

oophoritis may persist for years without inducing mischief beyond the ovary are examples of oophoralgia without inflammation.

Chronic oophoritis is marked by dull, heavy pain in the seat of one or both ovaries, more or less constant, but aggravated by menstruation, by coitus, by standing or exertion in the upright position, sometimes by loaded rectum or bladder. The pain radiates from the ovary as a centre to the bladder and surrounding organs.

Constitutional symptoms, marked in some cases, attend. There is some danger of fever, accompanied by hectic, if suppuration have taken place. Nervous symptoms, indicating exhaustion, irritability from constant pain, will generally show themselves. But, except in the very early stages, when the disease is likely to be confounded with ordinary dysootocia, the nervous symptoms do not often put on the hysterical form.

To establish a *diagnosis*, pain, as described above, must exist. And besides ascertaining this, we must exclude other pelvic diseases. Where the ovary only is affected, we may by touch determine its increased bulk, sensitiveness, and perhaps prolapsus.

Touch single and bi-manual, vaginal, rectal and recto-abdominal must be performed in the same manner as for the detection of the acute form. Since the inflamed ovary is commonly enlarged, and is disposed to drop behind the uterus, it may be felt in the situation assumed by the body of the retroflected uterus. The sound will lift up the body of the uterus, and the ovary, if adherent to it, as is not unlikely, will be carried up along with it. But by a little care the uterus may generally be isolated from the ovary.

Treatment.—We must rely mainly upon rest, physiological and physical, and derivation. Bromide of potassium, sedatives, occasionally leeches to the iliac region, chloroform-blisters on the same spot, iodine-painting, or, when pain is acute, fomentations or poultices. A valuable means of derivation may be pursued by setting up a small issue or eschar on the vaginal-portion of the uterus by potass cum calce. This makes a healthy granulating surface which heals with some cicatricial contraction. If the uterus were perfectly healthy one would hesitate before restoring to this remedy; but in many cases there is so much complication of uterine disease as will by itself justify the application.

I have in several cases seen great relief obtained by wearing a Hodgepessary. It gives relief probably by maintaining the ovary at its proper level, thus favoring rest of the organ and disgorgement of its vessels.

There is a *fibroid degeneration of the ovary* which is attended by complete disappearance of the follicles. There is a remarkable specimen of this kind in St. Thomas's Hospital. Both ovaries are enlarged to twice or thrice the normal size; they are deeply furrowed or convoluted, and sections through their substance present smooth surfaces. This is probably the consequence of chronic inflammation, the contracting parenchyma gradually obliterating the follicles.

TUBERCLE IN THE OVARY

Is considered to be extremely rare. Kiwisch says it is not met with. Rokitansky knows but one case. There were round yellow knots in the

ovaries, and also tuberculosis of the tubes and peritoneum. Possibly an unequivocal instance of tubercle limited to the ovaries has yet to be demonstrated, but tuberculization of the ovaries in association with tubercle elsewhere, especially in the uterus, Fallopian tubes, and neighboring glands is not rare. Thus in St. George's Museum (No. xiv. 78) is a preparation exhibiting scrofulous disease of the uterus, tubes, and ovaries. Both ovaries were converted into cavities, and contained remnants of a thick semi-fluid, tubercle matter. They were greatly enlarged, and their walls much thickened. There was extensive tuberculization of the lungs, and pleurisy, also scrofulous ulceration of the right sterno-clavicular joint. No. xiv. 79 in the same museum is another example.

Some may question the tubercular nature of the matter contained in the ovaries of these and similar specimens; but the probability that the ovaries thus involved should be affected by disease different in character from that which invaded so many other structures in the body is infinitely small. In the case of cancer being diffused through various structures and organs, the cancerous nature of similar disease found in the ovary is not questioned.

Dr. Bristowe demonstrated (*Path. Trans.* vol. vi.) the tuberculous nature of an ovary, diseased in common with the tubes and uterus. The Fallopian tubes were filled with soft tubercular matter. The cavity of the uterus was distended by a mass about as large as a pigeon's egg, of softish, opaque, yellowish-white cheese-like tubercle. The mucous membrane of the fundus was wholly deficient, and the subjacent muscular tissue was irregularly destroyed, the tubercular deposit at many parts extending into the substance of the muscle. The os and cervix uteri were somewhat congested, otherwise healthy. The right ovary was healthy. The left ovary contained two masses of tubercular deposit, one about as large as a horse-bean, the other as large as a Spanish nut. The deposit exactly resembled that in the uterus and tubes. Bristowe says the same thing has been satisfactorily demonstrated by Dr. Ogle. Bernutz and Goupil also describe an autopsy, in which, with much other disease, including tubercular lungs, they found both ovaries containing crude tubercles, just like those met with in the testicle.

The course run by tubercle in the ovary, the disease in this organ being generally secondary, and of minor import than its concomitant presence in the lungs or other organs, scarcely calls for independent consideration. Advancing disease elsewhere, and attendant exhaustion of the whole system, preclude the idea of directing any special treatment to the ovary. Where, however, the ovary is converted into a sac containing tuberculous pus, it is conceivable that this may burst, and thus precipitate death, by causing peritonitis. And it may be possible to evacuate by aspirator-trocar an ovary so affected through the vaginal roof.

CANCER OF THE OVARY.

Cancer resembles tubercle in being a diffusive disease. More frequently than tubercle it is primary in the ovary. But, still, in the majority of cases, by the time at least that it attracts attention in the living, and almost always as it is seen in the dead, cancer has invaded

other organs as well. It is frequently consecutive upon disease of the uterus and the pelvic and abdominal glands.

The secondary invasion of the ovary by cancer was accurately made out in a specimen exhibited by Dr. Bristowe to the Pathological Society. In this case innumerable cancerous nodules were attached to the peritoneum. There was also an ovarian tumor showing cancerous disease. The ovarian tumor was essentially unilocular. It was originally an ovarian cystic tumor, the parietes of which had become secondarily involved in cancerous disease from its peritoneal connection.

Next to cystic disease, cancer is the most frequent disease of the ovary. It is often combined with the cystoid formation. Every form of cancer may be reproduced in the ovary. It frequently appears as medullary carcinoma, in the form of a distinct mass, or of a roundish tuberous tumor completely supplanting the ovary, and growing to the size of a fist, or of a child's head, or bigger. In some places it resembles in its firmness and the preponderance of its framework, the fibrous cancer, in others it is soft, very juicy, fluctuating, encephaloid. The degenerated ovary is sometimes free, but mostly united to surrounding structures by adhesion. In some rare cases, says Rokitansky, carcinoma of the ovary arises from the degeneration of a corpus luteum.

Often, the medullary cancerous degeneration is, in size and form, symmetrical. It occurs especially in young persons as a primitive disease. It is also associated with cancer of the uterus, breast, liver, peritoneum, stomach, intestine, and lumbar glands; and appears as a part of a general wide-spread cancer formation.

How cancer may invade an ovary in the midst of active function is illustrated in a specimen (No. 2640) in the College of Surgeons. It consists of a uterus, with ovaries and appendages. "There is a well-formed foetus, of about five months, with its membranes and placenta within the uterus. The ovaries are both extensively diseased—enlarged. The tissue of the left is soft, flocculent, and vascular; that of the right is replaced by a collection of cysts, most of which are filled with soft, laminated, and apparently medullary substance."

In St. Thomas's Museum is a similar specimen (No. FF. 51). Both ovaries are of ovoid shape, much nodulated on the surface, and not presenting in any part the appearance or structure of ovary. They appear to consist entirely of medullary (encephaloid) matter. The same disease was found in the mammæ and liver. The woman was five months pregnant with a well-formed foetus.

Medullary cancer occurs upon the cyst-walls and the cyst-cavities, especially in the form of villous cancer. The gelatinous cancer thus appears in the cystoid growths. On the inside of the cysts, here and there, are seen flat, rounded, medullary knots; or villous, cauliflower-like excrescences. Both grow from all points of the cyst-wall, until they fill the cavity; and at length the growth may penetrate the wall, so that the medullary carcinoma grows free in the peritoneal cavity, seizing neighboring structures, and the whole cystoid-formation becomes fixed in all directions. This cysto-carcinoma also often occurs symmetrically in both ovaries—more commonly so in the more mature periods of life.

Cancer of the ovary is most frequently seen in the *encephaloid* form.

It may attain considerable size, forming a globular mass, with spheroidal knobby projections. Courty relates a case in which a tumor of this kind, weighing about eleven pounds, left the corresponding tube quite unaffected, whilst there was congestive hypertrophy of the uterus, and return of hemorrhages simulating the menses in a woman who had passed the menopause. The encephaloid masses, diffused in several places, appeared to have arisen in the Graafian vesicles, so encysted were they; they even seemed, as Rokitansky pointed out in other cases, to have sprung up on the internal membrane of the vesicle, preserving there an areolar or alveolar aspect, whilst the centre was filled with liquid, chiefly blood. Several of the cysts were distended with blood, the result of internal hemorrhage. In some of the cysts some black pigment was accumulated in the walls.

Cancerous tumors of the ovary sometimes come under the category of *solid* tumors. Thus, the specimen (No. 2246⁴⁵) in Guy's Museum shows "both ovaries affected by carcinoma, which has converted them into solid tumors, about the size of the human kidney. The subject, aged forty, was under Dr. Gull for carcinoma of the brain, breast, and various other parts. She was delivered prematurely of a child in hospital, a few weeks before her death."

"The most remarkable examples of hard cancers with fibrous tumors that I have yet seen," says Paget, "have been in the ovaries of certain patients with common hard cancers of the stomach or breast. In these cases the place of the ovary on either, or on both sides, is occupied by a nodulated mass of uniformly hard, heavy, white, and fibrous tissue. The mass appears to be generally of oval form, and may be three or more inches in diameter. Its toughness exceeds that of even the firmest fibrous tumor, and its component fibres, though too slender to be measured, are peculiarly hard, compact, closely and irregularly woven. With these I have found only few and imperfect cancer-cells, with more numerous nuclei, elongated and slender. They are not mingled with elastic or other 'yellow-element' fibres."

Melanosis resembles other forms of malignant disease in its diffusive property. I have not met with example or record of melanosis limited to the ovary. Like other forms of malignant disease, it probably almost always attacks the ovary secondarily. There is a good example (No. 31.16) in St. Bartholomew's Museum: "The ovaries are altered in form; their natural structure is removed, and its place occupied by a very soft melanotic matter. There are also some small circumscribed deposits of melanotic matter in the peritoneum covering the uterus. Taken from a young woman in whom melanosis existed in many other organs."

In St. George's Museum (XIV. 112) is a specimen of "simple cysts in each ovary." The following note is probably written by Sir B. Brodie: "The cysts contained a thick, black, unctuous and nauseous substance of the consistence of tar. A small polypus is attached to the cervix; a small ulcer is seen in the interior of the fundus. The woman had her knee amputated for fungus hæmatodes by Sir Benjamin Brodie, and the disease of the organs of generation was not known during life. Is the color of the ovarian fluid owing to the same substance as mela-

nosis?" Other illustrations of melanosis in the ovary, attended by similar diseases in other organs, are found in the College of Surgeons (Nos. 2642 and 2642A).

The frequent transition from the cystic tumor to *colloid cancer* suggests the suspicion that some forms at least, especially the proliferous, partake of the cancerous character. If this be assumed, then the primary origin of cancer in the ovary must be admitted to be frequent. The history of pathological processes does not, I believe, lend much confirmation to the hypothesis of the ready convertibility of one form of morbid product into another. For example, if I may appeal to my own observation, I should say that fibroid tumors of the uterus are not greatly more liable to the invasion of cancer that is the normal tissue of the uterus. Cancer of the uterus begins as cancer, and not as any other disease. So far, then, as analogical reasoning may be trusted, that which in its advanced stages is obviously cancer, in the ovaries, is, as elsewhere, cancer *ab initio*. That cancer of the ovary preserves for a comparatively lengthened time, its exclusive habitat in the ovary before spreading to other parts, may be explained by the comparatively isolated terminal position of the ovary.

This view is strengthened by the observation that colloid ovarian tumors are often attended by colloid growths in the contiguous structures. Thus in a case I saw at St. Thomas's, in 1874, small colloid pyriform tumors attached by very slender but strong stalks grew from the omentum, where it was in contact with an ovarian tumor filled with colloid. Is it not possible that proliferous cells exude from the colloid tumor, or escape by small perforations, and becoming attached to the adjoining structures there develop? A familiar example of proliferation by contact is seen in the spread of gummata on opposing surfaces of skin and mucous membrane.

This lingering isolation in the ovary must weigh greatly in favor of regarding the compound proliferous cysts of the ovary *practically* as non-malignant, and, therefore, as being suitable for extirpation.

The strong innate disposition of the ovary to develop cystic formations may determine the frequent assumption, by the original cancerous element, of the cystic or alveolar form.

Cancerous disease of the ovary, as elsewhere, occurs more frequently in middle life and later life; but it may arise in childhood.

When cancer has existed some time in its pronounced forms, and especially when the broad ligaments and glands of the pelvis and abdomen are involved, ascites is a frequent complication.

The course of ovarian cancer is frequently involved in that of malignant disease elsewhere; but it not uncommonly takes the lead in producing the cachexia and peritonitis which cause the fatal issue.

The colloid cancer grows rapidly, and to a large size; but does not quickly tend to destroy life by contaminating the system. The opportunities of examining the primary stages of its formation are, therefore, rare except in cases where the affected ovaries have been removed by operation. Mr. Heath exhibited to the Pathological Society (*Path. Trans.*, vol. xvi.) a specimen of cancer of both ovaries, in which death was produced by obstruction of the bowels. I have seen an autopsy at St.

George's Hospital, in which death ensued from uræmia, the result of invasion of the ureter and atresia at the point of contact with a cancerous ovary. The ureter above this spot was much dilated, and the kidney was partially atrophied.

Diagnosis.—The circumstances which, according to Dr. T. Gaillard Thomas, most prominently point to the development of the disease, are: "1st. The rapid development of a solid tumor in an ovary, with 2. Marked depreciation of the strength, spirits, and general condition. 3. The occurrence of œdema pedum and spanæmia at an early period, and consequently dependent upon a general blood-state, and not the consequence of pressure. 4. Lancinating and burning pains through the tumor. 5. Cachectic aspect. 6. The occurrence of ascites without evidence of cirrhosis or other hepatic disease; organic disease of the kidneys, or heart, or chronic peritonitis; the fluid accumulating in such large amounts as to force aside the supernatant intestines, and produce dulness in place of resonance on percussion in dorsal decubitus."

These signs must, however, be taken with some qualifications. Œdema of the legs and ascites are not constant, even at stages when the disease has produced marked ravages upon the general system. I have, moreover, found it in practice difficult to distinguish solid malignant ovarian tumors from malignant disease around the caput coli.

Solid Tumors of the Ovary.—For want of more precise pathological materials for discrimination, it is convenient to group certain tumors of the ovary under this general term. On clinical grounds this distinct recognition of solid tumors of the ovary is of great value. The solid tumors include not only fibrous or fibro-cystic tumors, but tubercular and malignant tumors of the ovary. Solid tumors in the ovary then, frequently, are a local expression of diffusive disease which involves other organs as well. This consideration of the characters of solid tumors will strengthen the rule to hesitate before attempting the extirpation of solid ovarian tumors. Of what use, for example, would it be to remove a cancerous ovary, when it is in the highest degree probable that the disease has extended to other organs?

A. Fibroma. *Fibrous or fibro-muscular tumors of the ovary* are so rare that their existence has been doubted. In some instances where it has been concluded that one or both ovaries had been the seat of fibrous tumors, it is reasonable to conjecture that the tumors really arose in the uterus, and, becoming pedunculated, pressed upon the ovaries, whose proper structures became obscured; or tumors arising in the broad ligaments may simulate ovarian fibroids. At the same time, since fibrous and non-striated muscular elements form a natural constituent of the ovary, there is sound histological reason for admitting the possibility of tumors being developed from exaggerated extension of these elements.

There is a specimen in the London Hospital Museum described by Dr. Ramsbotham (No. Ea. 27) as "a large fibro-muscular tumor projecting from the fundus uteri. The ovaries are as large as a hen's egg, nodular surface, and converted into dense fibrous masses."

Cruveilhier had drawn attention to the fact that fibrous tumors were found implanted upon or in the substance of the ovary, which by their structure could not be distinguished from fibroid tumors of the uterus.

He observed that they were often found at the same time in both organs, as in the specimen referred to of Dr. Ramsbotham. Dr. Baillie also was struck with the identity of structure, and observed that these tumors of the ovary ran the same course, and were liable to the same cartilaginous and bony transformations as the fibroids of the uterus.

In Guy's Museum is a specimen (No. 2246) consisting of uterus and ovaries. "The latter are converted into large tumors, each the size of a cocoa-nut, by the production of a fibro-plastic material. The stomach was affected in the same way by a growth which resembled that seen in the recurrent fibroid tumors." No. 2225 in the same museum shows both ovaries converted into solid tumors. The tumors are quite smooth externally, and the section exhibits a perfectly homogeneous appearance.

A specimen in St. George's Museum (No. XIV. 140) seems to offer the clearest features of a fibrous tumor of the ovary. It is represented in Fig. 73. It is described in the catalogue as "A fibrous tumor of the ovary from a woman aged 50, who died of disease of the heart. The uterus also contained a fibrous tumour in its walls." The position of the tumor in this case in the centre of the ovary excludes the objection urged against other cases, that its origin might be uterine.

Dr. Goodhart and Mr. Walsham each exhibited (*Pathological Transactions*, 1875 and 1876) a fibroma traced "unmistakably" to the true fibrous capsule of the ovary. A specimen at St. George's (XIV. 139) shows calcareous degeneration of an ovarian tumor presumed on this account to be fibro-muscular.

A specimen exhibited at the Obstetrical Society was examined by Dr. Wilson Fox, who described it as a "loculated fibroid; as having in the more central and transparent parts of the loculi a great number of non-striated muscular fibres."

In most of the presumed fibrous tumors the cystic cavities have been the most noticeable features. The cysts may be more or less obliterated by the hyperplastic condition of their walls. These overgrown partitions are made up of a fibrous vascular mass, not in any way distinguishable from that usually seen in cyst-walls. This kind of fibro-cystic tumor grows very rapidly, and has a strong hemorrhagic disposition, causing in some cases effusion of blood into the cyst-cavity.

It appears then to be highly probable that most of the apparent fibrous tumors of the ovary differ from undoubted cystic tumors, chiefly in the greater relative proportion of the fibrous walls, and the lesser development of the cyst. Scanzoni's larger specimen referred to above seems to confirm this view.

Dr. Wilks reporting on three tumors of the ovary exhibited to the Pathological Society¹ says "the specimens referred to afford examples of the various grades of disease which the ovaries may undergo. We may see in them the connection between a hard fibrous tumor and the simple cystic disease. We may have in the first place a multilocular cystic disease; then a similar disease with the addition of solid fibro-cellular growths between the sacs; thirdly, a disease made up of the same parts, but where the solid predominates; fourthly, a uniform fibrous tumor;

¹ Pathological Transactions, vol. ix.

and lastly, a hard dense fibrous growth resembling the analogous tumor in the uterus."

Dr. Bristowe and Mr. Hutchinson suggest that the absence of muscular fibres in ovarian tumors distinguishes them from the uterine tumors. But this test is fallacious. They admit that large fibrous tumors may grow from the ovary.

B. Enchondromatous Tumors.—Kiwisch says he has observed two examples of this tumor. In one, cartilaginous concretions surrounded the ovary in the form of numerous scales or rounded protuberances. In the other case the right ovary was transformed into a tumor the size of the fist, surrounded with false membranes of which the external layers inclosed cartilaginous nodules, coarse and hard, whilst the interior resembled a cartilaginous mass, hyaline and of less density.

Diagnosis.—During life it will be difficult to arrive at more than a conjectural diagnosis of the nature of solid ovarian tumors, or even to distinguish them from some fibroids of the uterus. Mobility or fixity is the important clinical point.

Treatment.—We may be called upon to interfere, in the event of tumors getting locked in the pelvis and obstructing the bowel or bladder. The first indication would be to dislodge them from the pelvis, by pushing from below either by rectum or vagina. Extirpation might have to be discussed if dislodgment failed. In this case operating by gastrotomy will be generally preferable to attempt at removal by vagina or rectum.

CHAPTER XII.

OVARIAN CYSTIC TUMORS: THEIR NATURE—SIMPLE; MULTIPLE, PROLIFEROUS; CYSTO-SARCOMATOUS; TUBO-OVARIAN; DERMOID CYSTS.

We have already observed that tumors of the ovary may, for clinical purposes, be divided roughly into solid and cystic. The solid tumors have been described in the preceding chapter. The cystic are the most common, and practically the most important.

Ovarian cysts are distinguished by Paget as *A. Simple or barren*, containing fluid or unorganized matter: and *B. Compound or proliferous*, containing variously organized matters. They may further be usefully distinguished as *Malignant or benign*. All these tumors, on account of their glandular origin, are grouped together as *adenoid*. In association with ovarian cysts proper it is convenient, and even necessary, to