the uterus nineteen times during early pregnancy, does not record a case of conservative Caesarean section.

My five cases are given in Table B. In all of them contractions of the pelvis and the presence of fibroids were the indications for the operation. The five children survived; one mother died owing to my failure to discover the infection of the tumour. The case should have been treated by total abdominal hysterectomy.

Caesarean Section followed by Abdominal Hysterectomy.

Landau performed the operation in two cases only; the mothers and one child recovered; of the other child it was stated that it was a well-developed boy, but whether it survived or not is not mentioned.

My six cases are given in Table C. All the mothers recovered, and all the children survived except one, which was dead before the operation was performed.

Total hysterectomy, which was performed in five of the cases, is, in my opinion, preferable to amputation in pregnant as in non-pregnant cases, especially as it provides drainage and removes the possibly infected cervix.

Troell gives a list of twenty cases (including two of mine) operated on since 1900, with two deaths. I am able to add three more cases (Table C, Nos. 4, 5, 6), making twenty-three cases with two deaths.

In the puerperium vaginal myomectomy is usually the best treatment for submucous tumours even when they are infected or invert the uterus. It should usually be tried before resorting to hysterectomy, which I have never found to be necessary. In infected subperitoneal or intramural tumours total abdominal hysterectomy should be performed.

REFERENCE.

¹ T. Landau: *Myom bei Schwangerschaft, Geburt und Wochenbett*. 1910.

PENETRATING WOUND OF CHEST: THORACOTOMY: SUTURE OF PERICARDIUM.

BY

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THE following case seems of interest as throwing light on the question whether it is necessary to close a large traumatic communication between the pericardial and pleural cavities. Wounds of the pericardium are rare, and almost impossible to diagnose with certainty.

During the late war much advance was made in thoracic surgery, but the indications for operative interference are not so definite as in corresponding cases of abdominal injury, the reason being that many cases of wounds of the thoracic viscera recover without operation—a very rare event in a wound of a hollow viscus in the abdominal cavity.

In the following case the only factor which might have suggested a diagnosis of injury to the pericardium was the

direction of the track of the shell fragment between the entrance wound and the position of the fragment as shown by x ray (see diagram).

Pte. H. T., aged 19, was wounded by a piece of high explosive shell at 3.30 a.m. on June 25th, 1918. He was admitted to No. 1 Canadian Casualty Clearing Station under my care at 9 a.m. He was cold and collapsed, with marked dyspnoea, and complained of severe pain in the right side of the chest. There was a small ragged wound over the second left intercostal space, about half an inch from the margin of the sternum. The right side of the

chest was absolutely dull on percussion. The pulse was 120. He was put to bed in the resuscitation ward, given morphine gr. $\frac{1}{2}$, atropine gr. $\frac{1}{80}$, and warmed up by an electric cradle.

At 1 p.m. he was warm, but his condition was otherwise unchanged; the pulse was 124. Examination of the chest with the screen revealed a shell fragment about the size of a raisin (see diagram), 6 cm. deep from the anterior wall of the chest. It did not move on respiration. There was dense right haemothorax, and the right side of the diaphragm hardly moved. The left chest was clear.

Operation.

A 7-inch incision was made (at 2.30 p.m.) over the fifth right rib and costal cartilage, commencing about one inch from the

middle line in front. It was carried down to the bone, and the periosteum elevated from the rib. The rib and costal cartilage were split for the length of the incision by a Hey's saw and the parietal pleura divided by scissors. A rib separator was introduced and the chest widely opened. A large haemothorax was evacuated and some large blood clots wiped out with gauze. The right lung was collapsed, and a tear, which was bleeding, was found at the lower part at the junction of the anterior and basal borders. This was sutured with fine linen thread.

On inspecting the lateral wall of the mediastinum a tear in the pericardium, about two inches in length from above downwards, was seen, through which was protruding the right auricular appendix and part of the right auricle. This was closed by a continuous suture of fine linen thread, but with considerable difficulty, owing to the extremely rapid beating of the heart and the attempts of the auricular appendix to get outside the pericardium at each beat.

A rapid search was made for the fragment of shell, but, owing to the patient's condition, was not prolonged, and it was not found. The pleura and two halves of the rib were brought into apposition by five or six sutures of thick chromicized catgut passed round the whole rib and securely tied. The muscles were united and the skin incision closed.

The entrance wound, which was dirty and ragged, was incised and packed with gauze. Gas and oxygen had been administered most skilfully for fifty minutes by Major R. Henry. After the first twenty-four hours, during which the patient was rather "shocked," progress was satisfactory. The stitches were removed on the tenth day, and the wound had healed per primam.

After-History.

On July 8th, twelve days after operation, he was not so well, and for two days he had had an evening rise of temperature, 101°. I asked Captain John Tull, C.A.M.C., medical specialist of the unit, to see him, and he reported as follows:

Heart.—Palpable friction over body of heart; dullness extends from right sternal border to $\frac{1}{2}$ in. outside left mid-clavicular line. Cardio-hepatic angle not widened. Both sounds clear. To and fro harsh friction audible all over precordium.

Lungs.—**Right:** Dullness and general flatness from middle of scapula to base; signs of fluid; aegophony. **Left:** Dullness for hand-breadth at base; signs of fluid.

We aspirated 20 oz. of clear straw-coloured fluid from the right pleural cavity. Culture sterile.

On July 13th Captain Tull reported:

Heart.—Dullness has increased during past few days, and now extends from $\frac{1}{2}$ in. to right of sternum to 1 in. outside left mid-clavicular line. Sounds are well heard. Precordial friction is much less distinct. It is probable there is moderate effusion into pericardial sac. **Lungs.**—**Right:** Fluid has reaccumulated in right pleural sac; now extends from mid-scapula to base. **Left:** Signs of fluid from lower border of scapula to base.

On July 14th straw-coloured fluid 15 oz. was aspirated from the right pleural cavity. This caused much distress. Culture: a few Gram-positive cocci.

On July 18th clear fluid 16 oz. was aspirated from the left pleural cavity. No culture was obtained.

On July 22nd he was very greatly improved, and in our opinion fit to travel. At the time there was great pressure on the available beds, and he was evacuated to the base.

Present Condition.

In February, 1919, he was demobilized, marked category B3, and I have a letter from him written in August, 1919, to say that he is working as a platelayer on the railway, and his only complaint is some shortness of breath on exertion. The shell fragment is still *in situ*.

Dr. T. S. Lister of Sandal, Wakefield, has very kindly sent me the following notes:

"I saw him yesterday; he is looking well and strong, and is working on the railway. Long scar of incision extending across the right side of the chest over the fifth rib. This is healed and healthy. Scar 3 in. long over front of second intercostal space on left side.

"Cardiac apical dullness extends to half an inch internal to left nipple line. No appreciable dullness on right side of sternum. The first heart sound at the apex is weak. Liver dullness in right nipple line extends to sixth rib. Dullness on posterior surface normal. Breath sounds are normal both sides. Vocal resonance no appreciable difference on the two sides. Expansion of chest is good and normal. He has slight shortness of breath on exertion."

Gask and Wilkinson have laid down indications for early operation in cases of penetrating wounds of the chest, but this case did not present any of those indications, and the first point that will suggest is, Would recovery have occurred without operation? As far as the injury to the lung and the haemothorax are concerned, aspiration would in all probability have been sufficient. As to the rent in the pericardium, I venture to think that closure was essential for the following reasons:

1. Prevention of spread of infection or fluid into the pericardial sac. Immediate closure of other serous cavities has been found to be the best method of treatment in cases of early infection.

2. Mechanical. The contraction and adhesion of the rent in the pericardium to the auricle might have caused grave cardiac symptoms.

The escape of the great vessels and the auricle itself is worthy of note.

I am much indebted to Captain John Tull, C.A.M.C., for his clinical aid and to Dr. T. S. Lister for the notes he supplied me with.

ACUTE INTESTINAL OBSTRUCTION DUE TO PREGNANCY IN A BICORNUATE UTERUS.

BY
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THE following case is worthy of record because it is an example of a rare condition which presented great difficulty in diagnosis, and because an interesting question is raised as to what should be done in any future pregnancy.

Mrs. W. was admitted to the West Norfolk and King's Lynn Hospital on October 29th, 1919. The history was as follows: She had menstruated on August 5th, 1919, and had morning sickness in September; in October she noticed that her abdomen was swelling, and her breasts became somewhat tender.

Forty-eight hours before admission she was seized with sudden abdominal pain and vomiting. Her doctor tried turpentine enemata without avail. The vomiting continued, and the abdomen became distended and tympanitic. On admission to hospital the pulse was 104, and of low tension, and the temperature was 98°. Her features were drawn and her expression anxious; the extremities were cold. She vomited twice during her first half-hour in hospital; the vomit was bile-stained, with no suggestion of a faecal taint. The abdomen was somewhat distended, particularly in the left iliac fossa and left flank, and acutely tender all over. In the suprapubic region was a pyriform swelling, obviously the uterus, and I was at once struck by the fact that, although she was less than three months pregnant, the uterine fundus reached a level a fingerbreadth above the umbilicus. On vaginal examination the cervix was found to be softened, and there was marked fullness in both lateral fornices, while from the rectum could be felt a tense elastic swelling, filling up the whole pelvis and pressing firmly upon the rectum. A diagnosis of pregnancy complicated by impaction of an ovarian cyst was made.

Operation.

The abdomen was opened by a left paramedian incision 6 in. long, extending 1 in. above and 5 in. below the umbilicus. The intestines (particularly the large bowel) were very distended, and were with some difficulty packed off from the field of operation. On passing the hand behind the uterus a tense cystic swelling was felt. This swelling quite filled the pelvis, so that it was not easy to insinuate the fingers between it and the pelvic wall. After some manipulation, however, this was done, and the swelling was partly delivered from the pelvis, when the following was found to be the condition of affairs. There was a bicornuate uterus; the first horn was normally placed, while the second horn lay behind and to the left of the first. It was attached to the left side of the cervix; it lay behind the left broad ligament, and there was no direct communication between its cavity and the lumen of the Fallopian tube. It was impossible to expose either the anterior or posterior walls of the second horn, so a transverse incision was made across the fundus of it, and a fetus of two and a half months' gestation was removed, together with placenta and membranes. The horn was sewn up with silk as in Caesarean section. The condition of the patient was not good, and the abdomen was closed forthwith.

After-History.

The intestinal obstruction was completely relieved by the operation, the bowels being well opened by a turpentine enema next morning. Convalescence was normal. I saw the patient again on December 20th, 1919. The median uterine horn was now normal in size, while the abnormal horn could be felt quite distinctly from the rectum as a hard swelling of the size of a large walnut lying behind and to the left of the cervix and slightly above it.

It will be noted that subsequent events showed that only one horn of the uterus contained a fetus. In spite of this, the empty horn was very much larger than the full one. There were no lochia.

As regards further treatment, should the abnormal horn be removed? My own view is that it should. If the patient again becomes pregnant, the best that can happen is that she be delivered at term by Caesarean section; the worst is that intestinal obstruction will develop again.

From what was found at the operation, I feel sure that it would be a safe and simple procedure to remove the abnormal horn. The patient, however, was not willing to have a second operation, unless I considered that her condition was immediately dangerous, and this obviously was not the case.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ANTISTREPTOCOCCIC SERUM IN PUERPERAL FEVER.

NATURALLY every case of puerperal fever does not respond to antistreptococcic serum, but it is well to remember its remarkable results in some cases. I have used it twice, and on both occasions with the most dramatic results. The chart reproduced speaks for itself. It is from a patient I treated recently, and it is noteworthy that only 10 c.cm. of the serum were used, more not being available at the moment. The directions sent with the serum recommend 30 c.cm. as the minimal dose.

A=10 c.cm. antistreptococcus serum.

The other case was even more gratifying, as the woman had had a temperature ranging between 104° and 105° F. for several days, with repeated rigors, yet responded immediately to the serum.

Northwood.

O. HILTON.

A SIMPLE TREATMENT OF RINGWORM OF THE NAILS.

In general practice onychomycosis is comparatively rare and its treatment is apt to be superlatively disappointing. Two years ago I met with two cases which appeared to be very much alike. Both were women of middle age and in comfortable circumstances. In one a thumb and in the other a finger nail was badly affected.

Examination of scrapings showed hyphal fragments, and a few particles, placed on wort agar gave cultures of rather slow growth resembling specks of damp flour. No conidial fructifications were observed, and the organisms consisted of infrequently branched mycelium with many oidium-like elements and some simple chlamydospores. The cultures died in a few weeks.

It may be objected that such a miserable depauperate mould falls short of what a ringworm should be, but these elements are just the constants of every ringworm culture, and all other elements are variants, more or less perfect, more or less obsolete.

Treatment.—The disease had existed for months in one, for years in the other. They were given a lotion of 3 j of salicylic acid in 3 jss of methylated spirit, to be painted on after scraping every night, and without scraping every morning, and to be used for three months or longer. Both have been cured for twelve months.

London, W.

ROBERT CRAIK.

MODE OF INFECTION IN PULMONARY INFECTION.

HAVING felt for a considerable time that the present view of the mode by which tuberculous infection is carried from the tonsil to the lung—namely, through the cervical glands to the mediastinal and bronchial glands and so to the lung—is not satisfying, I offer the following suggestion:

Might it not be that the infection is carried from the tonsil through the cervical glands to the jugular trunk and then passed directly into the blood stream through the jugular vein and so to the right side of the heart, from which it would pass to all parts of the lungs? This would aid in explaining why it is that the tuberculous process in the apex is manifested in the lung substance, while in other parts it gives rise in the first instance to pleurisy. The movement at the apex is so much less than that of the other parts of the lung that a greater slowing down of the capillary circulation is more likely in this part. It is in the capillary circulation of the pleura that this slowing down would occur in other parts.