

the fibroid in each instance caused such severe losses of blood during the puerperium that an operation became an urgent necessity.

I have tested these points by reference to other cases under my care, and the conclusions are confirmed, so there is no reason to encumber the lecture or the reader with a longer table.

My knowledge of this red change in fibroids of the uterus complicating pregnancy is founded on a study of thirty-two examples which have occurred in my practice.

I hold no opinion as to its cause. The presence of micro-organisms in the degenerated tissue is in all probability exceptional; the thrombosis and the infarction theories require more proof. The only facts established in regard to red degeneration of fibroids is its proneness to occur in them when the uterus is gravid. Fibroids so changed seriously menace pregnancy.

ON THE SPONTANEOUS RUPTURE OF CYST-ADENOMATOUS OVARIAN TUMOURS.

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THE main aim of this communication is to urge (1) that the primary cause of cyst rupture in cases of ovarian cyst-adenoma is tumour degeneration (necrosis), (2) that the rarity of cyst rupture in relation to the frequency of tumour degeneration is not inconsistent with the adequate vascular compensation almost invariably supplied by adhesions to the degenerated tumour, and (3) that these adhesions are simply reparative and are not, as generally stated, the result of peritonitis. The innocent leakage through attenuated and thin cyst walls, a common and normal occurrence, is distinguished from the rare rupture: on the absence in the former, or on the presence in the latter, of clinical manifestations is based a working distinction.

Cyst rupture as an appreciable clinical and pathological complication is one of the accidents in a case

of ovarian cystic tumour, and just as in a case of accidental haemorrhage during pregnancy, trauma, or violence in the history of its causation, is almost invariably wanting.

The records from the earlier and darker days of ovariectomy of sixty-six and eighty tappings of an ovarian cyst leave no doubt as to the healing power of the normal cyst wall.

Meredith¹ reported an exceptional result of tapping in a case of his which became famous as evidence of the vital activity and resistance of the peritoneum; in a single woman, aged 47, after one tapping the refilled cyst ruptured and reruptured, into the peritoneal cavity, thirty-four times, and on each occasion with local pain and subsequent diuresis. At the end of a ten years' history the ovarian cyst, containing 21 pints of fluid, was removed with success; only a few filamentous adhesions around the aperture of the original puncture were found during the ovariectomy by Meredith.

Sir Spencer Wells² discussed adhesions after tapping; he stated that they were most frequently absent, and that there were firm adhesions in some patients who had never

been tapped; the mortality table of 500 cases after one to eighteen cyst tappings proved that tapping itself had little adverse influence on subsequent ovariectomy in his hands.

The revival of tapping is not to be desired. Sir Spencer Wells said that during later years he became more impressed with the danger of putrefactive changes after tapping without antiseptic precautions.

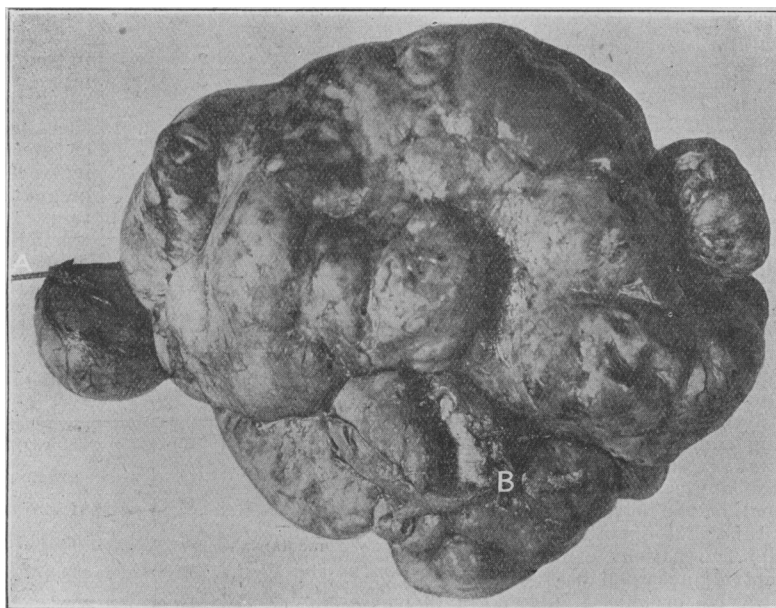
In the absence of infective organisms and of loose particles of growth capable of implantation, intraperitoneal cyst rupture—at the time unattended by serious haemorrhage—is of itself a harmless, or almost harmless, pathological process; but, inasmuch as the opening from a degenerated cyst is permanent, the contents continuously dribble without any barrier of defence such as is provided by the haematocele sac around a chronic tubal drip in a case of tubal mole. Hence, free intraperitoneal fluid (hydroperitoneum), devoid of any plastic properties, bathes on all sides the loose tumour.

Elsewhere,³ Dr. T. E. Walker and myself reported on the invariable absence of hydroperitoneum when adhesions were universal, whether with innocent or cancerous tumours and after torsion of the pedicle.

Cancerous tumours as a rule degenerate earlier, and adhesions are, or rupture is, earlier and more frequent than with simple tumours.

Degenerative changes are the common exciting causes of adhesions. Cyst rupture does not occur at the site of adhesions, but through unprotected degenerated areas of cyst wall. In Case 153 in Sir Spencer Wells's table of 1,000 ovariectomies there were, to portions of the tumour, parietal and omental adhesions, and there was, over other non-vascular, central portions of degenerated patches, demonstrated in the same tumour, a covering of recent plastic exudate.

Where repair from without is defective the degenerated portions of the cyst wall may rupture. This is what had clearly taken place in the four cases of my series.



Case 1.—A. H. A, Probe in Fallopian tube. B, Site of rupture.

CASE 1.—The aperture of rupture measured $\frac{3}{4}$ in. by $\frac{1}{2}$ in.; its edges were raised, everted, and adenomatous; the aperture led into a central cyst—half the size of the whole tumour—surrounded by tiers of small cysts; the small cysts contained thick, mucoid fluid. The whole tumour measured 7 in. by 7 in. by 3 in.; necrotic in many areas; two patches of adhesions to bladder and rectum denoted early degeneration before the tumour—then the size of an orange—ruptured (*vide infra*).

A. H., aged 27; six years married; two children; each born by normal labour.

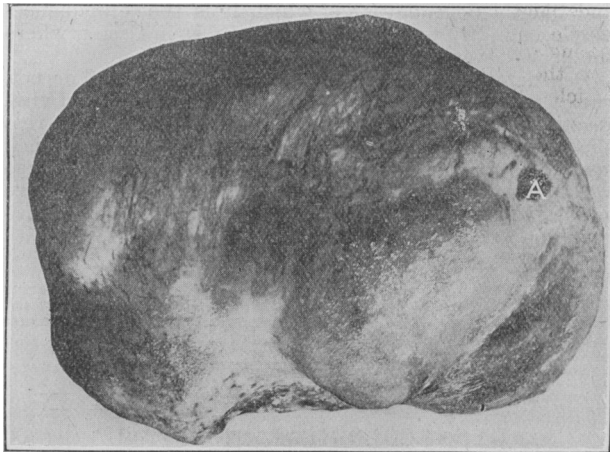
History.

Menstrual losses recurred fortnightly from the birth of the second child in August, 1906, to August, 1907—that is, for exactly one year; subsequent menstrual suppression continued for 16½ months; epistaxis is stated to have recurred frequently and irregularly during the menstrual suppression. Dr. James Utting of Preston, who sent the patient to me on January 20th, 1909, wrote: "The first abdominal pain, four months after the birth of her second and last child, was attributed to acute peritonitis; several weeks afterwards the abdomen was full of fluid; after tapping the abdomen, the tumour, the size of an orange, was felt; the intraperitoneal fluid reaccumulated with varying rapidity, and once there was a three months' interval between the tappings; latterly the large amount of over 2 gallons has been removed every fortnight or three weeks; the fluid has always been clear, pale in colour, and thin; specific gravity, 1005; only once a little blood was present; the oedema of the legs of a few months ago has not returned." The total number of tappings was fourteen.

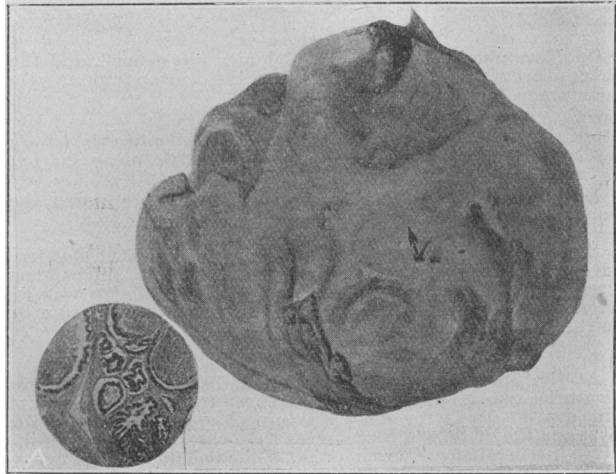
Physical Examination.

January 20th, 1909. The abdomen had been tapped the previous day; 3½ gallons of fluid were then withdrawn. The

CASE II.—Ruptured cyst: circular opening ¾ in. in diameter: cyst-adenoma of the right ovary, 6 in. by 6 in. M. A. D. (sent by Dr. F. J. Knowles, St. Helens), aged 26



Case II.—M. A. D. A, Site of rupture.



Case III.—M. G. Site of rupture indicated by an arrow. A, Photomicrograph.

faccid state of the abdomen aided the palpation of the firmly cystic, lobulated, mobile tumour. The patient was feeble and emaciated; the flexure surfaces of her forearms were hollowed. Her strength was barely equal to the contemplated radical operation; she returned to Preston, in spite of entreaties not to waste time and not to allow the fluid to reaccumulate. She again came to Liverpool five days later and entered the Hospital for Women.

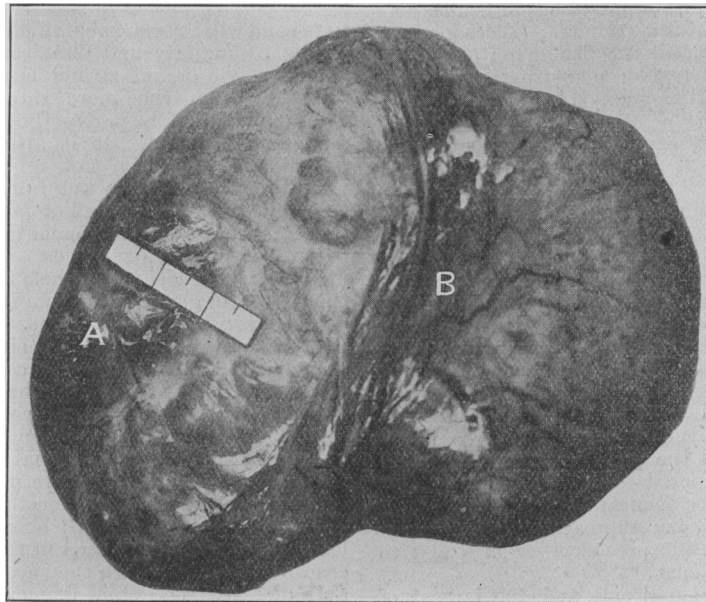
Operation.

On January 27th the abdomen was opened; 17½ pints of free fluid; specific gravity 1006; alkaline; mucin and protein present; probably a mixture of ascitic and ovarian fluids (Dr. T. W. Jones). The pedicle, 3½ in. wide, was laced through and through with No. 0 catgut. There were two localized adhesions to bladder and rectum.

After-History.

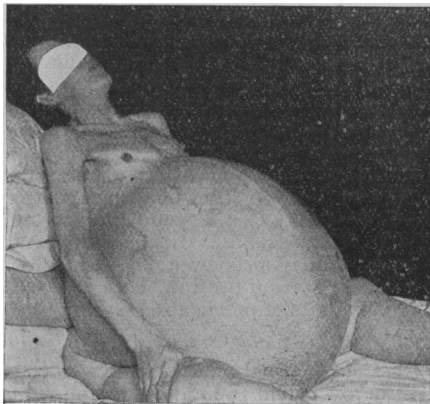
For a few hours she appeared to be dying; pulse 160; later she rallied appreciably, and the next day her condition was hopeful. On the fifth day Dr. McClellan, the house-surgeon, found and afterwards successfully treated a small carbuncle, 1½ by 1½ in., on the back of her neck. The highest temperature was 99.2°, on the fifth day after the ovariectomy, when the carbuncle was found; her pulse at that time remained at 120.

She is now well advanced in convalescence, in spite of a whitlow on the middle finger of her right hand, self infected from contact with the carbuncle.



Case IV.—E. B. A, Site of rupture. B, Omental blood vessels.

COMPARISON OF THE EFFECTS OF SIZE ALONE.



Large growth with adhesions, ovarian cyst-adenoma with degeneration. Grave emaciation.



Combined pregnancy and cyst-adenoma: large size without evident degeneration. Slight emaciation.

M. G., a patient of Dr. Hugh T. Shaw, aged 50; single. Before the climacteric, at 44, menstruation had been regular. For two

History.
History of ill health and increase in the size of the abdomen; she did not consult a doctor. During lactation for nine months after the last confinement there was menstrual suppression; menses afterwards regular until four months ago; since then the flow recurred fortnightly with pain. Throughout the whole day preceding her admission, from 9 a.m. onwards, the patient suffered from distressing vomiting, wrongly attributed to poisoning by uncooked plums consumed overnight.

Operation.

She was admitted into the Hospital for Women on August 18th, 1902, with fever, 100° F., pulse 120; irritable bladder and constipation. The abdomen was tightly distended and tender; there was free fluid and a tumour. On August 19th, the day after admission, the abdomen was opened; removed; its pedicle was laced with catgut.

After-History.

A nightly rise of temperature of 100.4° F. for the first three days, and afterwards an normal temperature were recorded. The pulse fell from 120 to 80.

CASE III.—Cyst-adenoma of right ovary with circular opening of rupture ¾ in. in diameter: tumour 6 in. by 6 in.

years she had complained of sickness and weakness. Six months ago her abdomen was swollen. She has lost flesh. Abdominal pain at intervals. The abdomen contained free fluid around an ovarian cystic tumour. The fluid decreased in amount during the few days she was at rest in hospital.

Operation.

On November 14th, 1900, the abdomen was opened, and the thick ovarian intraperitoneal fluid and the ovarian tumour were removed.

CASE IV.—*Cyst adenoma, 8 in. by 8 in.; one heavy tumour, tensely cystic along the right and less tensely cystic along the left border.*

E. B., aged 42, twenty-six years married, three children, the youngest 10 years old.

History.

History of abdominal pain for one year; irritable bladder; menses longer in duration and shorter in interval. She had lost flesh. She was a sallow, anaemic woman. There was an adenomatous polyp of the cervix uteri; the ovarian tumour in the abdomen reached 2 in. above the umbilical level.

Operation.

At the operation on February 16th, 1909, the pedicle was ligatured and the whole tumour removed from amidst a pint of free ovarian fluid; the small aperture of recent rupture of the cyst and the dribble of its contents were observable through the large incision before the tumour was handled during the operation. Adhesions supplied by one omental band of blood vessels attached to the tumour some distance from the site of rupture.

A brief analysis of the four cases is suggestive. In non-malignant cyst-adenomata the clinical manifestations are those of—

(a) Tumour degeneration: (1) impairment of health disproportionate to the size of the tumour; (2) abdominal pain; (3) variable distension of the abdomen; (4) irritability of the bladder; (5) irregular menstruation subject to the usual modifications of pregnancy, lactation, and the climacteric.

(b) Rupture of the cyst, acute pain, recurrent pain, vomiting, the accumulation at a variable rate of free fluid in the abdomen.

The diagnosis of cyst rupture by free intraperitoneal fluid can only be (1) positive, when the partially-filled cyst can be felt or when the previously firm cyst has completely collapsed; (2) presumptive, when the clinical manifestations of degeneration and rupture have been obtained; and (3) occasionally and exceptionally, when the free fluid is small in quantity and the rupture minute, both may escape detection before and during the operation of ovariectomy. The modern preference for removal of the tumour entire, if practicable, accounts for a long incision in Case IV, whereby both the 20 ounces of free intraperitoneal mucoid fluid, and the dribble through the small aperture of rupture were exposed to view.

The teaching of Matthews Duncan—that, although the diagnosis of an ovarian tumour approaches practical certainty, it is not one of scientific precision—applies also to the recognition of complications.

The ovarian tumours of small size and the largest of only moderate size in my series of ruptured cysts had impaired the health of the patients to an extent unusual for the size of each growth. Not one was malignant. The general peritoneum, so far as it was visible, was only changed in one case (1), in which it was injected and thickened, but not shreddy.

The quantity of fluid in Case I may be estimated at 37 gallons, but it is not the fluid alone that exhausts the patient.

Records of tappings, as of other achievements during life, have been preserved in odd places. On the authority of T. Stafford Lee, an old tomb (1728) in Bunhill Fields Cemetery, inscribed with the name of Dame Mary Page, who died at the age of 55: "In 67 months she was tapped 66 times, had taken away 240 gallons of water." Several similar epitaphs have been discovered. A dried ovarian cyst in the museum of the Royal College of Surgeons⁵ is catalogued with this history: "Between 1757 and 1783, a patient, aged 27, to begin with, underwent 80 tappings, and lost 6,631 pints of fluid in 26 years."

The mechanical inconvenience caused to a patient by an abdominal tumour may be distressing. A multiple pregnancy or a combined ovarian tumour and advanced pregnancy entail physical inconvenience equal to that of an ovarian tumour of corresponding total size, yet the vital effects on the patient have always been widely different, as illustrated by the photographs.

Degenerative changes in cyst-adenomata are important; they frequently exist without clinical evidence, because the often slowly formed compensatory vascular adhesions they excite check or modify their course. Rupture is rare, and, like the degeneration of which it is the consequence, may occur early with a small growth, as in Case I, where the growth was the size of an orange.

Degeneration, whether the tumour be ruptured or not, varies in its effect on the patient with the degree of vital reaction she possesses, and with the total recumbent rest she takes; it may be revealed by corresponding clinical symptoms showing exacerbations or improvements. These variations are inconsistent with a locally progressive simple tumour, and they have not been shown to have been due to chronic inflammation.

REFERENCES.

¹ *Trans. Path. Soc. London*, vol. xxxi. ² *Ovarian and Uterine Tumours*, 1882, p. 168. ³ *Journ. of Obst. and Gynaec. of the British Empire*, February, 1908. ⁴ From Mr. Bland-Sutton's *Surgical Diseases of the Ovaries and Fallopian Tubes*, 1891, p. 152. ⁵ *Loc. cit.*, p. 151.

THE INCIDENCE OF GONORRHOEA IN GYNAECOLOGICAL HOSPITAL PRACTICE.*

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It is somewhat remarkable that a disease so widely spread in the community and disastrous in its effects upon the female pelvic organs should have been treated with less attention than the more rare gynaecological diseases. The explanation is partly the natural avoidance of an unpleasant subject. It is also probable that medical practitioners who are not regularly attending gynaecological departments do not fully realize the prevalence of the disease. Again, dread of publicity and possible litigation prevents frank statements from the doctor to the patient or patient's relatives. It therefore arises that the medical profession as a whole is somewhat indifferent on the subject of gonorrhoea, from ignorance of its prevalence, especially in the chronic forms.

Cases may be regarded as simple leucorrhoea, cystitis, or pelvic inflammation, unless a searching inquiry is made into their etiology. It follows that the lay public is entirely unaware of the lifelong suffering and chronic ill health caused to thousands of women annually by this infection. Otherwise it is inexplicable that while attention is concentrated on the falling birth-rate, no one should have brought forward gonorrhoea as the most frequent cause of sterility. Women are not infrequently blamed as unnatural creatures losing the maternal instinct in the present-day struggle for ease and pleasure when they are the victims of a preventable disease. The chief danger of gonorrhoea lies in its chronicity, as cases are multiplied by those who believe themselves to be cured.

Impressed by the relatively large number of cases of gonorrhoea in all stages presenting themselves for treatment in the gynaecological out-patient department of the Liverpool Stanley Hospital, I have kept brief notes for the purpose of getting some approximately accurate figures of the frequency of this disease in women.¹

It will readily be understood that a seaport, with its mixed nationalities and large proportion of sailors, would be in the unenviable position of being more generally infected than an inland city.

It is from 1,052 consecutive out-patients and 157 in-patients, drawn chiefly from the wives of dock labourers and sailors, that I have made notes on which I venture to base these statements. In many cases I have confirmed the clinical diagnosis by a bacteriological examination of the discharge from urethra, cervix, Bartholini's ducts, or of the contents of pelvic abscesses.

Diagnosis.

Most of the usual points have been considered—namely, a history of pelvic inflammation following the first menstruation after marriage, associated with painful micturition, sterility, and, when there are children, with the presence of ophthalmia neonatorum.

* Read before the Association of Registered Medical Women, March, 1909.