

Endometrioma and Endometriomyoma of the Ovary¹.

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MANY examples of so-called 'adenomyomata' and 'adenofibromyomata' of the rectovaginal septum, uterosacral, round and ovarian ligaments, and, indeed, a few of the Falloppian tubes, the sigmoid colon, the umbilicus and the rectus muscle have been recorded. I have myself seen numerous instances in the commoner situations. These extra-uterine growths have been described as 'adenomyomata' and 'adenofibromyomata' no less wrongly than in the case of the similar neoplasms which occur very often in the uterus. For many years I have referred to such tumours as 'endometriomata' or as 'endometriomyomata' and 'endometriofibromyomata.' I hope that gynæcologists will adopt this in the place of the older nomenclature which is inaccurate in that *functional endometrium, not merely glandular tissue*, is always found in these tumours during the reproductive period. I have no doubt that after the menopause the endometrial elements undergo atrophy in the usual way.

In the present communication I wish to call the attention of my British colleagues to a point of great pathological and clinical interest, namely, that the so-called perforating 'chocolate' cysts of the ovary, whether occurring in association with endometriomyomata of the uterus or independently, usually contain menstrual fluid discharged by endometrium in the ovary.

In the United States this has been recognized recently by Sampson⁴. Previously Russell³, Casler¹, Cullen² and others had observed the presence of endometrium in an ovary without attaching to it the special clinical significance to which I have referred.

Endometrium in the ovary may be situated on the surface, but more often it occurs in the wall of a cyst or cavity. Sometimes there is no myomatous or fibromyomatous tissue in connexion with

1. Read at the British Congress of Gynæcology in Liverpool, July 1, 1922.

the endometrium which merges insensibly into the ovarian stroma. Hence in such circumstances the term 'endometrioma' is strictly correct. In other cases islets of endometrium may be enclosed in myomatous or fibromyomatous tissue.

The life history of endometrium in the ovary is controlled by those secretions which preserve and regulate the activity of the uterine endometrium. If it exist in the ovary before puberty, this tissue is inactive, for only during the reproductive period are 'chocolate cysts,' which contain the menstrual secretion of these aberrant patches of endometrium, formed, although they may be encountered after the menopause, when the endometrium would have ceased to perform its function, yet the menstrual fluid, already secreted, remains.

These cysts, as is well known, are usually densely adherent to the surrounding structures, primarily it would appear at the point of perforation.

In a consideration of the pathological significance of endometrium of the ovary we are once more confronted with the problem of the origin of the endometriomata in general. Endometriomyomata in the uterus are easy to explain developmentally, as are those which are found in the rectovaginal space and in the utero-sacral, round and ovarian ligaments, owing to the fact that the essential uterine tissue—the endometrium—is enclosed in muscle-bundles derived from the muscle-sheet that forms the external coat of the uterus. Moreover, it is not difficult to understand the presence of such growths in the sigmoid and ovary when these structures are invaded by endometriomyomata of the uterus with which they are in contact, or in the rectus muscle when the uterus has been fixed to the abdominal wall. It is, however, not so easy to understand how *independent* endometriomata of the umbilicus and ovaries arise, or, rather, to visualize the developmental irregularity that leads to the aberration of this tissue so far afield, without there being any trace of the path by which it has reached its destination.

Sampson inclines to the view that tissue of an endometrial type arises in the ovary as a result of metaplasia of inclusions of capsular epithelium, or of luteum epithelium. Moreover, he believes that the so-called 'adenomyomata' of the uterus may be secondary to similar growths in the ovary, which on perforation of a cyst become adherent to the uterus at the site of rupture. It has been suggested, also, that the 'cellular spill' from such a cyst might become implanted in the pouch of Douglas. I myself cannot but adhere to the view, which I have always held, that the appearance of a functional structure, such as endometrium, in abnormal situations, can only result from congenital aberration when not due to direct contact; and this is easily possible in the case of ovarian

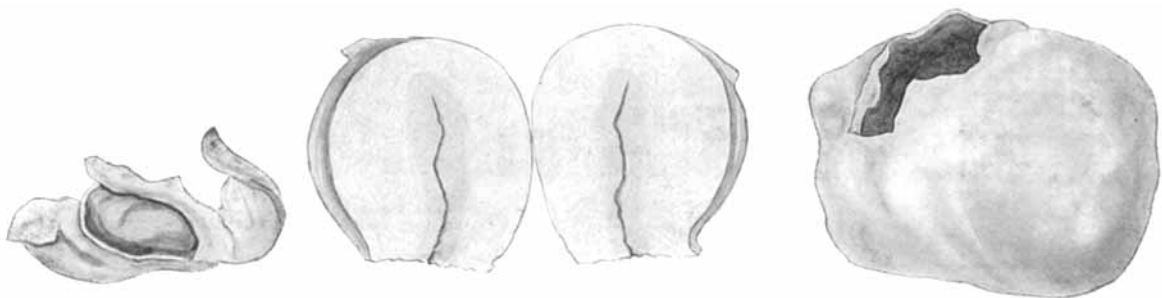


FIG. 1

Specimens removed at operation : right and left cystic ovaries and the body of the uterus (bisected). It will be observed that there is no endometriomatous development in the uterus. × 2.

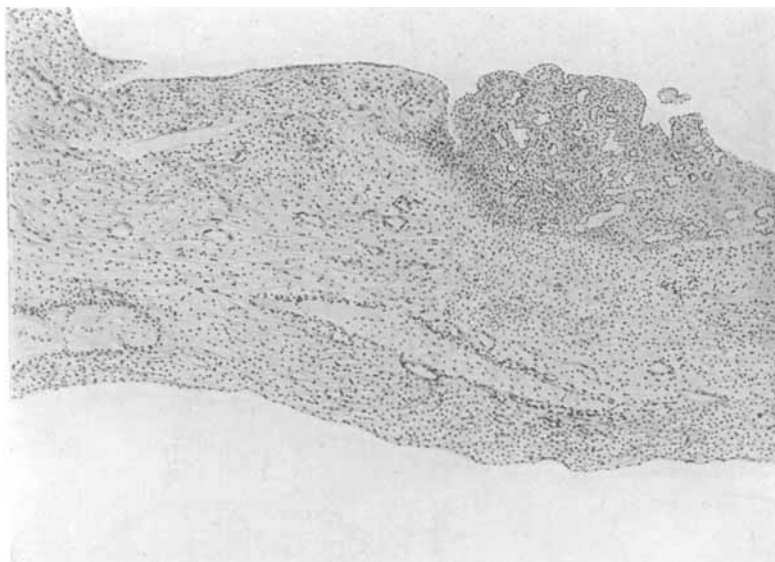


FIG. 2.

Section of the wall of cyst of the right ovary, showing at the top right-hand corner a patch of endometrium projecting into the cavity of a cyst the wall of which is lined with cubical epithelium. × 12.

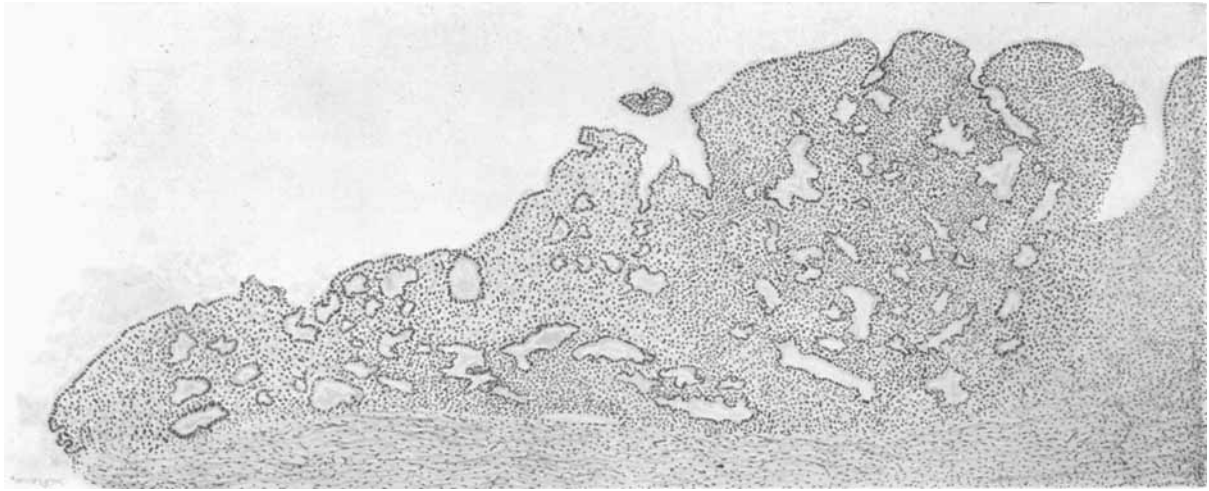


FIG. 3.

Section of the patch of endometrium shown in figure 2 under higher magnification. The typical appearance of the glands on the twentieth day of the menstrual cycle is seen. $\times 45$.



FIG. 4.

Section from the right ovary, showing endometrial tissue in direct contact with the ovarian stroma. $\times 100$.

inclusions of endometrium by way of the ovarian ligament, or even by intermixture of Müllerian and ovarian elements, in the intermediate cell mass, at an early stage of development.

In the following case it was possible to demonstrate the presence of endometrium in both ovaries associated with a normal uterus and normal tubes :—

Mrs. L. M., æt. 41, was referred to me by Dr. Andrew of Poulton-le-Fylde on January 9th, 1922. She complained of severe dysmenorrhœa, dyspareunia and other more vague symptoms. For many years previously she had received local palliative treatment at the hands of a gynecologist who had made a diagnosis of pelvic infection. One child had been born 13 years previously to my seeing her.

I, also, made a diagnosis of pelvic infection and advised an operation. This was performed on February 1st, 1922, the 20th day after the cessation of menstruation. Both ovaries were found to be adherent and to contain cysts or cavities in which were collections of thick, dark blood. Supravaginal hysterectomy with removal of both tubes, ovaries and the appendix was performed. An apparently healthy portion of the left ovary was preserved and used for an ovarian graft in the right rectus muscle. The body of the uterus and the appendages are shown in figure 1.

The patient made an uninterrupted recovery.

I heard on March 1st that the patient was much upset with menopausal symptoms—headaches and hot flushes. I advised her doctor to prescribe for her ovarian and thyroid extracts. On June 16th last I saw and examined the patient: she was then just finishing a normal menstrual period lasting seven days.¹ This is very interesting, for she is menstruating from the cervical canal which is 1 inch in length. The cervix is freely mobile and there is nothing whatever to be felt abnormal in the pelvis. Owing to the fact that there is an ovarian graft the patient is menstruating even in the difficult circumstances mentioned. The flushes have disappeared and the patient is in excellent health.

In the sections made from either ovary endometrium was found.² A patch of this structure from the right ovary is illustrated in

1. Since this paper was sent to press I have heard that the patient has had two more normal menses.

2. The pathological report of the specimen, received in the laboratory on February 1st, was written on February 21st, 1922. This case is therefore the first of its kind observed in this country. It was freely mentioned to gynecologists at the time. This paper was received by the Editor of this JOURNAL on April 12, 1922, but was reserved for publication until after the Liverpool Congress at which it was read. Previously the paper had been put on the programme of the North of England Obstetrical and Gynecological Society for communication on April 21st, but this meeting was postponed. At the adjourned meeting of this Society on May 5th I was unable to be present, so the paper was not read. Professor Donald at this meeting read a communication in which he stated that he had had an idea that 'the chocolate cysts,' which are often associated with so-called adenomyomata of the uterus, might be found to be due to the same condition in the ovaries, but that he had not proved this in any of his cases. Professor Donald also stated that evidence was forthcoming from certain publications in support of this belief (*Brit. Med. Journ.*, 1922, 1, 839); and my case, which was known to many, was, so I am informed, mentioned in the discussion. At a later date Dr Fletcher Shaw had a case in which the ovaries presented the features under discussion. The credit for the discovery of this interesting pathological condition and its clinical importance is, however, entirely due to American investigators, and in particular to Sampson.

figures 2, 3 and 4. In figure 2 the whole endometrial area with the surrounding ovarian tissue is depicted. Figures 3 and 4 represent higher magnifications of the endometrial tissue, the appearance of which is identical with that of the uterine mucosa, and in both the endometrium resembles the normal in the early premenstrual phase. It will also be observed that epithelium similar to that covering the endometrial tissue lines the wall of the cyst into which the endometrioma projects. In the specimen from this ovary there is but little muscle tissue surrounding the endometrium and probably not more than might be present as the result of hyperplasia in the involuntary muscle of the ovarian stroma under stimulation such as that to which the uterine muscle is subjected at puberty.

In sections from the left ovary the endometrial tissue is more definitely related to bundles of muscle fibres (figs. 5 and 6); hence the proper term to describe the formation in this case is 'endometriomyoma'. This relation of upstripped ovarian muscle fibres to the endometrial tissue is clearly to be noted in the illustrations of Sampson⁴.

From what I have already said concerning the origin of these formations it is possible that the two conditions are closely related and are different degrees of Müllerian aberration; nevertheless, it is probable that all unstripped muscle fibres in relation to endometrial tissue in the ovary are merely those which are normal to the ovary but which have undergone hyperplasia.

Sections were made of the ovarian ligaments on either side at the junction of the ligament with the uterus. No trace of endometrial tissue was found. Consequently the lesions present were independent endometrioma and endometriomyoma respectively of the ovaries.

Such cases are not uncommon, and it is probable that before long many will be recorded.

I, like other gynæcologists, have had some of these so-called 'chocolate cysts' examined histologically, but hitherto no endometrium has been reported. In the case just recorded I took the specimen to my laboratory and told my assistants that endometrium would be found, as, indeed, it was in the first sections cut from either ovary.

The observations of Sampson that endometrium in the ovary is the cause of the so-called 'chocolate cysts' has, therefore, proved to be a very interesting pathological contribution to the solution of a clinical difficulty.

REFERENCES.

1. Casler, De Witt, B. *Trans. Amer. Gynecol. Soc.*, 1919, xlv, 69.
2. Cullen, T. S. *Archiv. Surg.*, 1920, i, 215.
3. Russell, W. W. *Bull. Johns Hopk. Hosp.*, 1899, x, 8.
4. Sampson, J. A. *Trans. Amer. Gynecol. Soc.*, 1921, xlvi, 162.



FIG. 5.

Section from the left ovary, showing involuntary muscle fibres surrounding endometrial tissue. $\times 64$.

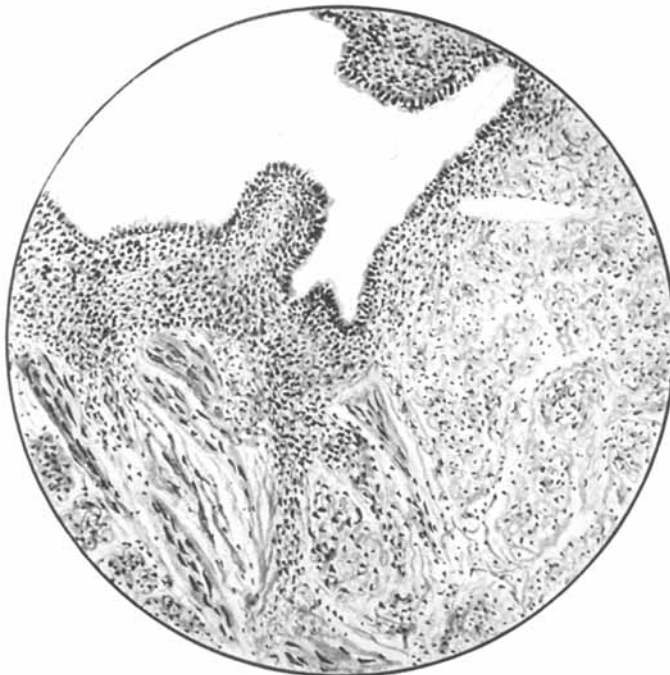


FIG. 6.

Section from the left ovary, showing involuntary muscle fibres in relation to endometrial tissue. $\times 150$.