaloid cancer of the kidney, probably with cysts; and, passing my hand into the pelvis, I found the uterus and ovaries healthy. The area of attachment of the tumour was the position of the right kidney, and, of course, I closed the wound at once.

I have had two cases where I declined to attempt the removal of tumours diagnosed as ovarian, and where *post mortem* examinations have justified my refusals and the grounds for them.

The first occurred in the case of a young woman of 24 years of age, in whom there existed a multilocular tumour, lying chiefly to the left side of the abdomen and fixed there. She gave a history which showed that, on three or four occasions, cysts had ruptured into the peritoneum, and that the rupture had been followed by some peritonitis on each occasion. She entreated that an operation should be attempted to relieve the sufferings she had to undergo on defecation. I declined to attempt an ovariectomy, being quite certain that the tumour was so adherent as to render its removal an impossibility, and the contents of the cysts were found to be too viscid to be removed by tapping. She died during an attack of peritonitis due to the rupture of a cyst, which, on *post mortem* examination, was found to be adherent to the bladder. The tumour was found to be so intimately attached to the sigmoid flexure of the colon, some coils of small intestine, to the brim of the pelvis and to the bladder, that its removal would have been impossible.

In October 1869, I saw Mrs. C. in consultation with Dr. Hollings of Wakefield. She had a large oval tumour, solid, hard, and smooth, moving freely in the abdomen, centrally situated, with a similar smaller one to the right side. The larger tumour reached about two inches above the umbilicus, could be felt high in the pelvis, and had no attachment to the uterus. I diagnosed it as a case of solid cancer of the ovary, and declined to operate. The abdomen was free from ascites or other complication. I saw her a second time in a few weeks, and found that the tumours had both increased in size, and then, having made myself more familiar with the subject, I gave it as my opinion that it was an instance of the rarest of all forms of cancer—the fibroid. On December 5th, I found her with symptoms of peritonitis, and a considerable effusion of ascetic fluid. I tapped her, to relieve the breathing, and found a large soft semi-fluctuating mass extending from near the xiphoid cartilage to within three inches of the pubis, masking the outlines of the tumours. This I recognised as possibly a fungoid growth of the omentum. I tapped her again on the 9th, and she died next day. Twenty-four hours after death, I examined the body, and, on opening the abdomen, I found adhesions everywhere to the large deep-coloured fungous mass which I had correctly regarded as growing from the omentum. It was adherent behind to the intestines and to the tumours. The larger of these latter was found to be perfectly loose, save from the omental mass and the right corner of the uterus, to which it was attached by a short thick pedicle; in fact, it was the right ovary, as no other trace of the gland could be found. The smaller tumour was similarly the left ovary, and a still smaller tumour seemed to grow from the same pedicle. Scattered over the surface of the peritoneum were patches very similar to those previously described in a case of cancer of the peritoneum. These patches were also found on the surfaces of the tumours, and were stripped easily off with their investing epithelial coverings. In the right or largest tumour were a few cavities containing fluid, and also some curious cruetification at the base and in the pedicle. It weighed probably twelve or thirteen pounds, so that I could not remove it conveniently for preservation. I removed and carefully examined the smaller tumours, some peritoneum, with specimens of the patches and a piece of the omental fungus.

In the piece of omentum, nothing but blood-detritus, a few scant fibres, and some irregular cells were found. The nodules on the peritoneum showed all the characters of cancerous tissue, being composed of large irregularly shaped and irregularly sized cells, containing variously shaped nuclei in varying numbers. There seemed to be no fibrous tissue in them at all, and their elements readily separated by gentle pressure between the cover and the glass slide. A careful section showed the epithelium of the free surface of the peritoneal layer to be undergoing interesting changes. The cells of the upper layer were normal; but, at two or three layers' depth, they were seen to be larger, more irregular, and the number of nuclei increased, the latter fact being most clearly displayed on the addition of acetic acid.

The ovarian tumours removed were ovoid, smooth, and glistening, and here and there the surface marked with the peculiar patches above described. Together, they weighed nearly three pounds. When cut into, no juice exuded from them, and the scant moisture scraped from the cut surface showed no cells. The tissue was pearly white and very tough. Teasing with needles did not give any satisfactory results, and a great many sections had to be made before one thin enough for examination was obtained. I then found that the texture was purely fibrous, there being nowhere, under the epithelial layers, any cells discoverable. The fibres were extremely fine, closely and regularly packed, without any appearance of undulation or interweaving, but seemed to lie parallel with only faint curvings in their general direction. They

were readily stained by carmine. Acetic acid showed no nuclei, and did not influence the fibres beyond a slight clearing of the section.

It will be found that this description differs in some important particulars from that given by Sir James Paget of similar structures, especially in the absence of nuclei; but the rarity of opportunities for the examination of such peculiar growths stands much in the way of their proper investigation.*

[To be continued.]

THE GAINS DERIVED FROM THE USE OF THE LARYNGOSCOPE.

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MR. ARTHUR NORTON, in the last number of the JOURNAL, referring to my paper on the above subject, doubts the possibility of *bilateral* palsy of the laryngeal muscles resulting from pressure on *one* recurrent nerve; and he suggests that in such a case the paralysis on the opposite side "is only apparent, and not real". If Mr. Norton will refer to the history of Dr. Bäumlér's case of aneurism of the innominata (*Pathological Transactions*, vol. xxiii, p. 66), and my case of aneurism of the aorta (*Pathological Transactions*, vol. xxiv, p. 42) he will find that in both cases there was conclusive evidence of paralysis affecting both sides of the larynx. There was almost complete immobility of both vocal cords, with such close approximation of the cords during inspiration as to cause stridor and urgent dyspnoea, for which, in my own case, tracheotomy was performed with great relief. The immobility of the vocal cords was almost as complete as in a case which I saw where both arytenoid cartilages had been destroyed by necrosis. This closing of the glottis, and consequent impediment to respiration, is the result which Mr. Norton says he would expect to occur from bilateral palsy of the laryngeal muscles. After death, in both cases, there was found atrophy of the laryngeal muscles on both sides, though to a greater degree, in my own case, on the side on which the recurrent nerve was compressed. In one case, the nerve on the right side only was compressed; and in the other, that on the left side. I cannot accept as satisfactory Mr. Norton's suggestion that, in these cases, the bilateral paralysis was only apparent, and not real. Both cases were carefully observed; and in both the appearance of the larynx during life was quite different from that which is found in undoubted cases of unilateral palsy of the larynx, of which I have seen several examples.

I now venture to suggest an explanation of the bilateral palsy of the larynx which certainly existed in these two cases of aneurism. The laryngeal muscles are pre-eminently bilateral in their action. Every one who has inspected the living larynx knows how impossible it is, in the normal condition, to move one vocal cord without at the same time moving the other in an equal degree. There is evidently, then, a very close central connection between the nerve-supply to the two sides of the larynx. In both Dr. Bäumlér's case and in mine, the aneurism compressed not only the recurrent nerve, but also the trunk of the pneumogastric. It seems, therefore, not improbable that, while the muscles on one side of the larynx were paralysed by direct pressure on the recurrent nerve of the same side, the paralysis on the other side may have been the result of a centripetal irritation of the pneumogastric acting on the nervous centre, and through it upon the nerve-supply to the laryngeal muscles on the side opposite to the aneurism. The palsy on one side was direct; on the other, reflex. It is no valid objection to this explanation, that bilateral palsy of the larynx does not occur in *every* case of pressure on one pneumogastric or recurrent nerve, but only in exceptional cases. It is probable that in some cases the centripetal irritation and disturbance are greater than in others.

In fatal cases of traumatic tetanus, we have an illustration of structural changes in the nervous centre resulting from peripheral nervous irritation. In the last volume of the Clinical Society's *Transactions* (vol. vi, p. 38), I have given the history of a case in which a piece of flint in a wound on the cheek caused facial neuralgia and numbness, spasm of the masseter and other muscles of mastication, and palsy of the orbicularis palpebrarum and other facial muscles on the same side. All the symptoms disappeared after the removal of the foreign body from the wound. These results of a peripheral irritation are, I think, fairly comparable with cases of bilateral palsy of the larynx consequent on pressure upon the nerves on one side only.

* I have fully examined a fibroma of the ovary, in which the ordinary processes revealed nothing but fibres, but which my litmus staining showed to be a compact mass of immature nuclei.