

I believe that the results obtained by these sections are in accordance with what one would be led to expect from a study of the physical problems connected with the accumulation of fluid in the pleural cavity. The parietal and visceral layers of the pleura are kept in close contact by atmospheric pressure, and the lungs are maintained in a distended condition by the same force. As fluid collects in the pleural cavity the lung collapses, and the fluid tends to gravitate into the lowest part, as its specific gravity is greater than that of the lung. All parts of the lung are not equally compressible, or, as Garland puts it, the "retractile force" is unequally distributed over the lung, so that the fluid does not maintain a uniformly horizontal level, but is modified by the lung.

If air be freely admitted into the pleural cavity the lung usually collapses to about a third of its normal size, and it is extremely probable that the lung is readily compressed even though the fluid be poured out under a very low pressure. We should, therefore, not expect that it would force its way into the supplemental pleural cavity, and displace such organs as the liver or spleen, until the lung had almost entirely collapsed. It is difficult to determine how soon it would do so in the erect position of the body; but I am inclined to believe that it would not open up the supplemental cavity until it had produced considerable compression of the lung.

VI.—CASES OF OVARIOTOMY. ✓

By SKENE KEITH, M.B., F.R.C.S. Ed.

(Read before the Medico-Chirurgical Society of Edinburgh, 6th January 1886.)

FROM my first fifty cases of ovariotomy I have selected several, which present special points of interest, either in the diagnosis, in the steps of the operation, or in the after-treatment. Details of an ordinary case of ovariotomy are without interest and are only wearisome; they are usually written by gentlemen who appear to think like an American friend, who had come to the conclusion that all his cases were "mortal bad." The two fatal cases of the fifty, and those are usually the most interesting, though often least heard of, have already been published in the *British Medical Journal* of 31st October 1885.

Mrs M., age 38, the mother of eight children, said that she first noticed a lump in the abdomen a year ago. Since that time it had slowly increased in size. An ovarian tumour, with probably posterior adhesions, was diagnosed, and it was removed on 10th June 1881. It was my first ovariotomy. Instead of the cyst being free in front, as I had expected, I found that it was closely adherent to the peritoneum, which was greatly thickened and almost as firm as cartilage; and, in fact, every morsel of the tumour

was adherent to something—parietes, omentum, or bowel. After separating and tying with fine silk over thirty bleeding pieces of adhesion I reached the pedicle, which was tightly twisted, and apparently did not contain any bloodvessels. A single loop of silk was tied round it to make sure that it would not bleed. The abdominal cavity was well sponged and a glass drainage-tube, reaching from the lower angle of the wound to the bottom of Douglas's pouch, was left in position. The interior of the cyst was almost in a state of gangrene. The twisting of the pedicle gave the reason for this, and also for the slow growth of the tumour. Its weight was 8 pounds.

Some months after going home Mrs M. was delivered of a fully matured male child. While under treatment here it was not suspected that she was pregnant, as she had menstruated a few days before leaving home. No special care was taken during the operation to save the uterus, which was a good deal pushed about by the sponging. In this case the pedicle had become twisted without causing any disturbance. When speaking of twisting of the pedicle, of course the slight rotation, which is met with in many cases, is not meant, but only when there has been interference with the circulation through the pedicle to the tumour.

W. B., age 24, says that five years ago she had an attack of severe abdominal pain, lasting for two weeks, and then observed a tumour in the abdomen. There had been no menstrual flow for ten months before this time, and since then the periods have been very irregular, sometimes appearing every fortnight. The tumour has increased very slowly, and there have been two other attacks of pain resembling the first one, though the pain was not so severe. A round, firm tumour was felt extending to 2 inches above the umbilicus, adherent probably on the right side. In the pelvis the uterus was felt to be small, with the body lying backwards. The history, and abdominal examination, pointed unmistakably to the tumour being uterine, but the pelvic condition made it clear that the growth was ovarian. At the operation on 7th March 1883, the tumour was found to have extensive friable connexions to the omentum. There was no pedicle. It had been entirely twisted off, and its remains were seen adhering to the sac. Although the tumour had been growing for at least five years, its weight was only $8\frac{1}{2}$ lbs. This was a typical history of a twisted pedicle; an attack of horrible pain followed by slow increase in size of the growth. The uterus was retroverted, and the right ovary was healthy. Unfortunately the specimen was not preserved, several other cases of twisted pedicle having been met with about the same time.

Mrs M., age 34, had noticed a hard lump in the right side three months before she was sent to me. In June of last year there was a firm, irregular tumour in the right side, closely connected

with the side of the uterus. In a month it had grown considerably, and a distinct pedicle could be felt, reaching from it to the uterus. In August it was fully twice the size it had been in June, and she had become pregnant. As experience has shown that the worst kind of adhesion is often met with where there has been one or more pregnancies along with an ovarian tumour, and as there does not appear to be any risk of causing abortion where there is an early pregnancy of three or four months, the tumour was removed without delay. It was a dermoid, and there were only slight posterior adhesions.

Mrs K., age 23, was delivered of her third child ten weeks before operation. No distinct tumour was noticed for some weeks after the birth, though the abdomen was thought to be large. At the operation the whole anterior surface of the tumour was found to be adherent. Probably the peritoneum had become directly connected to the cyst wall, and the growth of the uterus had stretched this connexion to the length of an inch. This had allowed of free movement of the parietes over the tumour, leading one to suppose that there were no adhesions in front. Thirteen months after the operation Mrs K. introduced her fourth baby to the world.

Mrs K., age 43, first noticed a hard lump high up in the left side two years ago; she had never had much pain. Urine contained 1-6th albumen on boiling and adding nitric acid.

15th November 1884.—Operation in the forenoon. The omentum, composed mainly of bloodvessels and connective tissue, with little fat, was of great size, and almost made a sac for the tumour, which weighed 34 lbs. A large part of it had to be removed. The second ovary was enlarged and adherent to the pelvis, and was also taken away. The albumen disappeared at once after the operation.

Mrs B., age 50, was sent into the Infirmary late one evening; she was very breathless, and had to sit in a chair before the fire all night. There was little urine, containing a half albumen. The abdomen was immense, and there was tremendous œdema of the wall. There was evidently a large quantity of free fluid in the peritoneum whatever else there might be. The history was as follows:—Four years before, a tumour was noticed in the left side, and was allowed to increase in size for three years, when she consulted a herbalist, who prescribed a bottle and some pills, which were taken for six weeks. At the end of that time she was much reduced in size, but says that she was almost dead from the purging and diuresis. Ten years ago, says that she had an attack of inflammation of the left kidney, lasting nine weeks.

Next day I tapped the abdomen, removing 52 lbs. weight of viscid, yellow fluid. I had to put the trocar in well above the umbilicus to

make sure of its reaching the abdomen cavity on account of the œdema. Two tumours could then be felt—the larger on the right, the smaller on the left. In three days the abdomen began to refill, and the albumen had almost disappeared from the urine. Two non-adherent tumours were removed on 8th December 1884. Their weight, along with the free fluid, came to 89½ lbs.

Mrs W., age 26, came to Edinburgh in June 1884. A year before, she had consulted Dr Whiteford of Greenock about an enlargement of the abdomen. Dr Whiteford advised her to go to Edinburgh; but, as the tumour did not trouble her at all, she delayed for twelve months. At no time since the swelling was first noticed has there been any abdominal pain, nor has there been any change in the menstruation. On examination, the abdomen was found to be uniformly distended by a smooth multilocular tumour, reaching up to the ribs. In front there were no adhesions, but in the pelvis the condition was doubtful, as part of the tumour was to be felt jammed low down on the left side of the uterus. However, the uterus was fairly movable.

On the 28th June I made an incision down to the tumour and emptied the largest cyst. This did not permit me to draw the tumour through the wound. I took out the trocar, enlarged the opening in the cyst, and broke up with the hand numbers of small cysts. I was then enabled to draw forwards the tumour sufficiently to see that the whole of its upper surface was attached to small intestine. This determined me to attempt to turn the tumour out from below. It was, however, so closely connected to the uterus, and had so extensively opened up the folds of the left broad ligament, that nothing in the shape of a pedicle could be reached. There was nothing for it, then, but to separate the adherent bowel from above. This I did, and found that the whole posterior surface of the tumour was covered by it. When this separation was almost completed I came on a round, whitish cord, about the thickness of the fourth finger. This was fortunately not very closely adherent, and was easily detached from the tumour. It was the left ureter. The tumour was too intimately connected to the uterus to allow of its separation, so after detaching the left broad ligament as far as possible, I was able to put a large clamp almost below the tumour, including a considerable part of the uterus in its grasp. Bleeding points, on which forceps had been left, were now tied with fine silk or catgut, and as sponges from the pelvis, both behind and in front of the uterus, came up almost dry, no drainage-tube was put in. The wound was carefully closed round the stump, and gauze, soaked in a solution of carbolic acid and glycerine 1 to 8, packed round the clamp. The tissue beyond the clamp was covered by a saturated solution of perchloride of iron in glycerine, and iodoform freely sprinkled over the whole. The weight of the tumour was 16 lbs. Time taken to operation, 58 minutes.

In the afternoon and evening the patient was fairly well. Temp., $101^{\circ}4$; pulse, 120. At nine o'clock next morning she looked very ill. There was a total want of expression; the face looked thin and gray. The temp. was $102^{\circ}8$; pulse, 136; respiration, 40, shallow, with occasional sighing. She complained greatly of a feeling of tightness across the chest. The abdomen was very flat. There was no movement of intestines and no sickness.

11 o'clock.—Pulse, 140. An enema of beef juice with ℥ss . whisky was given, and ordered to be repeated every two hours.

2 P.M.—Looked as if she would not live twelve hours. The flesh seemed simply to be flying, not only from off her face, but also from the whole body. Unfortunately Dr Keith was out of town. She constantly complained that she was about to faint, and stimulants did not seem to revive her. I ordered six grains quinine by enema.

At 6 o'clock the patient had been asleep for an hour, and flatus had passed freely. She looked slightly better. Temp., $101^{\circ}2$; pulse, 144. The feeling of tightness across the chest was gone, and the attacks of faintness did not come so often.

10 P.M.—Looked much better; temp., $101^{\circ}2$; pulse, 138; 31 oz. urine since operation. There was after this no cause for anxiety. On the eleventh day I removed the clamp, opened up the stump, and found that there was a cavity barely an inch in depth. This cavity I filled with iodoform, and it slowly cicatrized from the bottom. The patient went back to Greenock forty-four days after operation, and on examining the uterus it was hardly possible to believe that it had been fixed in the wound, it was so movable.

The one interesting point about this case is the marvellous condition of shock which came on sixteen hours after the operation. It appears to me that the sympathetic nervous system had been injured or interfered with in some way, as was shown by the total absence of all intestinal movement, the feeling of tightness across the chest, and also probably by the repeated attacks of faintness coming on at one time every few minutes. Even in the worst cases of septicæmia I have never seen anything approaching to the rapidity with which the flesh disappeared from off this patient's body, for it was not only the face, but also the legs and arms which became emaciated.

A. M., age 22, has been aware of the presence of a swelling in the abdomen for fourteen months. For nine months after this was first noticed she was much troubled with vomiting occurring after meals. This finally ceased when she gave up wearing her stays. She has never been a strong girl; has always cold feet and hands, and a few months ago the left ankle swelled. The urine appeared to be normal, sp. gr. 1022. There was one large single cyst, and the possibility of its being a cyst of the broad ligament was thought

of, but the history and pelvic examination was against this diagnosis.

At the operation, on 26th August 1884, the tumour was found to be a broad ligament cyst.

Second day, 6.30 P.M.—Patient complains of headache. Temp., $101^{\circ}6$; pulse, 120. 41 oz. urine up till now; 10 oz. passed containing a trace of albumen.

8.30.—Temp., 104° ; ice to head.

10.30.—Temp., $102^{\circ}8$; pulse, 128; resp., 30. Nutritive enemata to be given every two hours.

Third day, 2 A.M.—Urine, 6 oz.; albumen, 1-6th.

4.30.—Urine, 6 oz.; albumen, 1-5th, with a trace of blood.

1 P.M.—Urine, 6 oz.; albumen, 1-4th; slight increase in the amount of blood; temp., $101^{\circ}4$; pulse, 124.

9 P.M.—Temp., 103° ; pulse, 150. Skin hot and dry; no decrease in the amount of albumen; face puffy. A ninth of a grain of nitrate of pilocarpine was injected and the ice taken off. In fifteen minutes the whole body was bathed in perspiration. Albumen, 1-3rd.

At midnight the pulse was very weak at 144; temp., 101° .

Next morning patient was decidedly better. Temp., $100^{\circ}4$; pulse, 140. Less albumen; no blood. The pulse came below 100 on the eighth day. There was no albumen on the seventeenth, and patient went home on the twenty-ninth day.

After the operation a remark was made that the sponges, which had been soaked in a two per cent. solution of phenol, had been used very wet, and I believe that there must have been more of the acid left in the abdominal cavity than the kidneys could get rid of without irritation. This case is a strong argument in favour of tapping every case of broad ligament cyst. Had this been done, all risk, trouble, and anxiety would have been avoided.

Mrs K., age 46, had been aware of the presence of something in the abdomen for two or three years. This something had much the appearance of a cyst of the broad ligament, but in the pelvis a hard mass the size of a hen's egg was to be felt.

Operation was on 18th May 1885. After emptying the cyst, which was a parovarian one, I found that it could not be drawn out of the abdomen, as it had opened up the right broad ligament, extending outwards to the ilium and deep down into the pelvis. The solid part turned out to be a small dermoid ovarian tumour, and was connected to the posterior layer of the broad ligament, the anterior layer being in front of the cyst. I enucleated down to the bottom of the pelvis, getting lower than the level of the external os uteri; next I removed a large part of the much hypertrophied broad ligament, and along with it the ovarian tumour, and fixed the rest of the ligament outside in a clamp, stitching the wound closely round it.

For six days patient knew nothing. The temperature ranged from 102° to $104^{\circ}5$; pulse about 110. The clamp was taken off on the third day, and a drainage-tube passed into the pelvis. During the second week there was free suppuration from the right broad ligament.

Probably the best thing to have done with the broad ligament, instead of fixing it in a clamp, would have been to have ligatured its edge in five or six pieces, and allowed it to fall back into the abdomen. The objection to using the cautery was the possibility of oozing going on behind, making a thrombus and separating the cauterized edges.

This case also shows the advantage of tapping broad ligament tumours. Had it been a simple parovarian tumour uncomplicated by an ovarian one, the difficulty and risk would have been the same, while tapping would probably have resulted in cure.

J. S., age 21, was sent to the Infirmary from Aberdeenshire, with a rapidly growing ovarian tumour, which had only been noticed four months before.

The tumour was multilocular, and had raised the ribs and sternum. The whole abdominal wall was cedematous. The tumour was adherent in front; the pelvis was full of it, retroverting the uterus. Two cysts were emptied to give relief, and to allow the cedema to disappear. The specific gravity of the urine was 1026.

The operation was on the 16th June. After breaking down the tumour, I had to separate adhesion from the whole anterior surface, and as high up as the border of the liver. The peritoneum was very vascular, and the bleeding was stopped partly by ligatures and partly by pressure of sponges from within. A drainage-tube was left in, as there was considerable hæmorrhage going on, high up about the liver. There was a good deal of shock, and the pulse was 128 immediately after the operation. At night she looked and felt weak, and enemata were begun. The temperature rose to $103^{\circ}4$. By morning pulse was 145; temp., $101^{\circ}4$. She was very weak. She was told that she might have whisky as often as she asked for it, and in the next twenty-four hours had 22 oz., which was, perhaps, rather too much; however, she would have died without a large quantity. The patient did not get on very well, and on the fifth day, as the face was slightly puffy, the urine was examined and found to contain fully a half albumen. The amount of stimulants was reduced, the loins poulticed, and a large dose of salts given, which moved the bowels three times by night, with the result that the pulse fell from 136 to 118, and the temperature from 103° to $101^{\circ}8$.

On the seventh day I took out the drainage-tube to allow the girl to lie on her side, as there was unfortunately a slough on her back, the only misfortune of the kind which we had in Ward XIX. of the Infirmary in six years.

On the evening of the ninth day the temperature was $102^{\circ}8$; pulse, 120. Next day both were under 100, and after that there was no trouble. During those first nine days the temperature was taken every two or three hours, and only ten times was it under 101° . The pulse was nine times counted under 125 during the same time.

Where nothing has been said in this paper about the convalescence the patient did well. This has avoided, as much as possible, repetition and wearisome details.

VII.—INTRODUCTORY ADDRESS TO A COURSE OF LECTURES ON DISEASES OF THE TROPICS AND CLIMATOLOGY.

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GENTLEMEN,—Robert Burton, in his address to the reader of his *Anatomy of Melancholy*, made use of some words which I take the liberty of adapting to my present need.

“I presume thou wilt be very inquisitive to know what antic or personate actor this is, that so insolently intrudes upon this common theatre, whence he is, why he doth it, and what he hath to say. So, in some sort to give thee satisfaction, I will show a reason, both of the title and the subjects of my proposed discourse, lest any man by reason of it should be deceived, expecting a satire, some ridiculous treatise, or some prodigious tenet. Besides, it hath been always an ordinary custom for people to broach many absurd and insolent fictions under the name of lectures, to get themselves credit, and by that means the more to be respected.”

I trust ‘tis not so with me.

“No Centaurs here, no Gorgons look to find,
My subject is of man and human kind.”

The subject on which I propose to give you a short course of lectures is one which, so far as I am aware, is new to this School of Medicine, and from all I can learn it has not had definite attention paid to it in any other medical school in the United Kingdom.

I think that it is the duty of any man who commences a course of lectures to state at the outset his reasons for so doing; and when he proposes, as I do, a fresh departure, if I may so say, he should all the more explain why he wishes to bring forward a new subject, and to claim for it some attention from the already greatly overburdened medical student. He should also set forth his own