

ON PARATUBAL HÆMATOCELE.*

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IN 1893 Sängert described, under the name 'solitary hæmatocele,' the encysted tumour-like hæmatocele possessing a fibrous wall *independent of the surrounding viscera*, which is now usually known under the name of 'peritubal hæmatocele' (*vide* Fig. 1).

IN 1894 Taylor of Birmingham† independently described the same variety of hæmatocele, in which 'a complete cyst wall is formed from the clot, quite independent of the tube or ovary, or any other pelvic organ. The complete cyst wall forms a kind of bag or jug, and within the neck of this globose pitcher, so to speak, is the fimbriated end of the Fallopian tube, and the latter may be lightly drawn out of its enclosing sheath, showing its fimbriated end uninjured.'

Since peritubal hæmatocele was first described, many cases of it have been recorded. Its frequency is shown by the fact that, of fifty cases of incomplete tubal abortion described by Mandl and Schmit,§ twenty-eight were accompanied by peritubal hæmatocele. No doubt in the past many cases have been overlooked because the sac of the hæmatocele was mistaken for a distended portion of the tube. Owing to the smooth, almost polished appearance of the outer surface of the fibrous sac, and its comparative freedom in some cases from adhesions, it may very easily be taken for a structure covered by peritoneum.

Sänger found the capsule of a peritubal hæmatocele to consist entirely of fibrin infiltrated by leucocytes. He states that in the outer layers the leucocytes are spindle-shaped, while in the inner layers they are round. The drawing which he gives to illustrate the structure of the capsule is sufficient, I venture to think, to disprove his theory that the capsule consists of fibrin. It shows every stage in the organization of fibrous tissue from a round-celled infiltration of the outer layer of the blood-clot. The spindle-shaped cells in the outer layers are entirely unlike leucocytes; they are undoubtedly fibroblasts. Mandl and Schmit,|| after an exhaustive examination of their cases by all available chemical, optical, and tinctorial tests,

* Read before the Obstetrical Society of London, November 5, 1902.

† Sängert, *Verh. d. deutschen Ges. für Gyn.*, 1893, p. 282.

‡ Taylor, *Med. Press and Circular*, July, 1894.

§ *Archiv für Gyn.*, 1898.

|| *Loc. cit.*

came to the conclusion that the capsule consists, not of fibrin, but of fibrous tissue, and the point may be regarded as settled, though doubtless the innermost layers of the capsule consist partly of fibrin.

Sänger has stated* that all intraperitoneal hæmatoceles connected with the Fallopian tube are peritubal. To quote his own words in translation: 'In the first place every hæmatocele arising from tubal bleeding is peritubal; the open tube, itself filled with blood, runs into, and in its abdominal portion is enveloped by, the hæmatocele.'

This statement has not, so far as I know, been contradicted. Taylor recognises that rupture of the tube may occasionally give rise to a local intraperitoneal hæmatocele as distinct from a diffuse hæmorrhage, but he appears to regard all *encapsulated* (tumour-like) hæmatoceles as products of bleeding from the open abdominal ostium; at any rate, he does not describe any case of encapsulated hæmatocele resulting from tubal rupture. Thus, after giving a general description of a local intraperitoneal effusion of blood, and its enclosure by adherent viscera as the result of local peritonitis, he says:†

'The outer layer of the blood-clot consolidates into a more or less perfect sac, and in addition to the adhesions the blood becomes encapsulated by a limiting layer or outer coat derived from its own substance or tissue. Sometimes the hæmorrhage within the capsule ceases altogether; in process of time the adherent viscera become detached, and we may find a perfect sac remaining, closely fitted round the abdominal mouth of the Fallopian tube, blood being found within it. This, which I have described elsewhere, is known as encapsulated hæmatocele.'

The object of my paper is to show that tubal rupture may occasionally produce an encapsulated tumour-like hæmatocele, clasping the rupture in the tube as peritubal hæmatocele clasps the abdominal ostium. Such a hæmatocele does not surround the tube, and therefore cannot be called 'peritubal.' I have ventured to call it a 'para-tubal' hæmatocele. The sac enclosing such a hæmatocele may be so definite as to be mistaken for a portion of the tube.

In the first place I must own that the paper is based on the very careful examination of a single specimen.

I have since found one other undoubted case in the literature, and two others which show transitional forms between peri- and para-tubal hæmatocele.

The specimen for whose detailed description I ask the indulgence of the society to-night is No. 2,480 in St. Thomas's Hospital Museum.

* *Loc. cit.*

† Taylor, 'Extra-uterine Pregnancy,' Lewis, 1899, p. 55.

The case was operated upon by Dr. Cullingworth, and to his courtesy and Mr. Shattock's I owe the opportunity of re-examining the specimen.

In the museum catalogue it is described as a sacculated hæmato-salpinx. Illustrations of the specimen will be found in Dr. Cullingworth's 'Clinical Illustrations of the Diseases of the Fallopian

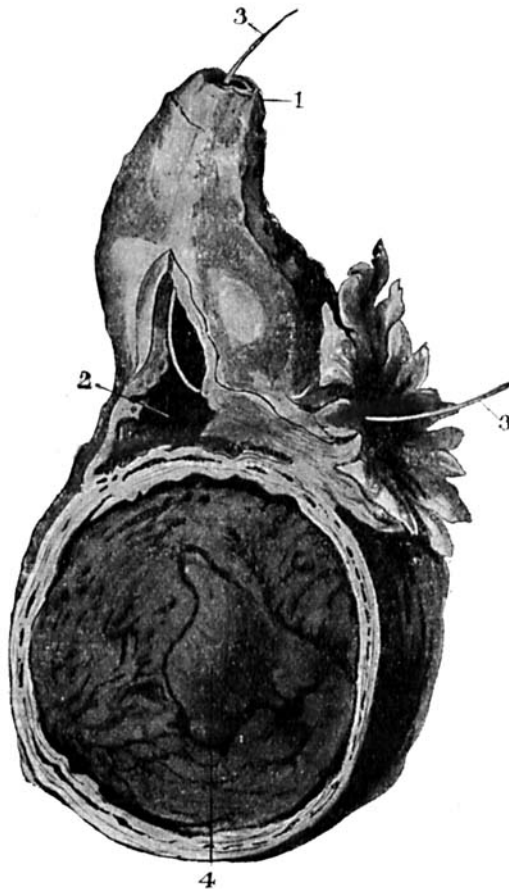


FIG. 1A.—PARATUBAL HÆMATOCELE. SPECIMEN 2,480, ST. THOMAS'S MUSEUM.

1, Uterine end of tube; 2, lumen of tube, exposed by the section; 3, a bristle passing through the tube to emerge at the ostium; 4, cavity of hæmatocele. (Compare Fig. 5.)

Reproduced by kind permission of the Author, and of Messrs. J. and A. Churchill, from Dr. Hubert Roberts' 'Outlines of Gynæcological Pathology,' 1901.

Tubes,' Plate XI., Fig. 1; and on a larger scale in Dr. Hubert Roberts' 'Outlines of Gynæcological Pathology,' Fig. 43, p. 156.

The following is an abstract of the clinical account of the case:*

A. K., aged thirty-four, admitted May 14, 1892.

Three children by the first husband, the youngest born in 1883. After

* Cullingworth, 'Hæmatosalpinx,' *St. Thomas's Hospital Reports*, vol. xxi., p. 43.

six years' widowhood she married a second time in 1890, and was regular after her marriage until January, 1891, when she fell and hurt her elbow. Menstruation since irregular, at intervals of five to eight weeks; the flow scanty, and often only lasting one day.

Her last period ceased November 15, 1891. On February 3, 1892, after feeling unwell for three or four days, she had a sharp and sudden attack of hæmorrhage which lasted more or less from that time up to her admission—that is, for three months. The blood has sometimes been red, sometimes dark brown. For about eight weeks she remained entirely in bed; then after a fortnight's semi-invalidism she again took to her bed, and remained there until admission.

Pains like those of labour came on at irregular intervals, followed by an increased discharge of blood and subsequent relief. Between these attacks she was free from pain. No decidua was passed.

On admission her temperature was 99°.

Nothing abnormal was felt per abdomen. Under anæsthesia the uterus was found of normal length, and somewhat retroverted. In Douglas's pouch, adherent to and moving with the cervix, was a swelling of the breadth of two fingers, lying obliquely with its upper and outer extremity directed to the right. The swelling was soft, even, and elastic, and bulged the upper part of the posterior vaginal wall forwards. An impulse was conveyed from the fundus uteri to the cervix, but not to the swelling behind it. The right uterine appendages could not be felt in their normal situation. The left could be distinctly mapped out, and were normal.

The swelling was diagnosed as the right tube distended with blood, and adherent in Douglas's pouch, and the case was thought to be one of tubal gestation with apoplectic ovum.

The abdomen was opened on May 26. A smooth, oblong, soft swelling, surrounded by recent adhesions, and about equal in size to a pigeon's egg, was found in Douglas's pouch. On being separated and brought to the surface, it proved to be a distended portion of the right Fallopian tube, close to, but not actually involving, the fimbriated extremity, which was sufficiently patulous to admit a probe. The swelling was of a dirty yellowish-brown colour, and evidently contained altered blood-clot. The isthmus of the tube was of normal calibre, and on section was seen to contain a small quantity of brown material (altered blood) in its lumen. The tube was divided and removed. The ovary, being normal, was separated from its adhesions, but not removed. There was no free blood in the pelvic cavity. Recovery uninterrupted; discharged well on June 25.

The specimen was shown at the meeting of this society held in June, 1892.* A committee appointed to consider it returned what amounts to an open verdict. Their report is as follows:

'The specimen consists of the greater part of the right Fallopian tube, 7 cm. in length. Immediately above the abdominal end is an oval swelling the size of a pigeon's egg, which projects freely outwards. The ostium is patulous and surrounded by fimbriæ which are somewhat œdematous. The canal of the tube is not only pervious but dilated, so as to measure 5 cm. at its widest part. On section the oval swelling is found to be a cyst filled with apparently homogeneous clot. On clearing out this clot, which is partly

* *Trans. Obst. Soc.*, vol. xxxiv., p. 182.

adherent, the wall of the cyst appears simple, without any evidence of former loculi. No communication with the canal of the tube could be detected. There is a ragged hole immediately above the fimbriæ, apparently artificial.'

'On microscopic examination of the clot, no chorionic villi could be detected. The clot was intimately adherent to the wall of the cyst, and the epithelial investment of the mucous membrane did not exist.'

After quoting this report, Dr. Cullingworth in his book adds:

'This was in many respects a remarkable and obscure case. . . . The pouchlike dilatation in which the effused blood was found had, in a manner that at present seems quite inexplicable, apparently become shut off from the rest of the tube.'

Since Dr. Cullingworth evidently regards his explanation of the specimen as provisional only, I have the less hesitation in advancing the view that it is an encysted hæmatocele lying by the side of the tube.

A naked-eye examination of the specimen as now preserved shows the following additional details:

1. Half the original specimen cut in the plane of the broad ligament is now mounted in the museum.

The half of the blood-sac preserved is an almost perfect hemisphere. If the original sac was spherical, a strong argument is provided for believing that its shape is the result of internal fluid pressure.

2. There are no remains of adhesions present on the sac, so that those found at the operation must have been very soft and recent.

3. The surface of the sac, though quite smooth, lacks the polished appearance of the peritoneum-covered tube.

4. The tube where adherent to the sac is stretched out over its surface. If a piece of thin rubber tubing were stuck upon the surface of a half-distended rubber balloon, and if the balloon were now fully distended, the rubber tubing would be stretched in a similar fashion to the Fallopian tube in the specimen.

5. The tube is pervious in its whole extent, and no communication exists between its interior and that of the blood-sac. But a closer examination shows the presence of an obviously weak spot in the dividing wall between the cavity of the blood-sac and the lumen of the tube. This is not the ragged artificial tear mentioned in the committee's report. Microscopical examination proves this weak spot to be a healed rupture in the wall of the tube, filled in by young fibrous tissue containing small masses of altered blood.

6. The blood-clot within the sac is oldest and firmest in the centre. It has a concentric, coarsely laminated arrangement, almost like that of a healed aneurysm. The centre of the clot is formed by a uniform blood mass, pear-shaped in section, and with its narrow end directed towards the rupture in the tube. Its dimensions are .8 by 1.5 cm. in section.

7. The wall of the blood-cyst is about 2 mm. thick ; its diameter is about 3 cm. It is attached to the Fallopian tube along the free border of the tube away from the broad ligament, and quite close to the ostium.

Microscopical sections have been made across the largest diameter of the blood-cyst, including the part of the Fallopian tube adherent to it, and passing through the ostium. In order to preserve the naked-eye anatomical relations, the greater part of this piece was cut in one block about 1 inch in diameter, and special precautions were taken to ensure uniplanar sections, by embedding the slice on a curved surface corresponding to the curve described by the rocking-arm of the microtome used. Although nearly the whole circumference of the blood-sac was examined, neither epithelial lining nor endothelial covering was found.

No trace of ovarian tissue was seen.

The wall of the blood-sac is made up entirely of fibrous tissue ; no muscle could be detected in it anywhere, even with the assistance of van Giesson's special stain. Mr. Shattock, after carefully examining my specimens, agrees that muscle is entirely absent from the sac wall. The peripheral fifth of its thickness is made up of rather loose fibrous tissue, infiltrated with round cells, but also containing between its bundles fair numbers of spindle-shaped fibroblasts. This layer also contains numerous small dark granules of altered blood. A close examination suggests that many of these are lying within the phagocytic cells.

The middle two-fifths of the thickness of the cyst wall is its oldest portion, and shows hyaline scantily-nucleated fibrous tissue, with a few round cells in it, and an occasional fibroblast.

The inner two-fifths of the wall is the most recent layer, and shows most externally young fibrous tissue with round-celled infiltration ; most internally a layer of old blood-clot, with round-celled infiltration of the clot. There are many large round cells filled with altered blood granules throughout this layer.

These appearances point to a centripetal organization of fibrous tissue at the expense of the blood-clot, while at the same time the deposition of lymph upon the sac by the surrounding peritoneum is slowly increasing its thickness from without.

German authorities state that the outermost layer of the wall of encysted hæmatoceles is the oldest. In this case, as in one I examined last year, the old layer of the wall is covered externally by a thin layer of comparatively young tissue, and this I believe to be the general rule. In my opinion, the organization of the sac of an encysted hæmatocele does not proceed entirely from without inward, as is generally stated. Though it is true in the main that the organization of the wall is a centripetal process extending into the mass of blood-clot, yet at the same time a slower, centrifugal process of organization is adding externally to the thickness of the fibrous sac.

Opposite the place of rupture of the tube, the wall of the blood-sac is much thinner than elsewhere, and consists entirely of

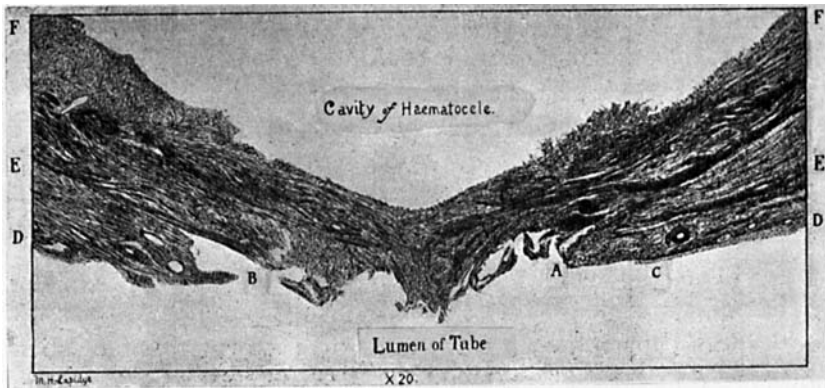


FIG. 1B.—SECTION ACROSS THE TUBAL RUPTURE. SPECIMEN 2,480, ST. THOMAS'S MUSEUM. $\times 10$.

A, B, Edges of rupture in tube. At C, the epithelium leaves off as it approaches the edge of the rupture; D, E, represents the thickness of the wall of the tube; E, F, the thickness of the sac of the adherent hæmatocele. The rupture is filled in by young fibrous tissue containing small masses of altered blood.

young fibrous tissue containing microscopical masses of altered blood. This is evidently *the most recent portion* of the wall of the blood-sac.

The rent in the tube wall as it appears in the microscopical sections is 5 mm. wide. Its edges are clearly visible to the naked eye.

With the microscope it is seen that the epithelium of the tube has disappeared on either side of the rupture for some little distance. Further away from the rupture the epithelial layer is quite normal.

The edges of the rupture are thickly infiltrated with round cells. In some of the sections the edges have become slightly separated from the young tissue filling up the rent; in others they are con-

tinuous with it. The appearances clearly show that the rupture was not an accidental one made during the operation.

The wall of the tube near the rupture is very vascular, and some of the arteries have decidedly thickened walls. In the immediate neighbourhood of the rupture the wall of the tube is decidedly thinned, and the muscular layers of the tube cannot be clearly demonstrated; either they have undergone fibrous degeneration, or, as is more probable, they have been partially absorbed by chorionic villi which have subsequently disappeared. Distinct remnants of the muscle of the tube close to the rupture can, however, be demonstrated by van Giesson's stain as yellowish areas contrasting with the surrounding red-stained fibrous tissue. On the side of the tube away from the rupture the two layers of tubal muscle can be clearly seen.

Turning now to the question what was the original cause of the hæmorrhage, no foetal structures could be demonstrated either in the tube, the blood-sac, or the clot. Dr. Cullingworth was, however, strongly of the opinion that the case was one of tubal gestation. The co-existence of a rupture in the tube with a patulous ostium and a patent lumen cannot be explained, so far as I am aware, by any known condition except tubal pregnancy.

The growing ovum no doubt ruptured the tube, and produced the hæmatocele by slow bleeding. The lumen, previously too narrow at the point of rupture to allow the ovum to pass towards the ostium, now offered no obstacle, and tubal abortion occurred. The ovum escaped into the peritoneal cavity and was doubtless absorbed. It is, of course, just possible that the ovum escaped through the rupture in the tube into the cavity of the hæmatocele. But the small size of the rupture and the absence of foetal products in the blood-clot of the hæmatocele make this improbable. Besides, such a supposition fails to explain the dilated ostium.

The co-existence of tubal rupture with complete tubal abortion is a well-recognised occurrence. Mr. Bland-Sutton appears to have been the first to describe this combination of events. In 1892 he reported to the Medical Society of London a case in which a mole was found lying among the fimbriæ of the tube. There was a small rent in the tube wall. The position of the ovum and, as in the present case, the small size of the rupture, quite negatived the suggestion that the ovum had escaped through the rent in the tube.

It appears to me, then, that the evidence of tubal pregnancy, rupture, and complete tubal abortion, in Dr. Cullingworth's case is as strong as it can be without being conclusive. Complete tubal abor-

tion satisfactorily explains the entire absence of foetal products from the specimen, the patulous ostium, and the dilated tube.

The question now arises whether the wall of the blood-sac represents either in whole or in part the wall of the tube. That it is not simply an altered and distended portion of the tube which has become shut off from the rest is certain, for the mucous membrane and muscle of the tube, only interrupted by the rupture, can be traced right along the dividing wall between the blood-sac and the tubal lumen. The edges of the rupture are sharply defined from, and do not pass into, the structure of the wall of the hæmatocele, and the tube is patent through its whole extent without any spur or stricture to indicate a kink. No trace of muscular layers, nor even the smallest isolated bit of muscular tissue, can be found in the wall of the hæmatocele.

Does, however, any part of the tubal wall, say, for instance, only the peritoneal layer, cover the blood-sac? In other words, was the first hæmorrhage an intramural one within the thickness of the tubal wall, and has it simply distended its original intramural cavity until it burst into the lumen of the tube? Dr. Cullingworth, in his paper on hæmatocele, already quoted, has described a case of intramural hæmorrhage from a ruptured vein in the wall of the Fallopian tube.

In the present case, however, the peritoneum can be traced as a continuous layer from the tube wall for only about 2 mm. on the wall of the blood-sac. It then definitely leaves off, and is replaced by a microscopically rough surface of fibrous tissue. The hæmatocele, then, is an intraperitoneal structure lying naked in the peritoneal cavity without any endothelial covering. No layer of the Fallopian tube can be traced into the wall of the hæmatocele in the angle where the two structures join. It follows of necessity from these facts that the wall of the tube can have taken no share whatever in the formation of the wall of the hæmatocele.

This conclusion is borne out by the exact similarity of structure between the wall of the hæmatocele in this case and the wall of the ordinary peritubal hæmatocele. In the latter form of hæmatocele the wall of the tube can by no possibility take any share in forming the hæmatocele wall, since the hæmatocele can be pulled apart from the tube, leaving the latter intact.

Turning now to the cases described in the literature, a series of connecting links can be traced, connecting typical peritubal hæmatocele with the typical paratubal hæmatocele just described.

In peritubal hæmatocele the tube generally contains a mole, and

the sac of the hæmatocele clasps the open ostium whence the bleeding proceeded (see Fig. 1).

Mandl and Schmit describe a case in which the mole-containing

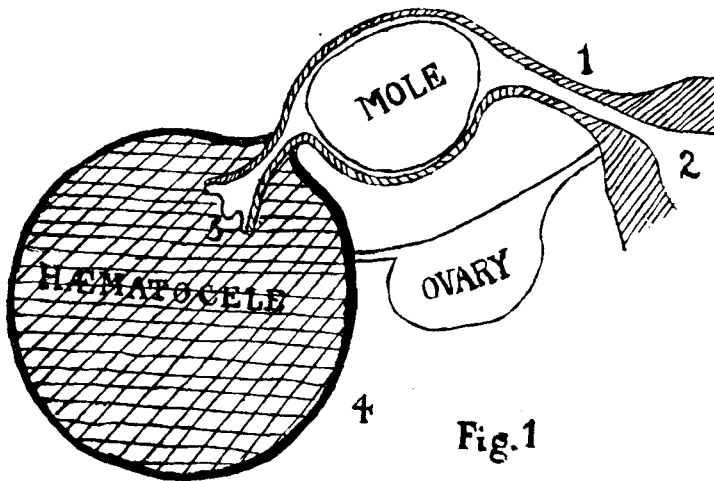


FIG. 1.—DIAGRAM OF A TYPICAL PERITUBAL HÆMATOCELE.

1, Fallopian tube; 2, cavity of uterus; 3, abdominal ostium; 4, sac of hæmatocele. (Figs. 1 and 5 show the typical varieties; Figs. 2, 3, 4, the intermediate forms.)

tube had ruptured; and an encysted hæmatocele enclosed within its cavity both the patent ostium and the rupture (Fig. 2). In this case, as they suggest, the blood in all probability came partly from

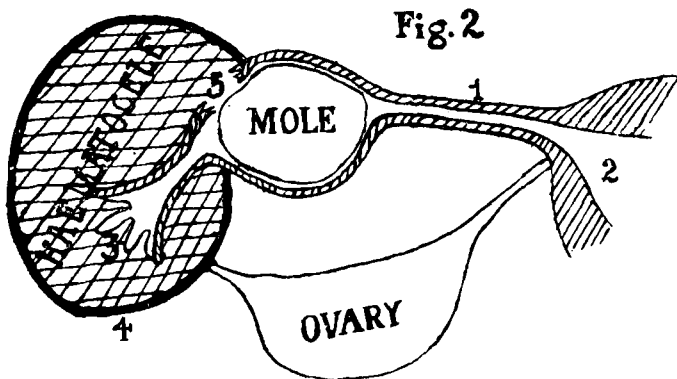


FIG. 2.—AN UNUSUAL FORM OF PERITUBAL HÆMATOCELE.

Rupture of the tube has occurred, and the sac includes within itself both the rupture and the patent ostium. 1, Fallopian tube; 2, cavity of uterus; 3, abdominal ostium; 4, sac of hæmatocele; 5, rupture in wall of tube.

the ostium, partly from the rupture. These two streams of blood united to form a single hæmatocele.

This is, then, a peritubal hæmatocele of an unusual variety, re-

presenting in its mode of origin a combination of para- and peri-tubal hæmatocele.

The next case to which I would direct your attention is on the border-line between para- and peri-tubal hæmatocele. It is also described by Mandl and Schmit. The mole-containing tube had ruptured, and round the rupture an encysted hæmatocele had formed. The portion of tube intervening between the mole and the occluded ostium was enclosed within the thickness of the sac wall of the hæmatocele. The case may evidently be classified either as peri-tubal or para-tubal (Fig. 3).

The third case described by Mandl and Schmit is a true para-tubal hæmatocele, the only one so far as I can find which has been

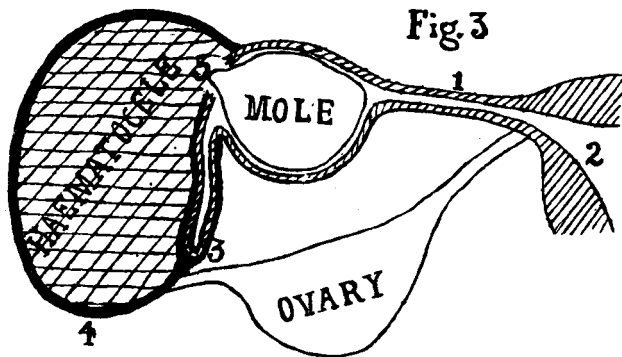


FIG. 3.—HÆMATOCELE WHICH MAY BE CLASSED EITHER AS PERI- OR PARA-TUBAL.

The bleeding has occurred from a rupture in the tube-wall. The portion of tube intervening between the rupture and the closed ostium is included in the thickness of the sac-wall of the hæmatocele. 1, Fallopian tube; 2, cavity of uterus; 3, closed ostium; 4, sac of hæmatocele; 5, rupture in wall of tube.

hitherto described, though no doubt the collective experience of this society will be able to furnish further examples of the condition.

In this case a mole-containing tube with occluded ostium had ruptured on its posterior surface. Round the rupture an encysted hæmatocele had formed, into whose cavity a portion of the mole projected. The Fallopian tube could be seen adherent to the anterior wall of the hæmatocele, which bore on its surface the closed ostium (Fig. 4). Here the hæmatocele did not surround any portion of the tube. To describe it as a peritubal hæmatocele would therefore be entirely misleading; it is para- and not peri-tubal.

Last in the series comes Dr. Cullingworth's case, which I have described to-night. In it the mole has escaped through the open ostium, and the hæmatocele is seen lying alongside the tube and adherent to it (Fig. 5), but not surrounding it.

This specimen is of particular interest, because it shows that the rupture of the gravid tube, with the formation of a paratubal hæmatocele

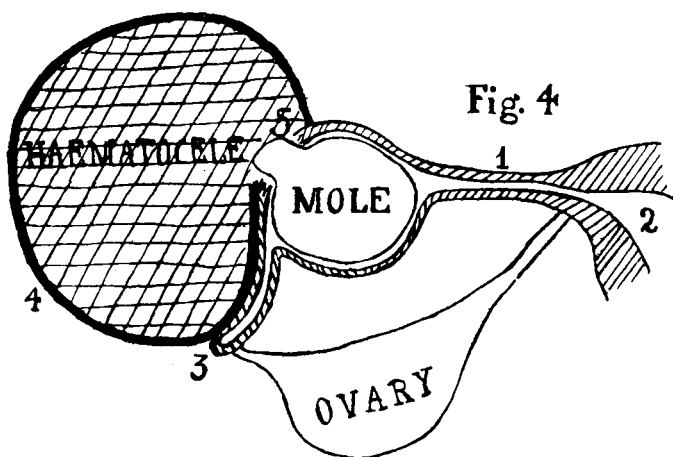


FIG. 4.—PARATUBAL HÆMATOCELE.

The sac does not surround any portion of the tube. Bleeding has occurred from a rupture. The portion of tube intervening between the rupture and the closed ostium lies on the surface of the sac of the hæmatocele. 1, Fallopian tube; 2, cavity of uterus; 3, closed ostium; 4, sac of hæmatocele; 5, rupture in wall of tube.

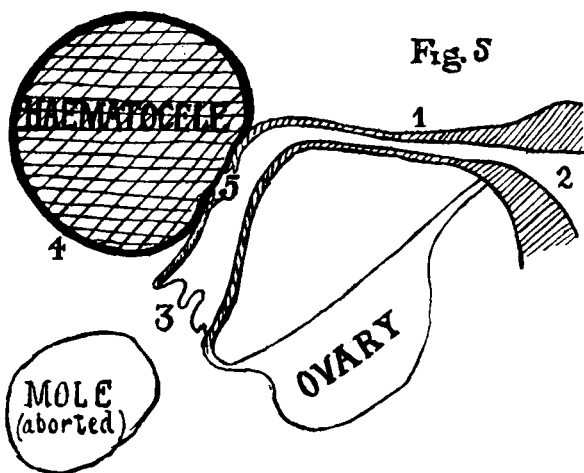


FIG. 5.—TYPICAL. PARATUBAL HÆMATOCELE.

The sac does not surround any portion of the tube. Bleeding has occurred from a rupture. The ostium being patent, the mole has aborted, leaving the lumen of the tube free. The rupture has subsequently healed. 1, Fallopian tube; 2, cavity of uterus; 3, ostium; 4, sac of hæmatocele; 5, rupture in tube-wall (healed).

tocele round the rupture and with tubal abortion, is not necessarily inconsistent with the future functional activity of the tube. In peritubal hæmatocele, on the contrary, the tube is probably per-

manently occluded by a fibrous cap over the ostium even after the contained blood has been absorbed.

Although the natural course of events in the case under consideration was as favourable as it could possibly be, yet the symptoms of colicky pain and uterine hæmorrhage were none the less persistent, and laparotomy became necessary. The inference appears to be that all cases of tubal gestation in which these symptoms persist for more than a few days should be treated by surgical means, especially bearing in mind the risk of rupture of the hæmatocele.

Had it been desirable for any reason to preserve the tube in this case with a view to future pregnancies, it would have been as easy as in peritubal hæmatocele to dissect the hæmatocele from the tube, leaving the latter intact.

Into the dynamics, as opposed to the anatomy, of encysted hæmatoceles with independent sacs, I do not now propose to enter in detail. The prevailing opinion is that the bleeding is entirely antecedent to the formation of the sac wall. The laminated structure of the clot tends to show rather that the two processes were in the present case concurrent. The first-escaping central portion of the clot apparently became encysted by the peritoneum, and then shrank away from its cyst wall, allowing a peripheral zone of fresh hæmorrhage to occur between it and the cyst wall. This fresh hæmorrhage distended and enlarged the newly-formed cyst wall. The recently escaped blood in its turn clotted and contracted, allowing still further bleeding to occur into the peripheral part of the sac, which distended the latter still more.

It seems to me that only by repetitions of this process is it possible to account for the lamination of the clot, and the fact that its centre is the hardest and oldest portion. The small central pear-shaped portion of clot in all probability represents the primary hæmorrhage which preceded encystment.

The occurrence of aneurysmoid distension by blood-pressure of the sac of encapsulated hæmatoceles is conclusively shown by the not uncommon event of their rupture. In some cases, no doubt, the primary bleeding is a large one, the blood-clot within the hæmatocele is soft and non-laminated, and adjacent structures, *e.g.*, the ovary, may be included within the cavity of the hæmatocele, instead of being pushed aside by its gradual distension, as usually happens. But however small or large the original bleeding in cases of peri- and para-tubal hæmatoceles, it appears to me that in all such cases more or less aneurysmal distension takes place subsequent to the first

encystment, for otherwise it is impossible to explain the separation of the soft layer of plastic lymph round the mass of blood from the peritoneal surfaces, which throw it out in response to the irritative contact of the effused blood. As the layer of soft lymph or young fibrous tissue is stretched by the blood within it, some amount of separation must necessarily be brought about between the lymph and the adjoining visceral surfaces from which it was originally thrown out. Further distension is continually changing the relation of each point on the surface of the blood-sac to the surrounding viscera, and this constant change of relation is the determining factor in breaking down adhesions, in preventing the formation of fresh ones, and in smoothing and polishing the surface of the hæmatocele. It is, in fact, this which gives the hæmatocele its 'tumour-like' individuality. Where, on the contrary, the hæmorrhage is rapid at first, ceasing before a coherent layer of lymph has been thrown out around it, there is no force, except the feeble one of the intestinal movements, tending to separate the lymph from the peritoneal surfaces by which it has been thrown out, and the blood will simply be walled in by adherent viscera, and will possess no fibrous sac of its own. Such hæmatoceles are by definition excluded from peri- and para-tubal hæmatoceles, whose chief character is the possession of a non-visceral fibrous sac.

I have used the hybrid word 'paratubal' in the heading of my paper so as to follow the existing nomenclature as closely as possible.

Since, however, the most essential feature of both peri- and paratubal hæmatoceles—namely, the possession of a proper sac apart from the viscera—is a direct consequence of the hæmodynamic pressure within them, it would be better and simpler to include both varieties under the name of 'hæmodynamocele.'* The sacs containing pus or watery fluid occasionally found in similar relation to the Fallopian tube might be called pyo- and hydro-dynamoceles. Where the context indicated the nature of the contents, the short word 'dynamocele' would be sufficiently descriptive.

I cannot conclude without expressing my thanks to Mr. Shattock for his advice and assistance in the histological examination of the specimen, and to Dr. Cullingworth for the kind interest he has taken in my work.

I may add that Dr. Cullingworth has in the main accepted my conclusions, and has in the forthcoming edition of his work revised his description of the specimen in accordance with them.

* Handley, *Trans. Obst. Soc.*, 1901, p. 258.

ABSTRACT OF QUOTED CASES.

MANDL AND SCHMIT, *Archiv für Gyn.*, vol. lvi., p. 456 (see Fig. 2).

Primipara, aged thirty-two, complains for six weeks of somewhat severe, almost continuous bleeding, which began with strong colicky pains which have somewhat subsided lately. A year previously supposed inflammation of the womb. No period of amenorrhœa.

There was right incomplete tubal abortion with rupture and hæmatocele round the tear. The left annexa swollen, and intimately adherent to the back of the uterus. Recovery after operation.

In the specimen obtained, the right tube, after a course of 5 cm., suddenly expands to a swelling the size of an apple, covered on its surface with coagulated black-brown blood. On its hinder wall the ovary is strongly adherent near the uterine part of the tube. The tumour consists, as a section shows, in its median part of a tubal gestation sac about the size of an egg, which contains a firmly adherent blood-mole. The rest of the tumour is formed by a hæmatocele sac which joins the outer side of the gestation sac, and communicates with it, so as to make a single cavity. The hæmatocele, which is filled with old coagulated blood, surrounds the tube completely in its further course, so that the fimbriated end comes to lie within the cavity of the hæmatocele. In the median part of the cavity (the part lined by tubal mucosa, which is bounded from the remaining part, that formed from the hæmatocele, by an irregular but definite line) one finds close to the rupture a round opening—the lumen of the tube—which, narrowing again after forming the tubal gestation sac, runs inwards and backwards within the sac of the hæmatocele to the ostium.

MANDL AND SCHMIT, *Archiv für Gyn.*, vol. lvi., p. 466 (see Fig. 3).

Patient aged thirty-five. Admitted October 28, 1893. Since the end of September, at the time of the expected period, bleeding of moderate amount, continuing to the present time. It was accompanied by pains in the left lower abdomen with smarting during micturition. Since the beginning of the illness frequent vomiting and fever. Some leucorrhœa. Three children, the youngest eleven years old. Last period end of August. There was left incomplete tubal abortion, with a hæmatocele round the place of rupture. The hæmatocele lay in front of the uterus. The right appendages were thickened and matted. Operation October 31. Recovery.

Description of Specimen.—A bluish tumour the size of two fists, lying in the utero-vesical fossa, with its front touching the bladder, its base touching the anterior surface and fundus of the uterus, while its upper part projects free into the general peritoneal cavity. The tumour consists of a sac about the size of an apple, with rather firm walls. It encloses most of the Fallopian tube, so that the latter is only visible for the first 4 cm. of its course from the uterus. At this point it widens out into a cavity the size of a nut, which contains old coagulated blood and a portion of a hæmorrhagic ovum, the size of a walnut. The greater part of the ovum projects through an opening on the anterior wall of the tubal sac, of irregular shape and about the size of a kreutzer, into the sac of the hæmatocele, which also contains much old coagulated blood. No embryo was found. The further portion of the tube runs outwards in the wall of the hæmatocele, and then turns suddenly round, so that the completely closed ostium comes to lie on the ovary, to which it is bound by soft adhesions.

MANDL AND SCHMIT, *Archiv für Gyn.*, vol. lvi., p. 480 (see Fig. 4).

A. G., aged twenty-nine; three children; abortion two years ago. Admitted October 7, 1896.

Severe spasmodic pains ushered in bleeding, which has lasted two months. The pains continue. Subjective symptoms of pregnancy. Last period six months ago.

There was left incomplete tubal abortion, an old rupture of the tube, and a hæmatocele round the rupture. Right appendages normal. Operation October 9. Recovery.

Description of Specimen.—The tube, normal in size for 5 cm. from its uterine end, then suddenly enlarges to the size of a hen's egg, and is found to contain a mole with amniotic cavity. The tube again narrows, and runs with a diameter of 2 cm. to the closed ostium. To the posterior surface of this tubal tumour a firm-walled blood-sac, the size of a fist, is firmly adherent. The hæmatocele thus bears on its surface the closed fimbriated end. On opening the sac, which contained much fluid and coagulated blood, it is found that about the middle of the tube is an opening about 1 cm. long, with irregular, torn, and blood-infiltrated edges. Through it parts of the mole project into the hæmatocele. Ovary of normal size, somewhat flattened by pressure, closely connected with the lower wall of the hæmatocele, but completely separable from it by dissection.