NOTE
ON THE
ALLEGED OCCURRENCE OF OVARIAN
PREGNANCY;

BEING AN
EXPLANATION OF SOME CASES WHICH HAVE BEEN PUBLISHED
AS BELONGING TO THIS VARIETY OF ECTOPIC GESTATION.

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IN the scheme of ectopic gestation which I have published on page 8 of my book on 'Ectopic Pregnancy and Pelvic Hæmatocele,' the first variety in order of narration is that of the so-called "ovarian pregnancy," concerning which I say that it "*is possible, but not yet proved.*" I could point to at least half a dozen critics who, perfectly regardless of this clear enunciation of opinion, say that I have denied the possibility of its occurrence; and then they proceed to demolish the views which they have manufactured for me. On page 13 I say, "It is possible, I admit; but there are so many contingencies in such a case, that the doctrine of chances makes it so remote that its occurrence may be regarded as likely as the birth of a blue lion or a swan with two

necks, like an heraldic monstrosity—a mere pathological curiosity. Finally, it will have no kind of clinical interest or importance not already decided upon in the case of pregnancies in the free part of the tube, so that we may avoid any further discussion of ovarian pregnancy as futile. If it does occur, it must be rare and will be curious. If it never occurs, so much the better.”

Since the publication of my book several specific efforts have been made to prove from recorded instances and preparations exhibited that a real ovarian pregnancy has occurred, and about these instances I have a final word or two to say ; and after I have said that, I can only feel that further criticism against such assertions must be futile: for if in the discussion of the subject, which has gone on now for over three years, better examples than those I speak of cannot be adduced, I think we may accept the conclusion that the occurrence of ovarian pregnancy is very unlikely.

In a true ovarian pregnancy the following conditions must be present:—The gestation sac must be formed entirely of ovarian tissue, so that in all parts of the sac wall ovarian elements can be discovered by microscopic research. The tube must be free in its entirety from the gestation sac, taking no part in its formation. The broad ligament also must be free, forming merely the pedicle of the tumour, and not having the tumour embedded between its layers. I hold that there is a possibility of such an occurrence. But to produce it the Fallopian tube would have to be patent throughout, and deprived of its lining epithelium by desquamative salpingitis. The abdominal end of the tube would have to be unoccluded. A Graafian follicle would have to rupture in such a fashion as to permit of the ingress into its cavity of the impregnating spermatozoa (thus to secure its fertilisation), and yet to prevent the egress of the ovum from its follicle after fertilisation. To complete this great chain of improbabilities, the impregnated ovum would have to become adherent to the wall of the follicle

and develop in its cavity. The unlikelihood of the occurrence of this last condition is greatly enhanced by the recollection of the fact that the follicular wall contains no adenoid tissue such as seems to be essential for the nourishment of a recently fertilised ovum. It may safely be asserted that no case has yet been brought forward which has been submitted to these tests and subsequently been established as a true ovarian pregnancy.

It is easy to see, however, how inexperienced observers have been led to describe as ovarian pregnancies cases of broad ligament pregnancies. They rely on two signs—(1) the presence of ovarian elements in some part of the gestation sac wall; (2) the apparent absence of the ovary on that side. But these signs are capable of another and much more reasonable explanation indicating the true nature of the case; whilst the explanation usually given of them, that they are indicative of true ovarian pregnancy, is wholly deceptive and misleading. I ask you to consider the changes in the anatomical relation of the various constituents of the broad ligament produced by a tumour developing between its layers and becoming embedded therein. These alterations of relations are brought about by a process which is made perfectly familiar to us in the ordinary phenomena of pregnancy, and other conditions in which the peritoneum is slowly moved about by traction.

Mr. Christopher Martin has devised some diagrams which illustrate my point. Fig. 1 is a diagram of a lateral vertical section through a normal broad ligament. The Fallopian tube is uppermost, and is surrounded on all sides save below by peritoneum, which slides freely over it. The ovary is attached to the posterior layer of the broad ligament, and at the line of junction the cubical epithelium covering the ovary becomes continuous with the superficial epithelium of the broad ligament. Observe that the peritoneum does not pass over the ovary as a freely sliding membrane, but is continuous with its fibrous investment. Hence if there be a constant and prolonged

FIG. 1.—Diagram of lateral vertical section of broad ligament.

F.T. Fallopian tube. P.F.T. Peritoneum covering Fallopian tube. P.T. Parovarian tubule. Ep.O. Epithelium covering ovary. A.B.L. Anterior layer of broad ligament. P.B.L. Posterior layer of broad ligament.

FIG. 2.—Lateral vertical section of broad ligament with embedded parovarian cyst.

F.T. Fallopian tube. P.C. Parovarian cyst. O. Ovary. Ep.O. Epithelium covering ovary. A.B.L. Anterior layer of broad ligament. P.B.L. Posterior layer of broad ligament.

strain, such as is produced by the separation of the two layers of the broad ligament by a tumour developing between the two layers, both layers are put tensely on the stretch. In consequence of this, a strain or pull is exerted on the ovary itself, and this strain is, for practical purposes, directed equally round its edge. The result of this is shown in Fig. 2. Here we see that one of the parovarian tubules (shown in Fig. 1 as a small vesicle) has become enlarged into an intra-ligamentous cyst. It has developed between the two layers of the broad ligament, and has consequently put the peritoneum of the broad ligament greatly on the stretch. In so doing it has altered the relation of parts. The anterior layer is widely separated from the posterior. Everywhere the peritoneum is distinct from the cyst proper, and can be peeled off from it. The Fallopian tube is seen to be flattened and widened by the traction due to the growth of the cyst. It is, however, easily separated from it by raising the peritoneum. One half of the circumference of the tube is deprived of its peritoneal covering. But specially observe the condition of the ovary, which has become flattened and greatly extended towards its periphery. It has been pulled out and spread out into a thin layer of ovarian tissue, the traction having opened the ovary out into a sheet, starting at the hilum. The extended ovary is, however, easily separable from the cyst proper by raising the peritoneum, all the ovarian tissue rising with the peritoneal layer. Do not misunderstand me; this does not occur in all, or even in a majority of embedded parovarian cysts; but every now and then it is to be met with in a very marked degree. An actual specimen is now exhibited where the right ovary has been spread by the growth of a parovarian cyst into a circular sheet five inches in diameter. Fig. 3 represents a broad ligament pregnancy. It was originally tubal. The tube has ruptured in a downward direction into the potential space between the two layers of the broad ligament. The ovum has developed in the

broad ligament in a manner closely resembling that of an embedded parovarian cyst. In so doing it has disturbed

FIG. 3.—Diagrammatic representation of broad ligament pregnancy.

F.T. Fallopian tube. S.B.L.P. Sac of broad ligament pregnancy. O. Ovary. Ep.O. Epithelium covering ovary. A.B.L. Anterior layer of broad ligament.

the anatomical relations of the parts in precisely the same way. The two layers of the broad ligament are widely separated and put on the stretch. The Fallopian tube has become spread out over the top of the ovum as a sheet of muscular tissue. The ovary has likewise been flattened out, or rather pulled out, into a sheet of ovarian tissue, lying in close contact with the gestation mass.¹

¹ In the growth of parovarian cysts it is to be noticed that the Fallopian tube is usually not much flattened, the reason of this being that its peritoneal covering, unlike that of the ovary, is easily stripped off. But it may be enormously lengthened by the traction. I have seen it lengthened as much as fifteen inches; Bantock records an elongation of twelve inches; and a specimen is now shown, from a parovarian cyst removed by Mr. Christopher Martin, in which it was thus elongated to ten inches. This process of the alteration of structures so important as the ovary and Fallopian tube by mere mechanical stretching in the process of the shifting of the peritoneum, necessitated by the pathological growth of structures included in its folds, has not previously been prominently noticed. Doubtless its influence will now be

So greatly is it extended and altered that an inexperienced observer might easily miss it, and thus record that "the ovary could not be found"—a statement which is constantly made in such cases, and which, quite true in itself, is assumed to prove that the seat of the gestation is the ovary itself, whereas it really is the broad ligament, upon the outer surface of which the ovary has been pulled out into a transparent sheet.

It is thus very easy to understand how it is that ovarian tissue is found in the sac wall by microscopic research if the section happens to fall within the area of the flattened-out ovary. And, curiously enough, it is always noted in such cases that the ovarian tissue is not to be found uniformly distributed over the wall of the cyst. A careful consideration of these points will explain how it is that a broad ligament pregnancy has been so often erroneously described as a "true ovarian pregnancy."

discovered in other instances. The only record of its observation, so far as I know, is a somewhat casual one by Mr. Alban Doran in his book on 'Tumours of the Ovary,' 1884.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' Third Series, vol. iv, p. 151.)