27 cases in thirteen years at the London Hospital. In a series of 9 cases at the Massachusetts General Hospital from 1893 to 1907 the mortality was 100 per cent. Richardson⁴ records 16 cases (8 affecting the large intestine) operated on at the same hospital between 1908 and 1917, with a mortality of only 25 per cent.

TREATMENT.

The treatment is necessarily surgical. On opening the abdomen the volvulus presents as an enormously distended coil of gut, which appears almost to fill the abdominal cavity. The loop is delivered through the incision, and if healthy is untwisted, and a Paul's tube is then fixed in the summit and brought out through an abdominal incision. This allows the contents of the intestine to be evacuated and the easy reposition of the bowel. Further, the fixation of the bowel to the anterior abdominal wall by the Paul's tube prevents a recurrence of the twist, a complication otherwise liable to occur. Should the intestine prove to be gangrenous or impossible to untwist, the affected segment is resected and Paul's tubes fixed in the divided ends. Later, if the patient recovers, an anastomosis can be carried out.

The following three cases have come under my care:

CASE I.

The patient, a female aged 63 years, was admitted to the Manchester Royal Infirmary on January 23rd, 1921. She had been seized with abdominal pain three days previously, and the bowels had not been moved in spite of repeated enemata. On examination the abdomen was considerably distended, but no definite tumour could be detected on abdominal or rectal examination. The abdomen was opened by a right paramedian incision, and the sigmoid loop was found very dilated. It was seen to have undergone two complete twists on its mesenteric axis. These were untwisted without difficulty and a Paul's tube tied in the summit and fixed to the abdominal wall. The wound was closed, and the bowels moved subsequently each day. She was discharged from hospital seven weeks later with the colostomy practically closed.

CASE II.

A male, aged 50 years, was admitted to hospital on July 28th, 1920. He had been ill for five days with abdominal pain, constipation, and vomiting. His general condition was poor. The abdomen appeared very distended and a tumour was detected in the right side. Laparotomy showed this to be a greatly ballooned caecum which had a gangrenous patch on its anterior wall. The bowel had undergone one and a half twists. After detorsion a Paul's tube was fixed in the caecum through the gangrenous area and the wound closed. The patient failed to rally after the operation and died the following day.

CASE III.

I was asked, a short time ago, to see a gentleman, aged 67 years, whose illness had commenced with abdominal pain three days previously. He had suffered from chronic constipation, which had now become absolute, for many years. The abdomen appeared considerably distended, and on laparotomy an enormously ballooned sigmoid was found which had undergone rather more than one complete twist, whilst the remainder of the colon appeared both dilated and hypertrophied. The volvulus was untwisted, a Paul's tube tied in the apex, and the abdomen closed. He made satisfactory progress for six weeks, but subsequently succumbed to a sudden attack of heart failure.

It is still a debatable question among surgeons whether, in cases of acute intestinal obstruction, a general exploration of the abdomen should be carried out or a simple caecostomy performed. In sudden obstruction it may be impossible to exclude cases of volvulus, and caecostomy under such conditions would certainly be liable to end in disaster. Though cases of this nature are not common, yet it is under such conditions, where the pre-operative diagnosis may be uncertain, that the blind caecostomy is open to objection.

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AUTOPLASTIC OVARIAN TRANSPLANTATION.

BY

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THE following case is of interest because the patient has been under observation for thirteen years after an operation for transplantation of the ovaries, and because it was possible to make macroscopic and microscopic examinations nine years and seven months after the transplantation was performed. The clinical and histological evidence combine to show that the organs are still in a healthy condition.

On March 5th, 1911, a married woman, aged 17, was admitted for her confinement to the obstetrical department of the Women's Hospital, Melbourne. She had suffered from tuberculous disease of the hip, had gone on crutches since the age of 7, and presented a discharging tuberculous sinus over the right trochanter. Scars of healed sinuses were seen over the lower lumbar vertebrae and right buttock. Caesarean section was performed and a full-time female child, weighing 6 lb., delivered. In order to prevent further conception I transplanted the ovaries into the anterior abdominal wall. Three and a half years later I reported the case, with observations to date, in the *Medical Journal of Australia* of January 16th, 1915, vol. 1, No. 3. Since then the patient has been under continual observation; owing to the strenuous use of crutches a ventral hernia developed in the upper part of the scar.

The patient's health has been generally good. During the last five years she has gradually put on weight; her skin is fresh and her eyes are clear; the tuberculous lesions in the bones of the right lower extremity have practically healed, there being a little discharge only occasionally. The menstrual flow occurs every 28 days, with slight variations of two or three days on either side. She cannot remember ever missing a period. The duration is four days. There is no pain whatever in the region of the uterus, but some tenderness usually indicates which ovary is providing the Graafian follicle, it may be each ovary alternately, or either ovary two or three times successively. The pain has not been more than what would be called tenderness at any time, and is usually more marked in the subcutaneous graft than in the one more deeply placed in the rectus sheath. Sometimes slight swelling accompanies the tenderness. The sexual appetite is not decreased.

The right ovary, which was placed on the aponeurosis of the external oblique abdominal muscle, is easily felt; it feels a little larger than normal. The left ovary, more deeply placed in the rectus sheath, is more difficult to feel, but it can be located as a slight thickening, and each of them on pressure produces a sickening sensation. The uterus is normal in size. There is no leucorrhoea. There is no evidence of atrophy. Bartholin's glands are observed to function.

On October 15th, 1920, the patient complained that two days previously, during a fit of coughing, she suddenly felt a severe pain, with some swelling in the hernial sac. An irreducible strangulated hernia was at once diagnosed, and the patient was hurried to the Women's Hospital for immediate operation. After the hernia had been dealt with, and the peritoneal cavity closed, opportunity was taken to examine the graft in the rectus sheath. As its situation was so well known, a few touches with the knife were sufficient to reveal it, snugly contained in the sheath, and firmly adherent to the surrounding tissues. It had been placed in this situation roughly nine years and seven months before (March 5th, 1911). It was about 1½ inches in length, 1/2 to 3/4 of an inch in breadth, reddish in colour like the tissue around it, firm in consistence. Several Graafian follicles could be felt, varying in size, the largest being about the size of a small pea. Some follicles could be seen, greyish in colour, projecting slightly, and when pricked with a knife exuded liquor folliculi. A small piece was removed for microscopical examination. Sections of the graft showed its histology to be quite consistent with the clinical history of the patient. Perfectly formed Graafian follicles and corpora lutea in normal ovarian stroma can be demonstrated, whilst the abundant arteries, veins, capillaries, and nerves indicate how completely the graft has been adapted by its new environment.

April 28th, 1923: The patient, now in the thirteenth year of observation, is still menstruating regularly, and her sexual life is apparently normal.

This case is interesting, for the following reasons:

(1) The length of time during which the patient has been under careful observation—that is, nine years and seven months. (It is also thought that this is the only case on record where a human ovarian graft has been microscopically examined after being transplanted so long.)

(2) The sexual life of the patient has been quite normal. The grafted ovaries have apparently discharged their functions quite as well as if they had not been grafted. Opinions have been expressed by some¹ that a graft would not continue to function longer than a few months, or perhaps a year or two; but the information obtained from this case clearly shows that

the grafted ovaries may carry on their function for a much longer period.

(3) Except for a little tenderness, and occasionally slight swelling about the time of menstruation, not the slightest inconvenience has been caused by the grafted ovaries in their new location.

The conclusions resulting from the consideration of this case, especially when taken in conjunction with the reports on this subject by other operators,² demonstrate beyond all doubt that autoplasmic transplantation of the ovaries is a most valuable gynaecological procedure, and is a definite step forward in the conservative surgery of these organs. The simplicity of the operation, the ease and rapidity with which it can be done, the absolute assurance of success, if a few simple facts are observed,³ justifies its use beyond all doubt in suitable cases.⁴

I am much indebted to Mr. W. J. Owen, of the Australian Institute of Anatomical Research, Melbourne, for preparing the microscopical sections, and for microphotographs.

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A CASE OF PITUITOUS CATARRH.

BY

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CASES of that variety of bronchitis known as "pituitous catarrh," originally described by Laënnec, are exceedingly rare, and for this reason it appears to us of interest to report the following instance. The patient was under the immediate care of one of us (I. J. D.), and on February 9th was seen by us together in consultation.

The patient was a married lady, aged 34; her height was 5 ft. 2½ in., her weight 9 st. Her maternal grandmother had died of bronchitis, but otherwise the family history was unimportant. She was of a cheerful disposition, and had enjoyed fair health, except that since 1919 she had been subject to attacks of bronchitis. These occurred twice in 1919, and once each in 1920 and 1922, and were respectively of six, four, three, and two weeks' duration. In each the sputum was of the peculiar character seen in the present attack (1923), and there can be little doubt that they were also attacks of pituitous catarrh, though the nature of the malady was not recognized at the time.

The present attack commenced with a "cold" at Christmas, 1922. This was followed by bronchial catarrh, with the expectoration of some phlegm of the peculiar character to be shortly described. This lasted for about a week and then improved, but the cough and phlegm did not entirely disappear. In the middle of January, 1923, the bronchial catarrh became worse and she commenced to bring up larger quantities of the peculiar expectoration. There had been hitherto little, if any, pyrexia, and the patient had been getting up, though confined to the house. On February 5th, however, owing to the increasing cough and distress, she took to her bed, where she remained for the following three weeks.

On February 9th, when seen in consultation, her condition was as follows:

She was sitting up in bed, racked by a harassing cough. The lips were faintly cyanosed. Temperature 99.5°; respiration somewhat hurried. She was well nourished; tongue clean; teeth satisfactory; no pyrrhoea. Throat natural.

The chest was a little deeper than natural, but there was no marked emphysema. Heart natural; pulse 90, regular, soft.

Sonoro-sibilant râles were audible all over the lungs, with also some scattered moist sounds. There were no signs pointing to tuberculosis or of consolidation.

The abdomen, nervous system, and urine were natural.

The cough was very troublesome from continual efforts to bring up the sticky expectoration. At intervals of an hour or so a paroxysm would occur, and these attacks, especially at night, were often distressing, a good deal of cough being required to bring up a small quantity of phlegm.

The sputum, which was coughed up as a rule in small amounts at a time, was quite unusual in character, and quickly formed a thick, ropy homogeneous mass in the sputum pot. This was found

to consist of mucus, looking just like unboiled white of egg, as described by Laënnec, and was covered on the surface with a white froth. The mass of mucus was lightly streaked with small plugs, whitish or yellowish-white in colour, composed of muco-pus from the smaller bronchi.

The expectoration was expelled in small quantities at a time, varying from a teaspoonful or two to half an ounce. But later, when improvement set in and some sleep was possible, several ounces were expectorated in a short time, and more than once a mug of 6-ounce capacity was filled in a quarter of an hour. A bout of coughing would last until the sticky mucus was expelled, relief finally coming with the expulsion of one of the small plugs of muco-pus to which we have referred. For a period of a fortnight the average daily amount of sputum was 20 ounces, but on several days a greater amount was brought up, 30 ounces being the largest quantity expectorated in twenty-four hours.

A characteristic feature of the sputum was the ease with which it could be emptied from vessel to vessel, the whole flopping out *en masse*, leaving the sputum pot clean, save for a little froth near the rim. Its tenacious character was also well shown by the fact that if a small portion were seized with a pair of forceps, the whole mass could be pulled as a string from one pot to another.

The patient was kept strictly in bed, a steam-kettle was ordered, and poultices and antiphlogistine to the chest. Since the sputum was so sticky and difficult to bring up, belladonna seemed contra-indicated in spite of the amount of expectoration, and a mixture containing sodium bicarbonate, ammonium carbonate, vinum ipecacuanhae, and syrup of squills was prescribed. Under this treatment the symptoms slowly improved, and the cough and phlegm gradually lessened, but it was three weeks before the patient was able to leave her bed, and four weeks longer before she could leave the house. At no time, we may add, did the temperature reach 100°, though ranging at night between 99° and 100°.

The patient's cure was finally completed by a stay of three weeks at Bournemouth, which she left on April 22nd, free from symptoms, and with her chest quite clear.

Dr. H. A. Scholberg, joint pathologist and bacteriologist to the Royal Infirmary, Cardiff, examined the sputum in more detail, and reported that the bulk of the material was, as its appearance indicated, mucus. He also found that a small quantity of albumin (but no globulin) was present, amounting to roughly just under 0.5 per mille, as measured by the Esbach's tube. The tenacious yellowish-white plugs were found under the microscope to consist of mucus and pus cells (with Gram-positive diplococci), clearly coming, in Dr. Scholberg's opinion, from the bronchioles.

Cultivation of the sputum showed the presence of no unusual organisms, but many colonies of streptococci and of *Micrococcus catarrhalis*, with a few staphylococci, were grown. Tubercle bacilli were not found, nor had they been detected at a previous examination.

Commentary.

In his original description of "pituitous catarrh" Laënnec¹ wrote as follows: "I call that variety of catarrh 'pituitous' which is associated with an expectoration which is colourless, transparent, ropy, frothing on the surface, and which when the foam has been removed resembles white of egg diluted with water."

Defined in this way the case which we have described falls into this type of bronchitis, though in this instance there was but little "dilution" of the "white of egg" appearance. It is a variety which is, in our experience, extremely uncommon, and is one in which the stress of the malady would appear to fall upon the mucous glands of the bronchial tract, leading to very excessive secretion of mucus. In this connexion it may be of interest to add that the lady whose case we have recorded, for many years on first waking in the morning had been obliged to remove an accumulation of sticky mucus from the roof of the mouth, thus indicating possibly a perverse activity on the part of her mucous glands.

But few cases of pituitous catarrh are described in the literature, and it would appear to us from the clinical descriptions that in some of those published confusion has arisen between this variety of bronchitis and acute oedema of the lung, the abundant frothy sputum met with in each case having led to the mistake.

A careful investigation of the sputum should, however, at once distinguish them. In acute oedema of the lung, as we have shown elsewhere,² when the froth has been removed the expectoration will be seen to be yellow or amber colour; in pituitous catarrh it is like white of egg. In the former there is no mucus in solution, or, if present, it occurs in small and varying quantities, depending on the duration of the attack and the admixture of ordinary mucopurulent sputum; in the latter the secretion is chiefly composed of mucus, and thus is much more viscid. Thirdly, and most important, while the former contains so much protein as to become solid on boiling, whence the name "albuminous expectoration," the latter contains only a