

ART. VI.—*Fourteen Cases of Ovariectomy.*^a By ARTHUR V. MACAN, M.B.; Master of the Rotunda Hospital.

IN the paper I have the honour of reading before the Obstetric Section of the Academy to-night, I purpose, first of all, to give, briefly, the details of fourteen cases where I myself have performed ovariectomy, and then to draw attention to some points in practice which they seem specially to illustrate, and to which, in my opinion, the attention of the general profession in this country has not as yet been sufficiently directed.

The first two cases of the series were operated on in the City of Dublin Hospital—the other twelve in the Rotunda Hospital. I have to thank Drs. Fitzgibbon and Wheeler for their kindness in assisting me in the two former, and Drs. Bennett, Corley, Atthill, and Smyly for their help and assistance at the cases operated on in the Rotunda Hospital.

I will now give a brief *résumé* of these fourteen cases:—

CASE I.—M. A. O'K., aged twenty-five, single, operated on in the City of Dublin Hospital on October 15, 1880, being sent to me by Sir William Miller, of Derry.

Operation.—A multilocular cyst, with considerable parietal adhesions. No fluid flowed through the trocar; so the cyst wall was incised and the hand inserted, and, after considerable difficulty, the cyst broken down and the tumour removed. Pedicle long and slender; was transfixed and tied in two portions.

This girl made a most perfect recovery.

CASE II.—Mrs. S. L., aged forty; no children. Small cyst, about size of uterus at five and a half months' gestation, filling the right side of pelvis, and pressing the uterus over to the left. No sulcus could be felt between the fundus and the tumour, nor could the latter be raised in the slightest degree from the brim of the pelvis. The diagnosis was, therefore, made of a very short pedicle, and probably an intra-ligamentous growth. At the operation (which was performed on June 2nd, 1882) both these suppositions proved to be correct; and there being no pedicle, I passed a double ligature as low down on the base of the tumour as possible, and tied the pedicle thus formed in two parts, and cut the tumour off at some distance above it. The pedicle, in fact, was composed of the walls of the cyst itself, and on this account I inserted a glass drainage-tube before closing the abdominal walls.

^a Read in the Obstetrical Section of the Academy of Medicine in Ireland, Frelan, January 9, 1885.

The highest temperature this woman had for three weeks after the operation was 100·6°. The drainage-tube I allowed to remain in too long, and a good deal of suppuration took place, pus—and by no means sweet-smelling pus—flowing freely from the wound in the abdomen. But, notwithstanding this, the temperature remained practically normal.

On the third day I washed out the peritoneum with carbolic acid solution, after which she had well-marked carbolic urine.

This woman was admitted afterwards into the Rotunda Hospital, the fistulous tract being still unclosed, and died six months after the operation of chronic peritonitis, complicated with cancer of the liver.

CASE III.—Mrs. E. S., aged twenty-three; sent to me from Preston by Dr. Robinson, an old pupil of the City of Dublin Hospital.

The tumour, a large unilocular cyst, had been noticed by the doctor who had attended her in her last confinement, two years previously, and was at first taken for a second child. The operation (which was performed on December 18th, 1882) was entirely uncomplicated, the cyst containing twenty-two pints of a dark fluid. Her temperature, nevertheless, rose much more than the average height during convalescence.

CASE IV.—E. F., aged fifty-one, single. This woman was a patient in the Rotunda Hospital when I took charge of it. Dr. Atthill had not operated on her, either from there being some uncertainty in the diagnosis, or from not looking on her case as a favourable one. She was greatly reduced before the operation, and though there was no hæmorrhage, I feared she would die on the table. The tumour was an intra-ligamentous cyst, which had developed between the folds of the left broad ligament, and had no pedicle. I passed the ligature as low down as possible, and removed the tumour above the ligature. This woman was operated on on February 2nd, 1883. She never recovered from the shock of the operation, and died at 10 30 p.m. on February 4th, her temperature never having risen as high as 100°.

CASE V.—M. B., aged twenty, single; sent up by Dr. Curtis, of Cork. The tumour in this case had grown very rapidly since it was first noticed, which was six months before she was admitted into the Rotunda Hospital. She was operated on on March 24th, 1881, Dr. Curtis being present. I should have mentioned that there was a considerable amount of albumen in the urine, and the abdominal walls were greatly thickened by œdema. There was great difficulty experienced in withdrawing the tumour from the abdomen, as part of it was very solid; when an attempt was made to break it down by passing the hand into the interior of the cyst this was found impossible, large spicula of bone projecting in every direction. There were extensive omental adhesions, some containing arteries nearly the size of the radial. After

the removal of the tumour the other ovary was found also to be degenerated, being about the size of a hen's egg. It was quite sessile, and contained a lot of cheesy matter mixed with hair. It was ligatured with difficulty, and then removed. The tumours, when further examined, proved both to be dermoid cysts. The patient seemed at first to be doing very well, but at 7 30 p.m. on the day following the operation, her pulse was 160, and hardly to be counted, her temperature being 102.5° . As she seemed to be dying of septicæmia, I determined to re-open the abdomen and insert a drainage-tube. Dr. Bennett kindly came over and assisted me in doing this. Very little fluid was drawn out of the abdomen, but at 12 p.m., less than four hours after the operation, the pulse had fallen to 132, and the temperature to 101.3° ; the next morning the pulse was 122, and temperature 100.6° . This girl had afterwards some ups and downs from the formation of an abscess in the abdominal walls, which caused a considerable rise of temperature as late as the sixteenth day, but finally made a perfect recovery.

CASE VI.—Mrs. B. C., aged twenty-nine; admitted into the Rotunda Hospital on May 11th, 1883. This woman had first noticed a swelling about two months after the birth of her fifth child, a year before her admission into hospital. She had suffered from frequent attacks of pain in the abdomen, accompanied with vomiting and rise of temperature. She was operated on on May 25; the cyst was a multilocular one; there were most extensive intestinal adhesions, which were so troublesome that the operation lasted for two and a half hours. On account of the extensive adhesions a glass drainage-tube was introduced. The intestines were in this case exposed for a long time to the carbolic spray, and the woman had smoky urine and a good deal of vomiting for some days, but her temperature never rose above 101.4° , her pulse at the time being only 88.

CASE VII.—M. D., aged nineteen, single. Admitted to the Rotunda Hospital on June 12th, 1883. Operated on on June 29th. Unilocular parovarian cyst; no complications. This girl made a splendid recovery, her pulse never rising above 104. About three weeks after the operation an abscess formed in the abdominal walls. She returned to the hospital four months afterwards, complaining of pain in the abdominal wall. On examination a small fistula was observed about the middle of the wound, and in it was found a silk ligature, lying quite loose. This was removed without difficulty, and the fistula soon closed.

CASE VIII.—M. J. J., aged twenty-eight, single; sent over from Holyhead by Dr. Maguire. Admitted into the Rotunda Hospital on January 2nd, 1884. Operated on on January 10th. Tumour, a large multilocular cyst with parietal adhesions; part of the tumour projected down into Douglas'

space, but was fortunately not adherent there. The fluid was very viscid, and a considerable quantity escaped beside the trochar into the abdominal cavity. The maximal temperature was on the third day, when it reached $100\cdot6^{\circ}$, and patient never had the slightest bad symptom.

CASE IX.—M. M., aged twenty-four, single; admitted on January 11th, 1884, from Galmoy, county Kilkenny; sent by Dr. Duckworth, Donaghmore. Operated on on January 25th, 1884. Tumour, a unilocular cyst. Pedicle was long, but in tying it the silk broke, and a good deal of blood escaped from the puncture in the broad ligament. A second ligature was passed, as nearly as possible at the same place, and tied firmly, when all bleeding apparently ceased. This patient went on well for twenty-four hours, after which time the pulse and temperature rose rapidly, so that at 4 p.m. next day the former was 156, and the latter $101\cdot6^{\circ}$. I therefore opened the abdominal incision thirty-four hours after the operation, and introduced a drainage-tube, through which I removed more than an ounce of seemingly quite pure blood. As the operation had been quite uncomplicated, it was obvious that the hæmorrhage must have come from the puncture in the pedicle, which bled after the abdominal wound was closed. The next morning, at 8 a.m., her pulse was 120, and temperature $99\cdot4^{\circ}$, and from this the patient went on very well till the eleventh day, when she had a sudden rise of temperature to $102\cdot7^{\circ}$, and pulse 120, with great pain along the lower border of the right ribs and great dyspnœa, followed by bloody sputa. This, I thought, was most probably due to infarction—a clot in the pedicle having got loose and been stopped in the lungs. There was a very similar rise of temperature, with dyspnœa, on the nineteenth day, after which time patient gradually recovered, and was sent home quite well on March 9th, 1884.

CASE X.—Mrs. S. S., aged thirty-two; admitted January 23, 1884; sent by Dr. Lyster, of Kilkenny. This woman was two and a half years married without having any children. Operation on February 19th. Unilocular cyst; no complication. Recovery perfect. Maximal temperature on evening of the operation, when it rose to $100\cdot6^{\circ}$, and pulse 116.

CASE XI.—Mrs. K., aged fifty. This woman was a former patient of mine in the City of Dublin Hospital, having been sent by Dr. Hugh Byrne, of Lower Baggot-street. She had been tapped three times, and for many months after the third tapping the abdomen did not increase in size.

She was operated on on March 25th, 1884, Drs. Bennett and Corley assisting. This was by far the most difficult ovariectomy I ever did. It was impossible to distinguish accurately which was peritoneum and which was the cyst wall. A considerable portion of peritoneum was, therefore, separated from the abdominal walls at the lower angle of the incision

before the mistake was discovered. The cyst was almost universally adherent, and failing to find the line of demarcation between the peritoneum and cyst wall, I passed my hand into the cyst, and tried to turn it inside out. While doing this my fingers passed through the cyst walls and got into the cavity of the abdomen. I was still, however, unable to distinguish the line of separation, and finally the cyst was removed piecemeal, numerous shreds remaining adherent to the abdominal wall. The peritoneum that had been separated from the abdominal wall at the lower angle of the wound was then carefully sewn back in its place, a drainage-tube inserted, and the abdominal wound closed. The operation lasted two hours and twenty-five minutes.

This woman had a quick pulse and a high temperature for some days, but finally made a thorough recovery, and I saw her some time ago, seemingly in perfect health.

CASE XII.—K. K., aged twenty, single; admitted on July 8th, 1884; sent up by Dr. Corder, of Aughnacloy. Operation performed on August 1st. Large multilocular cyst; some slight parietal adhesions. This woman made an uninterrupted recovery, the maximal temperature being 101° on the day after the operation.

CASE XIII.—S. F., aged twenty-nine, single. Sent up by Dr. Palmer, of Crossmaglen, Co. Armagh.

On admission a hard tumour, the size of an orange, could be felt, rising out of the abdomen, just above the right Poupart's ligament. On making a vaginal examination this was found to be the fundus uteri, which was pushed upwards and to the right by a large elastic tumour filling up the left side of the pelvis. The girl was therefore put under ether, and on pressure being made on the tumour it suddenly rose with a jerk into the abdominal cavity, and the uterus fell down into its place. The diagnosis was therefore made of a small ovarian tumour, and, from the ease with which it could be moved about, it obviously had a very long pedicle. After the examination the girl's temperature rose, and as, from the length of the pedicle, and the globular shape, and very free mobility of the tumour, I suspected twisting of the pedicle, I determined to operate as soon as possible. The operation was performed on August 19th, 1884. The tumour was about the size of a child's head, and was of a dark blue colour, due to congestion caused by three or four twists on the pedicle. On the first day after the operation the temperature rose to 102.4° , but the next day it was down to 99° , and from that on was practically normal. This was the smallest tumour I ever removed, and it is hard to account for the length of the pedicle in any mechanical way, as the tumour was evidently fixed in the pelvis.

CASE XIV.—Mrs. J. T., aged forty-eight; admitted September 20th, 1884, being sent by Dr. Atock. Had been tapped about ten days previously. Has had six children. On October 6th she was put under ether, and examined by the rectum, when the diagnosis of a left ovarian tumour, with a short thick pedicle, was made. The operation was performed on October 10th. As soon as the peritoneum was opened a large quantity of a thick reddish fluid escaped from the wound—evidently from some rupture of the sac. There were some very old and firm adhesions to the intestines, and the whole descending colon was attached to the cyst wall by more recent adhesions, the whole surface of which bled freely when separated. The pedicle was thick and short, and was tied in three pieces. The abdominal cavity was then sponged out, and while the abdominal wound was being stitched the woman ceased breathing, my attention being drawn to her condition by the very venous colour of the blood, which was escaping from the edges of the abdominal wound. She soon came round under artificial respiration, which did not interfere with the closing of the wound. At this time her pulse was 120, temperature 96.4° ; but in the evening her pulse had fallen to 94, and her temperature had risen to 100° . Next morning the temperature was 99° , and in the evening 99.2° , which height it never again exceeded. This was, perhaps, the most perfect recovery I had ever had, after what, at the commencement of my career, I would have looked on as a fatal accident—viz., the free escape of the cyst fluid into the abdomen.

The strictest antiseptic precautions have been invariably practised at these operations, but lately I have not directed the spray on to the abdominal wound—indeed it is now chiefly used with the view of disinfecting the lookers-on. Mr. Lawson Tait has, it is true, obtained most excellent results without using any antiseptics, by operating, in fact, aseptically instead of antiseptically. But it is not everyone who can command such favourable surroundings as Mr. Tait; and for the great mass of the profession the use of antiseptics must, I fear, still remain a painful and troublesome necessity. No patient died of septicæmia, the only case I lost (No. 4) having succumbed to shock sixty hours after the operation. This gives a mortality of a fraction over seven per cent., which is, I think, an unusually favourable one to commence with; and, judging from the statistics of other operators, I am justified in hoping that, with increased experience, even this will be very considerably reduced.

I would here venture to suggest that, after ovariectomy, there are probably, just as after labour, two forms of septic poisoning—viz.,

hetero-genetic and auto-genetic, or, as I would prefer to call them, primary and secondary infection. The former is due to direct inoculation of the peritoneum with septic poisoning during the operation, and generally proves rapidly fatal; the second is due to the introduction of bacteria into the peritoneum. For these latter, however, to produce septicæmia it is necessary that they should find within the abdomen a medium suitable for their development. This is usually furnished either by cyst fluid, which has escaped into the peritoneum, or by blood from imperfectly-stauched adhesions, or, which is perhaps the most favourable of all, a mixture of blood and cyst fluid. Hence, the two great principles in operating are—first, to exclude all septic poison; and, secondly, to leave neither blood nor cyst fluid behind in the abdomen to act as a nutritive fluid for bacteria. In a paper by the late Dr. Marion Sims, in the *American Journal of Obstetrics* for April, 1880, in which he gives an account of his impressions after seeing Keith operate, he says:—“The lesson that I gathered from witnessing Keith’s operation is—never to close the external wound till we have secured every bleeding vessel, every oozing point, and made sure that the peritoneum is perfectly clean and dry.” We know now that the peritoneum is capable of absorbing large quantities of blood, as in cases of intra-peritoneal hæmatocele, and also of cyst fluid, as is shown by numerous cases of absorption and cure following rupture of an ovarian cyst. But if we leave no blood or other fluid in the peritoneal cavity, the chances of secondary infection are enormously reduced; in fact, it cannot take place except there is a secretion of fluid from the peritoneum, which seldom occurs. Now this whole question is very closely connected with the use of the drainage-tube. In three of the above cases (Nos. 2, 6, and 11) I inserted a drainage-tube at the time of the operation; in nearly every case, indeed I now think in every case, unnecessarily. For if the operation be performed antiseptically, the peritoneum is capable of absorbing any amount of fluid, or rags and tags of adhesions. In the two cases, on the contrary, where the drainage tube was inserted subsequently, I cannot but think that the patients would otherwise have died; for in both cases the pulse had mounted to 160, and the patients presented all the appearances of rapid septicæmia. In both the symptoms had entirely changed within twelve hours after introduction of the drainage-tube. In the former of these cases (No. 5) very little fluid escaped through the tube out of the abdominal cavity, and I am at a loss what to attribute the favourable effect of the drainage to, except it be in

diminishing the intra-abdominal tension, and thus lessening absorption. In the second case, however, I removed for several days considerable quantities of pure blood. This was evidently acting as a nidus for the development of bacteria, and when it was removed their activity ceased. This view will, I think, explain how a drainage-tube may in some cases be of use, but in other cases quite fail to save the patient. This secondary or auto-infection may, I think, be produced by the action of ordinary decomposition bacteria on easily decomposing material, especially blood. Hence it follows that we should, as far as possible, prevent the entrance of air into the abdominal cavity as supplying one of the two links in the chain necessary to produce auto-infection. We should, therefore, before closing the abdominal wound, make firm pressure on the abdominal walls, in order to expel any air that has unavoidably entered the peritoneum. Air in a dry peritoneum is readily absorbed without producing any symptoms, and blood or cyst fluid in the peritoneum, if not decomposing, is also perfectly harmless, but, combined, they produce secondary or auto-infection.

Following the example of many other operators, I have discarded the waterproof sheet. The opening of the peritoneum is simplified by cutting boldly down to the sub-peritoneal fatty layer without using a director, raising the peritoneum between two pressure forceps, and then incising it. There is still considerable controversy as to the length of the abdominal incision. The old idea, however, that the length of the abdominal incision has a direct influence on the mortality is quite given up. Schroeder makes the incision in every case from the umbilicus to within as near the pubes as he can go without wounding the bladder, the position of which is known by holding up the abdominal walls to the light. This he does in order to have plenty of room, and to see exactly what he is doing. Mr. Lawson Tait, on the other hand, makes the incision as small as possible, on the grounds that a large incision is very likely to be followed by ventral hernia. This result, Schroeder says, he has never seen; and, as far as I can judge, the advantages of a large incision over a small one are very great. I would commence, in every case where there was a multilocular cyst, with an incision large enough to admit the whole hand.

A very serious question arises where the peritoneum and cyst wall are firmly adherent throughout the whole line of the incision. Here we may sometimes find the line of separation by enlarging the incision upwards. If this fail, we should boldly cut through

the supposed peritoneum. For if it turn out to be cyst wall no damage is done; but if, on the other hand, we mistake the peritoneum for the cyst wall, and, under this idea, separate it from the abdominal walls, very serious consequences may follow. One great help is to remember that the cyst wall is devoid of all fat, whereas the sub-peritoneal connective tissue is full of it. If we should be unfortunate enough to make such a mistake, we should sew the peritoneum carefully back in its place, as was done in Case XI.

The usual method of emptying the cyst is by plunging a large trocar into it. Schroeder, however, and many other operators incise it freely with a scalpel. Even if cyst fluid enter the peritoneum it will do no harm; though if the assistant keeps the abdominal wall pressed against the tumour even this is impossible. In any case, should nothing flow through the trocar it should be at once removed, the cyst wall incised freely, and the contents of the tumour turned out with the hand. In Case XI., while thus emptying a tumour, I pushed my hand through the cyst wall, and, before I knew it, had a firm grasp of the intestines. If I had not recognised them at once, the consequences would probably have been fatal.

Perhaps the most difficult point in a case of ovariectomy is the separation of adhesions, and stopping the hæmorrhage from the separated surfaces. Slight parietal adhesions may be separated before the tumour is lessened; but the golden rule is to bring all intestinal and omental adhesions into the abdominal wound while separating them, and, with the aid of our sight, at once tie or otherwise secure every considerable bleeding point. If this be not done at the time, these bleeding points are impossible to find afterwards, and are thus a frequent cause of auto-infection. Intestinal adhesions require the very gentlest handling, as they are often very firm, and, if roughly pulled on, the intestine will give way. We must therefore separate them, when firm, either by knife or scissors. A wound in the intestine is, however, by no means necessarily fatal if carefully sewn up, and we should always be provided with special needles and silk for the purpose. Oozing from large surfaces is best controlled by sponge pressure, or by a tight abdominal bandage. If in the abdominal walls, we can readily stop it by sutures surrounding the bleeding surface. Adhesions in the posterior *cul-de-sac* are peculiarly dangerous, because we cannot see what we are doing. Here sponge pressure is often of great service in stopping hæmorrhage.

The pedicle, if broad, should be tied in parts, as, if tied *en masse*, the peritoneal edges are very liable to slip out, which will cause secondary hæmorrhage. If there be no pedicle, as where the tumour is developed between the folds of the broad ligament, the capsule must be incised and the tumour enucleated. Olshausen, of Halle, has lately introduced the use of the elastic ligature for tying the pedicle. Up to April, 1884, he has used it in about eighty cases, and says the more he uses it the more he likes it. It certainly has the advantage that with it secondary hæmorrhage from the stump is almost impossible. The elastic ligature is returned with the stump into the abdomen, and causes no more irritation than the silk ones.

In one case, No. 13, there was commencing gangrene of the cyst from torsion of the pedicle; and, fearing this complication, I operated, though the patient had a temperature considerably over 100°.

As to the rest of the operations, little remains to be said. The toilet of the peritoneum is requisite exactly in the inverse proportion to our antiseptic precautions, and very nearly the same may be said of drainage.

In no case where there have been extensive adhesions, and hence, necessarily, oozing from large surfaces, should we omit to put some elastic dressing, such as carbolic tow or a large sponge, over the first dressing, and cover the whole with a firm bandage.

The after-treatment should be purely expectant. My rule in ordinary cases is to give nothing but small pieces of ice during the first forty-eight hours. If there be collapse, we should administer ether hypodermically rather than run the risk of vomiting by giving stimulants by the mouth. Pain and colic are best relieved by morphia hypodermically. The stitches should be removed on the tenth day, up to which time, if the case be going on well, the dressing need not be disturbed.

In conclusion, let me say that success in ovariectomy is not the exclusive possession of any class, whether they be surgeons or specialists, but will follow him most frequently who to quickness, gentleness, and strict discipline during the operation, adds a thorough knowledge of the various complications that may arise and the methods by which they have been met and overcome by other operators, and has, above all, a due appreciation of the value of antiseptics in abdominal surgery.