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On Painful and Tender Incipient Ovarian Tumours.

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EXPERIENCE teaches us that an inflamed ovary is tender to the touch. On the other hand, we know that a pedunculated* ovarian glandular papillomatous or dermoid cyst is not necessarily tender. The great majority are entirely overlooked until they have risen above the pelvis, and after that epoch in their history tenderness implies certain well-known complications.

Again, an inflamed ovary feels painful, whilst an ovarian tumour, complications apart, does not, as a rule, give rise to pain, a very plain explanation of the fact that it is so often overlooked in its earliest stages.

Then, when a large ovarian tumour distends the abdomen, there may be similar disease on the other side, in an incipient condition. We know from repeated experience, that the smaller tumour, still in the pelvic cavity, causes no pain at all, and is not tender on palpation, at least such is the rule. On the other hand, an inflamed ovary is occasionally associated with a large cyst of the opposite ovary. The former, pressed upon by the tumour, is in such a case very painful and markedly tender to the touch.

To the above rules, however, there are exceptions. An inflamed ovary may not be very tender, whilst in subacute inflammation the pain may be trifling. More important is the fact that an ovarian tumour in its earlier stages, before it has risen above the pelvic

* True ovarian tumours more or less encapsuled and all other broad ligament tumours, are not considered in this communication; but we must remember that even when tense they are seldom painful or tender.

brim, may be both painful and tender. I may add that pelvic symptoms really due to inflammatory changes in the opposite ovary or even in the uterus may obscure diagnosis, but in the two cases which I will describe in full, there was a painful tumour without any pelvic inflammation.

The credit for turning attention to the diagnosis of small ovarian tumours must be awarded to Dr. Davenport, of Boston, Mass.* Two years later I myself reported six cases from my own practice, rejecting a considerable number where it was not certain that the cystic degeneration of the ovary represented a true neoplasm.† Whilst Davenport confined himself to the consideration of cases where the tumour was so small as not to cause any appreciable enlargement of the abdomen, I have further excluded all where the tumour was not absolutely below the pelvic brim, and where at the same time there was much pain such as is experienced by patients with inflammation of the appendages. In all except one (case 6 in the tables) the pelvic tumour was recorded as distinctly tender to the touch, and I am under the impression that in the remaining case, an instance of myoma, the tumour was slightly tender.

Davenport avowedly discussed "small ovarian tumours." His series must be noted here. It included 10 cases. In 8 there was pain, whilst in one of the 2 in which it was not present the tumour had just begun to distend the abdomen, the swelling not being "appreciable," that is to say, it was not detected by the patient, but was found out accidentally by the doctor whom she consulted on account of hæmorrhage. In my experience the majority of ovarian cysts give no pain at first. Unfortunately, Davenport includes no systematic notes of pelvic exploration in his report, and in none out of the ten cases is it stated that the tumour was tender to the touch. This writer, it must be added, investigated with great care the menstrual history of his cases, with one exception. Thus, out of 9 cases there was menstruation normal in degree in 2, in one of the 2 it was painful, marked diminution in 1, and menorrhagia in 6. In 2 out of the 6 the bleeding was severe. In the case of diminution of show and in one of the cases of menorrhagia there was a big, heavy uterus, and its relation to the catamenial disturbance was not evident.

* "The Diagnosis of Small Ovarian Tumours." *Boston Med. and Surg. Journ.*, 1896, Vol. cxxxv., p. 353.

† "Ovarian Tumours simulating Inflamed Ovaries, including a Case of Ovarian Myoma." *Edinburgh Med. Journ.*, New Series, Vol. iii., 1898, p. 449.

Before turning to my own experience, I will relate Davenport's conclusions:—

(1) Small pelvic tumours are usually accompanied by well-marked symptoms.

(2) Pain is usually present, but its seat does not have any constant relation to the kind of tumour or to its location.

(3) Menstrual disturbances are the rule, and by far the most frequent abnormality is menorrhagia or metrorrhagia, or both.

(4) There seems to be a direct causal connection between severe uterine hæmorrhage and cystic ovaries, which are closely adherent to the uterus.

(5) Uterine hæmorrhage associated with a pelvic tumour which is uninfluenced by intrauterine treatment (curetting or electricity) is more likely to be due to an ovarian tumour than to a fibroid.

(6) Reflex symptoms are comparatively rare, and occur in the later stages of the disease.

Want of space forbids me from discussing these conclusions in full. No. 5 is very doubtful, but the question of the differential diagnosis of small uterine fibroids from small ovarian tumours must be put aside. In No. 1 and No. 2 "usually" should, in my experience be replaced by "exceptionally." Davenport is quite correct as to the uncertain relationship of the seat of pain and the character of the tumour. In No. 3 "the rule" is questionable, No. 4 deserves careful clinical investigation, No. 6 I believe to be quite true.

I have said enough to explain that though the experienced may not accept all Davenport's conclusions, they deserve much consideration. I find that sometimes small ovarian tumours are accompanied by well-marked symptoms and that not only pain, but tenderness, on touch, may be present. I will confine myself to the consideration of such cases, under the strictest limitations as above laid down. The series includes 9.

A full report of the first six cases will be found in the paper to which I have already alluded. For convenience, I have arranged them, with the newer cases, in a table, which, I believe, will facilitate reference. I will now record three more under my care since the original paper was issued.

Case vii. A. A., 31, married 7 years, 1 child aged 6, no abortions, was admitted into my wards in the Samaritan Free Hospital on November 18th, 1903.

This patient had been, ever since February, 1903, under the observation of Dr. Cuthbert Lockyer in the out-patient department of the same hospital. At first she complained of pain in the left

iliac fossa, slight yellow discharge, and occasional scalding micturition. The period was regular, scanty, and very painful before the show appeared. The note on February 25th was "uterus retroverted, both ovaries prolapsed." On May 16th there was "great pain in left sacral region, uterus nearly vertical, mobility impaired, ovaries not felt." On September 30th I admitted the patient, kept her at rest for a few days, and discharged her at the end of a week, after applying a ring pessary; the uterus was distinctly retroflexed.

On readmission on account of continuance of the pain, a tender body like an enlarged ovary could be felt in Douglas's pouch; it was quite movable, the tenderness was marked, even when very gently touched. The displacement of the uterus remained unaltered; the vaginal discharge had disappeared altogether. The temperature remained a little above normal for a fortnight.

The patient was much worried by the long-standing pelvic pain. I kept her at rest for three weeks, and then did an exploratory operation on December 8th, 1903. I expected that ventro-fixation of the uterus would be necessary, and that probably I should find extensive tubal disease.

I was somewhat surprised to find no adhesions of any kind. The internal organs had sunk down low in the pelvis, which was elevated during the operation. The uterus was bulky and dragged back by the right ovary, which was very heavy and considerably enlarged; its tube was healthy, and the left tube and ovary showed no sign of disease. Considering the suspicious history of discharge of several months' duration, with pelvic pain referred to the left side, the absence of all trace of inflammatory disease, even in the left tube, was remarkable.

I at once was reminded of certain cases in my operative practice already reported, therefore I removed the right appendages and pulled the uterus upwards and forwards. Recovery was uneventful.

I examined the patient on March 15, 1904. She complained of occasional pain in the right iliac fossa, not rare when there is the pedicle of a recent ovariotomy in its neighbourhood. The uterus was no longer retroflexed, although the patient had been walking about ever since the middle of January; hence it must have been the weight of the right ovary that pulled its body backwards. There was no resistance or tenderness in the right fornix. Menstruation was scanty, with pain preceding the show, as before the operation.

The right tube and mesosalpinx were normal. The ovary was converted into a round body, feeling like a lump of fat. There was

a large corpus luteum on its surface posteriorly, high up close against the attachment of the mesosalpinx. The entire ovary measured $2\frac{1}{2}$ inches horizontally, 2 vertically, and about as much antero-posteriorly. Dr. Lockyer carefully preserved the ovary in formalin, and laid it open when it had become sufficiently hard. It was found to be a dermoid cyst filled with fat, which contained a few distinct hairs.

Case viii. M.R., 20, single, was admitted into my wards in the Samaritan Free Hospital on February 18th, 1904. She had been under the care of Mr. Corrie Keep, in the out-patient department since January 1st, as she had been subject for two years to pain in the right iliac region and loin. It prevented her from attending to her duties in service, but the pain subsided whenever she kept her bed, returning after exertion. She had also noted discharge from the navel, apparently due to eczema. Mr. Keep found the integuments of the umbilicus free from disease, and there was no vestige of a urachal fistula. He noted: "Uterus small, mobile, forwards and rather to right, cervix small and conical, os very small. Behind in Douglas's pouch and to left, is a tense, elastic, smooth, mobile, round swelling of the size of a Tangerine orange, probably small ovarian." At the end of six weeks the patient still complained of pain, and therefore was admitted.

The patient, though born in London and never in her life a resident in the country, was remarkably healthy and well-nourished. In no sense was she neurotic, and there was no hyperæsthesia. The uterine cavity measured 3 inches, and a tender, movable oval body lay in Douglas's pouch, and much more to the left than to the right. The tenderness was apparently of the usual ovarian type, causing a sensation of nausea. The catamenia were regular, appearing every four weeks, with moderate show and always more or less pain. The temperature was normal, the pulse 80, regular, small volume. The patient had never suffered from any illness except measles, which attacked her in early childhood. I have known much damage to be done to the ovaries in scarlet fever, as in typhoid,* but this patient had never suffered from those maladies.

This case reminded me strongly of those already published, as there was little, if any, evidence of past inflammation. Still, I felt a little doubtful about diagnosis. An inflamed ovary may be palpable, as a tender body which, after rest, disappears almost completely.

* In a case of scarlet fever under my notice, permanent amenorrhœa followed, and the young patient assumed the appearance of a thin, elderly spinster. Typhoid and cholera may disorganise the ovaries. There is no evidence that typhoid promotes the development of cystic disease, as Knowsley Thornton used to believe.

I operated on March 1st, 1904. There were no adhesions, abdominal or pelvic. The right ovary was converted into a cyst of the size of a small orange, and lay in Douglas's pouch and the left fornix, pushing up the left ovary, which seemed quite normal, and bore a corpus luteum on its surface. The right ovary was removed.

In this case the pain had been felt in the right iliac fossa, and therefore corresponded to the side of the ovary affected, whilst the tumour was found on palpation to be more to the left than the right. A heavy ovary tends to fall towards the opposite lateral fornix when there are no adhesions; the same is the case with a heavy tubal mole; thus I once found a gravid right tube lying almost entirely in the left fornix. The patient recovered speedily.

Dr. Lockyer put the ovary into formalin solution and cut through it vertically three weeks later. The Fallopian tube and mesosalpinx were healthy and in normal relation to the ovary, which was 2 inches in vertical and $1\frac{3}{4}$ inches in horizontal measurement. The ovary on section showed a cystic cavity, relatively small. It contained a clear fluid, which, as Dr. Lockyer remarked, did not become a solid semi-opaque jelly like the fluid contents of a glandular ovarian cyst hardened in formalin. Into this cystic cavity protruded two masses of fat containing hair, behind which was a considerable tract of normal ovarian tissue, including two old *corpora lutea* becoming cystic. There were also a few graafian follicle cysts; the liquor folliculi had solidified as a semi-opaque jelly.

The last case came under my care before the seventh and eighth, It is of peculiar interest on account of the age of the patient.

Case ix. Mrs. P., 63, married many years, was referred to me in March, 1903, by Dr. Styan, of Ramsgate. He wrote on April 2nd: "She is 63, and has always had good general health. Last October she first had pain in the hypogastrium and sickness. The pain has continued more or less ever since, and extends at times down the right thigh; it is increased by walking, defæcation is often painful, but not micturition." There was great difficulty about defining the pelvic condition; a muco-purulent discharge had been observed and endometritis certainly existed.

The patient was a stout, elderly woman, a little weak owing to a recent attack of influenza followed by bronchitis. She had borne 8 children. Her last confinement occurred nineteen years before she came under my care. The menopause occurred rather suddenly at 49. When young the show used to be very free. There was no rise of temperature, and the pulse was 90, strong, and regular.

The cervix was short and soft and pressed down by a soft body,

which was distinctly tender. Its association with the cervix was impossible to define precisely, even under an anæsthetic. I operated in a nursing home. On opening the peritoneal cavity a dull red tumour was exposed. I passed my hand behind and under it, and pushed it up gently, but its walls, being very soft, burst just as it came out of the abdominal wound. Much pale ochre-yellow fluid and greasy hair escaped. It was a dermoid cyst of the right ovary with a normal pedicle, including Fallopian tube, mesosalpinx, and ovarian ligament. The uterus was small and soft, and there was no evidence of cancer of its body, and the patient remains in good health. The left ovary was small, hard, and atrophied.

In considering this series nine seems a very small number, but, in truth, if all the limitations I have laid down be observed, these cases will be found to be rare. I have excluded all instances of small ovarian tumours still in the pelvis where, after some inquiry, the patient admits that she has occasionally felt pains in the pelvic or hypogastric regions; many such cases have come under my care, but in none did the patient seek relief on account of pain as in all the nine included in the appended table. Far more rare is tenderness on touch, quite distinct from hyperæsthesia.

A brief analysis of these strictly defined cases may prove of some interest.

Age. Four of the patients were between 20 and 30 years old, 2 between 30 and 40, 2 between 40 and 50, and 1 as old as 63. The case in an old woman suggests that the tumour (a dermoid) was latent rather than incipient, but that question cannot be discussed at length. Latency, or more accurately speaking, arrested development, might have existed in some of the other cases, even in the youngest. It is possible that arrested development from some influence in the tumour itself may involve pain, a question to which I shall return. But as to the question of age in relation to pain and tenderness, I have found those symptoms conspicuous as a rule by their absence in patients of any age with small ovarian tumours.

Menstruation. The relation of this phenomenon to the other conditions in these cases was very irregular. In 3 it was normal, with pain in two out of the three. In only 2 was there menorrhagia. Davenport, like myself, did not find this symptom constant, Coe and Tait have noted its association with small ovarian cysts. In all 3 cases of dermoids before the menopause menorrhagia was absent. In my own experience increase of the menstrual flow is by no means the rule in the history of ovarian tumours, and when it is present it may be due to uterine, tubal, or general disorders. It is not the

rule in fibroma of the ovary, and it was absent in the case of pure myoma (No. 6).

In 3 cases the period was scanty, but in 1 (No. 4) the patient's health had been greatly impaired, and in Nos. 1 and 7 the flow of blood was naturally slight. Amenorrhœa tends to develop in cases of malignant disease of the ovaries, but not as a rule until they have risen above the pelvis. Lastly, 1 patient had passed the menopause (No. 9).

The most definite feature about menstruation in association with these small and painful tumours is the fact that menorrhagia is not the rule.

Displacement of Uterus. This subject naturally enters the mind of anyone interested in the general question under consideration. It was the exception. There were two definite cases of backward displacement and one where the old, atrophied uterus was anteverted by a small, heavy dermoid (No. 9). In this instance the deviation of the uterus from its normal axis could hardly have accounted for the pain. Anteversion by the pressure of a large ovarian tumour is very common, and I have never found it to be in itself a cause of pain. On the other hand, in the 2 cases where there was backward displacement (Nos. 6 and 7), there is very good reason to believe that it played a part in causing pain, whilst it was the result of the development of a small heavy tumour (No. 6 myoma, No. 7 dermoid) which dragged on the uterus.

These two cases seem very definite, but the fact remains that backward displacement was not constant, but, on the contrary, exceptional.

We must note No. 1 in association with displacement. A cystic ovary as big as a hen's egg lay in Douglas's pouch, incarcerated there by the utero-sacral ligaments which firmly gripped its pedicle. I have no doubt that this condition accounted for the pain. The uterine body in retroflexion is sometimes gripped in this manner, with painful results. Large tumours with their bases in Douglas's pouch overcome the resistance of the utero-sacral ligaments very speedily. Hence there is not the pain experienced when a narrow pedicle is gripped by these ligaments.

Evidence of Inflammation. This is another very important factor. Out of these 9 cases it was only present in 2 (Nos. 3 and 4) and in these 2 alone were any *adhesions* found—the most definite evidence of inflammation. It is interesting to note that in the 4 cases of dermoids (Nos. 2, 7, 8, and 9) signs of old or recent inflammatory changes were conspicuously absent, remarkable when

we bear in mind how common they are in association with dermoids above the pelvic brim.

Turning to the cases where inflammation was a definite feature, in No. 4 the patient had suffered from suppurative parametritis, badly neglected. Yet there was no adhesion except between the right Fallopian tube and a piece of omentum. This case would have interested Matthews Duncan, who insisted that parametritis and perimetritis were absolutely distinct. No. 3 is interesting. The left ovarian tumour was strongly adherent to the pelvic peritoneum, the only instance of adhesion of the tumour itself in the entire series. We must note how both Fallopian tubes were quite free from disease. But the ovarian cysts were the seat of hæmorrhages. The case seems clearly an instance of inflammation of a pair of small cysts, with intra-cystic hæmorrhage, a condition not unknown in larger tumours. We must observe that in no case was the pedicle twisted, not even in any of the dermoids so often the subject of axial rotation when large. The absence of this interesting and familiar complication, a fertile source of inflammatory changes, explains to a certain extent their rarity in this series.

In conclusion, I cannot say that there is any clear explanation why in these cases the tumours were painful and more or less tender to touch. In hydrops folliculi the pressure of the tense follicle on normal ovarian tissue undoubtedly causes pain, but in this series the cysts were not of that class. Possibly, however, there was painful pressure on normal tissue in these cases owing to some irregular or unusual development of the new cystic growth. I cannot feel sure of such an explanation, for I have often found quite three-quarters of the normal ovary lying intact on some part of the surface of a big cystic tumour, and I have examined incipient cystic ovaries where all trace of the normal tissue was already lost to the naked eye, but in neither of these opposite conditions were pain and tenderness necessarily present. Still, the above explanation is conceivable, especially in No. 3, where there was intra-cystic hæmorrhage. I must repeat what I already observed in the *Edinburgh Medical Journal* six years ago that we know of no special symptom nor group of symptoms by which a small painful ovarian tumour in the pelvis can be distinguished from an inflamed ovary. When rest causes pain to diminish, whilst the pelvic swelling increases, the evidence that the ovary is cystic and not inflamed will be strong but not conclusive.

We must admit that painfulness of a small ovarian tumour is of direct advantage to the patient, for it betrays the presence of the new growth, which may be removed before it can do mischief. In none of the operations on the nine cases in this series was there any complication of the slightest gravity nor was convalescence otherwise than speedy.

TABLE OF CASES OF PAINFUL AND TENDER INCIPIENT OVARIAN TUMOURS.

All the cases recovered from operation. For full clinical report of Nos. 1 to 6 see "Ovarian Tumours Simulating Inflamed Ovaries," *Edinburgh Medical Journal*, Vol. iii, N.S., 1898, p. 449.

No.	Age	M. or S.	Children	Menstruation	History of Illness	Physical Signs	Condition at Operation	Nature of Tumour
1 E.H.	35	Md. 15 yrs.	3, youngest 12, no abort.	Reg. 4 wks., scanty, latterly painful	2 years persistent abdom. pain, much worse last 3 weeks	Uterus fairly movable. Small tender body right fornix; larger tender body left fornix	Not a trace of any adhesion. Left tumour incarcerated in Douglas's pouch by utero-sacral ligaments. Both ovaries diseased, removed	Papillomatous cystic disease of both ovaries
2 M.M.	44	Wid.	2, youngest 13	Reg., show moderate, apparently painless	About 1 year, severe pain referred to right side of pelvis. Dysuria during attacks	Uterus small; little tender body in left fornix; apparently fixed 2 months before operation. Just before operation it was larger and could be pushed upwards	No adhesions, right ovary, tube and uterus normal, cyst of left ovary which was removed	Dermoid cyst of left ovary, $3\frac{1}{2}$ oz. fat, with hairs
3 Miss M.	25	S.	—	Menorrhagia, almost 2 wks., not very painful	1 year, pains in loins and left iliac fossa, severe dysuria	Uterus displaced to left, cavity 3 inches, tender swelling in left fornix and Douglas's pouch, fixed; smaller swelling in right fornix	Left ovary strongly adherent to pelvic peritoneum; tubes both normal. Both ovaries removed	Cystic adenoma both ovaries, main cavity in each ovary full of blood
4 S.B.	28	Md. 11 yrs.	2, youngest 8, abort. 2 years	Reg. 4 wks., scanty, very painful	Parametric abscess after miscar., 2 yrs. Pain in *left* iliac fossa, 7 weeks	Large tender swelling in *right* fornix, pushing uterus to left; hernia of parietes right groin at site of rupture of old abscess	Both ovaries cystic, no adhesions except between omentum and right tube. Both tubes dilated. Both ovaries and tubes removed, hernia repaired	Cystic disease of both ovaries, papillomatous growths in right cyst. Papilloma of left tube
5 E.M.	41	Md. 11 yrs.	4, youngest 13 mths., abort. 2 years	Reg. 4 wks., menorrhagia severe	Subject to menorrhagia since miscarriage, recently severe pain right iliac fossa and sacral region	Enlarged uterus tender, big swelling in right fornix. Uterus diminished in size after curetting, pelvic swelling increased	No adhesions nor evidence of pelvic inflammation. Cyst of right ovary, tube healthy, left ovary and tube normal; removal of right ovary and tube	Cystic adenoma of right ovary

No.	Age	M. or S.	Children	Menstruation	History of Illness	Physical Signs	Condition at Operation	Nature of Tumour
6 A.B.	27	S.	—	Reg. 3 wks., moderate show, much pain	9 months severe bearing-down pains (posterior lip of cervix uteri containing small cyst amputated 18 days before ovariotomy). No note about tenderness	Uterus 3 inches, *retroflexed*; oval body in left fornix connected with an elastic mass in Douglas's pouch. *Right fornix free*	No adhesions. Uterus retroflexed and retroverted by a heavy double tumour of *right* ovary, which had fallen behind and to the left of uterus. Left ovary normal; both tubes normal; right ovary removed	Solid myoma of right ovary, with a small almost unilocular cyst
7 A.A.	31	Md. 7 yrs.	1 child 6 yrs., 0 abort.	Reg. 4 wks., scanty, very painful before show	9 months pain left iliac fossa, retroversion of uterus. At first suspicious vaginal discharge, ovaries seemed prolapsed	Uterus *retroverted* and *retroflexed*. Movable, tender swelling in Douglas's pouch	No adhesions. Uterus pulled back by a heavy tumour of the right ovary. Tubes and left ovary normal. Right tube and ovary removed	Dermoid cyst of right ovary
8 M.R.	20	S.	—	Reg. 4 wks., show moderate, always pain	2 years pain right iliac region and loin	Uterus 3 inches; a tender, enlarged, oval body in Douglas's pouch and *left* fornix	No adhesions. Heavy cyst of right ovary, which had fallen behind and to *left* of uterus. Tubes and left ovary normal. Right ovary removed	Dermoid cyst of right ovary
9 Mrs. P.	63	Md.	8, youngest 19, 1 abort. over 30 yrs.	Menopause 14 years, menorrhagia when young	Hypogastric pains 6 months, beginning with sickness, mucopurulent discharge from uterus	Uterus small and soft, firm tumour, size of tennis-ball, tender to touch, its relation to uterus not clear	No adhesions. Heavy cyst of right ovary pushing down an atrophied uterus, no torsion of pedicle. Left ovary atrophied. Right ovary removed	Dermoid cyst of right ovary. Dull red, soft wall, single cavity full of grease and hair