Treatment of Skin.—(1) Do not use any prophylactic treatment when the skin is showing actual signs of damage, unless lewisite is suspected by early skin changes. The value of B.A.L. at this stage is considerable. (2) Remove hair from affected area with clippers. (3) Clean the part with bland antiseptic. (4) Leave blisters intact whenever possible. (5) Remove redundant skin only if it is unavoidable. (6) Apply a sterile oily dressing. (7) Sulphonamides can be used to counteract infection if no systemic effects are present. (8) Any form of coagulant treatment is contraindicated. (9) Never change a dressing unless it is absolutely necessary. (10) After the first few days each case must be treated on its merits, keeping in mind the actual clinical manifestations rather than their origin. (11) The exudate from mustard gas and lewisite lesions is innocuous. (12) In serious cases it is essential to watch the condition of the blood so that appropriate action can be taken to counteract any adverse effects.

A list of those appointed by the E.M.S. to assist in the treatment of gas casualties will be found in the E.M.S. Instruction No. 283 (revised June 1, 1943).

I should like to express my gratitude for the help received from Dr. Stopford Taylor on the treatment of skin, Mr. T. J. Phillips on the treatment of eyes, and Brig. Pollitt on the treatment of burns. The staffs of the Ministry of Home Security, the Emergency Medical Services, the Passive Air Defence, and the Ministry of Supply have also given me much valuable information.

RUPTURE IN A SUPPOSED LOWER SEGMENT CAESAREAN SECTION SCAR

BY

D. W. JAMES, M.B., B.S.

Owing to the increasing popularity of the lower segment operation, rupture of a Caesarean scar during a subsequent natural labour is becoming a rare accident. The following case is reported in order to show that the possibility of rupture should always be considered, even when the scar is believed to be in the lower segment.

Case History

Previous Operation.—The patient was a para-1 aged 35. No accurate notes of the former operation could be obtained. It was performed at an R.A.F. hospital, and personal contact with the medical officer who performed it was impossible, as he is now abroad. The abdominal scar extended from the umbilicus to the suprapubic region in the midline. So far as could be ascertained from the hospital, a "lower segment" Caesarean section had been performed on Feb. 18, 1939, for an extended breech presentation with a small pelvis. Version having failed, the patient was delivered before the onset of labour of a living child weighing 5 lb. 4 oz., and she made a good recovery.

Second Pregnancy.—This was uneventful throughout. She had been warned early in the pregnancy, in view of her previous operation, that it would be necessary for her to be delivered in hospital according to the usual custom. During the last few weeks of her pregnancy she was kept under close observation for signs of overstretching of the uterine scar, but nothing abnormal was apparent. At 38 weeks the vertex was presenting and the head was well engaged in the pelvis with the occiput anterior. Although the promontory could be felt at a little over 4 inches, disproportion appeared to be negligible. At her last attendance at the antenatal clinic the uterine scar again appeared to be perfectly satisfactory, and it was decided that a natural labour should take place under observation in hospital.

Onset and Progress of Labour.—Labour began naturally on the expected date, and the patient was admitted to the Maternity Unit of the North Herts and South Beds Hospital with vague labour pains at 7 a.m. on Feb. 11, 1943. The membranes were intact, the head was engaged in the L.O.A. position, and there was nothing to indicate that the course of labour would be abnormal. At 11.30 a.m. on the same day it was noticed that the lower part of the abdominal scar was a little prominent in the suprapubic region. The appearance suggested, in fact, that the bladder was not completely empty. A catheter was passed, and 2 oz. of urine withdrawn without alteration in the abdominal contour. The maternal pulse was 80 at this time. The limbs were easily felt under the scar, but there was no local pain or tenderness. The cervix admitted one finger and contractions were weak. She remained perfectly comfortable, with occasional weak contractions, until 4 p.m., when she suddenly vomited and complained of sharp pains in the lower abdomen. Her general condition was good, but her pulse rose to 100. The lower part of the abdominal scar was plainly larger than before, and on palpation gave the impression that the limbs were just under the skin. There was now some local pain and tenderness, and with each

contraction the lower part of the scar bulged in the suprapubic region. Impending rupture of the uterine scar was diagnosed, and it was decided to perform an immediate laparotomy. Half an hour later she began to complain of continuous pain, and the bulge had extended along the entire length of the abdominal scar. By the time the patient was in the operating theatre, at 5 p.m., foetal parts were easily felt under the skin, and it was evident that rupture had occurred.

Operation.—Anaesthesia was induced with gas and oxygen and maintained with the addition of trilene. On opening the abdominal cavity through a midline incision free blood and liquor were encountered. The arm and shoulder of the foetus presented through an irregular laceration, which appeared to extend from below on the right side of the lower uterine segment to a point higher up on the left side of the body of the uterus. A leg was seized and the child delivered through the rupture by the breech. After a short period of asphyxia it recovered and cried almost at once. After separation and removal of the placenta and membranes it could be seen that the rupture extended well up into the body of the uterus close to the origin of the round ligament on the left side. The edges of the wound were badly lacerated, friable, and infiltrated with blood-clot. There was also considerable haemorrhage between the layers of the broad ligament on the left side. A subtotal hysterectomy, with conservation of the ovaries, was therefore performed, and the abdomen closed. Immediately after the operation the patient's condition was fairly good. Her pulse was 120. A blood transfusion had been started when it was decided to perform hysterectomy and 500 c.cm. was given rapidly, followed by a further 500 c.cm. by slow drip on her return to the ward. Three hours after the operation her pulse was 96 and her general condition much improved. The puerperium was apyrexial; she was allowed up on the 14th day, and she returned home after three weeks, breast-feeding the baby.

Pathological Report upon the Uterus.—I am indebted to Dr. W. W. Woods, of the Institute of Pathology, London Hospital, for a description of the specimen, as well as of microscopical sections through the old Caesarean section scar. "The specimen is the upper part of a parturient uterus. It measures 13 cm. long in the posterior wall and from 9 to 12 cm. long in the anterior wall, and 11 by 7 cm. across the fundus. The appendages are absent. The serosa is smooth. The lower edge of the posterior wall is the cut edge of hysterectomy. In the anterior wall the lower edge of the specimen is the rupture. Immediately above the rupture, and partly in it, the old Caesarean scar is faintly seen as a contracted area of myometrium with a few tags of omentum adherent to it. The rupture and scar pass obliquely across the anterior wall from the right side at a point 9 cm. below the uterine attachment of the right ovarian ligament to end in the left side at a point 1.5 cm. below the left ovarian ligament. The scar is therefore in the body of the uterus and not in the lower segment. In the microscopical sections made across the rupture evidence of the scar is seen as an area of fibrosis, with contraction, in the myometrium. There is continuity of muscle fibres through the scar."

Discussion

Commenting upon the few cases of rupture of a lower segment scar that have been reported, Marshall states: "There is more than a suspicion that in several of these cases the incision was not wholly confined to the lower segment, and that it was the corporeal part which subsequently ruptured." Although he was referring chiefly to the vertical incision, this criticism might well be applied to the case reported above. In fact, it is clearly shown by the pathological report that the incision was placed entirely in the body of the uterus, although it was evidently intended to be in the lower segment.

The oblique direction is not easily explained. Whether the incision was intended to be vertical, or whether this was the result of an asymmetrical curve upwards in a transverse incision, it is impossible to say. The patient was not in labour at the first operation, and it is possible that the development of the lower segment was defective or that it was difficult to define. Nevertheless it emphasizes once more the importance of a really low transverse incision.

Certain conclusions may be drawn from this case with regard to previous Caesarean operations in general: (1) That full notes of a previous Caesarean operation should always be obtained if possible. (2) That the abdominal scar is not necessarily a true indication of the nature of the uterine scar. (3) That great vigilance is necessary in all cases previously delivered by Caesarean section and subsequently allowed a natural labour, which must take place in a hospital. (4) That definite signs of overstretching of the scar usually precede the

actual rupture, and that rupture may occur with only weak contractions. (5) That the prognosis depends upon the time elapsing between rupture and laparotomy.

Early diagnosis of impending rupture should reduce the mortality to a minimum. In the case reported only a few minutes elapsed between rupture and the delivery of the child. A little earlier and the uterus might have been saved; a little later and two lives might have been lost.

I wish to thank Mr. Eardley Holland for his valuable criticism and suggestions, and for his permission to publish this case.

MEIGS'S SYNDROME

HYDROTHORAX AND ASCITES IN ASSOCIATION WITH FIBROMA OF THE OVARY

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Pleural effusion and ascites may be found in association with cardiac, renal, or hepatic disease, and in the absence of any such clearly defined clinical syndrome are commonly attributed to carcinomatosis or tuberculosis. The association of simple fibroma of the ovary with ascites is well known, free fluid sufficient to be recognizable clinically being found in 75% of cases. Pleural effusion in association with ascites and fibroma of the ovary is a rare condition. Only 28 cases have been reported in the literature, 27 of these being from America and one from Great Britain. It is our purpose to describe two such cases which have recently occurred in Aberdeen, as we believe that others may go unrecognized and, since ascites and hydrothorax immediately suggest an inoperable growth, some patients may have died unnecessarily. This is suggested by the fact that patients who were very seriously ill have made excellent recoveries after operation.

Previous Cases

The first case was reported by Cullingworth in 1879, and the patient died without operation. The condition was first described in 1892 by Lawson Tait, who advocated exploring the abdomen in patients with abdominal and chest fluid, for he considered that this combination did not always mean cancer. There was no further reference until 1923, when Hoon of the Mayo Clinic reported two cases. Meigs (1934) referred to 3 cases, reported 4 in collaboration with Cass in 1937, and in 1939 summarized 15 more cases. Later, in 1940, this total was increased to 18, while in 1943 further cases were described by Meigs *et al.*, bringing the total of authentic cases described in America to 27. Rhoads and Terrell first used the term "Meigs' syndrome" when reporting a case in 1937. In Dec., 1943, Gild described one case in England.

Recorded Signs and Symptoms

In the majority of cases the history was that of dyspnoea, loss in weight, fatigue, cough, and pain in the chest, while on physical examination a massive pleural effusion was found in association with a greater or less quantity of abdominal fluid together with a pelvic tumour. The tumour may be a large and easily palpable mass associated with a clinically undetectable quantity of abdominal fluid or, alternatively, may be no larger than a walnut, only discoverable, in the presence of considerable ascites, at operation. In all cases the pleural effusion has been of a massive nature causing collapse of the lung on the affected side and displacement of the mediastinum. The condition may occur at any age, the oldest patient being 73, and it has even been found complicating pregnancy. The right side of the chest is more often and usually more extensively affected than the left. There is no recurrence of the effusions after removal of the tumour, and indeed spontaneous resolution

of the chest occurs within a few weeks. This is in marked contrast to what happens before operation, when, following the removal of large quantities of fluid, the chest fills up again in a matter of a few days, or in some cases within 24 hours. In some instances there is so little fluid in the abdominal cavity that paracentesis may fail to locate it, but some will always be found at operation.

Case Histories

Case 1.—An unmarried woman aged 59 was admitted to the gynaecological ward of the Aberdeen Royal Infirmary with a complaint of breathlessness for the past year. She had noticed a lump in her abdomen for about the same period. The last menstrual period occurred ten years previously. The patient was emaciated and slightly orthopnoeic. There was a right pleural effusion, producing a mediastinal shift to the left. The abdomen was distended by a large irregular cystic swelling arising from the pelvis and reaching above the umbilicus. Vaginal examination revealed a small uterus distinct from the tumour. X-ray examination disclosed a large chronic effusion almost completely filling the right chest. The sputum showed no evidence of tubercle bacilli. The blood sedimentation rate was 15 mm. in the first hour. Almost five pints of straw-coloured fluid was removed from the right pleural cavity. Bacteriological and pathological examination of this fluid failed to show evidence either of tuberculosis or of malignant disease. Laparotomy by Prof. Baird two weeks after admission demonstrated a big unilocular cyst about 8 in. in diameter attached to the left broad ligament. There was a small quantity of fluid in the peritoneal cavity. The cyst was removed and the abdomen closed. Histologically the tumour was shown to be a cellular ovarian fibroma with marked cystic degeneration but no evidence of malignancy. Recovery was rapid and no further breathlessness has been noted. Her general condition improved steadily and the emaciation quickly disappeared. A radiograph of the chest three months after operation showed the lungs to be normal.

Case 2.—A married woman aged 47 who had one child, now aged 25, was admitted to Aberdeen City Hospital as a case of pulmonary tuberculosis. Her complaint was breathlessness for the past five months. The menstrual history was normal. She was a thin, rather wasted woman—breathless while lying in bed. There was a large pleural effusion on the right side with a slight mediastinal shift, and on abdominal palpation a large mass was felt rising out of the pelvis to the level of the umbilicus, but no free fluid could be detected. On vaginal examination a hard mass was very easily felt in the right fornix. X-ray examination of the chest showed a large pleural effusion on the right side. The left lung was normal. No tubercle bacilli were found in the sputum by direct film or on animal inoculation. The blood sedimentation rate was 10 mm. in the first hour. The right pleural cavity was aspirated and the fluid replaced by air. The fluid was clear, and histological examination of centrifuged deposit showed no evidence of malignant disease, while animal inoculation of two specimens failed to reveal the presence of tubercle bacilli. Subsequent x-ray examination disclosed a right hydropneumothorax with complete collapse of the right lung. In all, 35 pints of fluid were removed from the right pleural cavity. Paracentesis of the abdomen failed to elicit fluid. An exploratory laparotomy was performed by Prof. Baird two months after admission. There was less than a pint of fluid in the peritoneal cavity, and a large white lobulated tumour (7 by 6 in.) was found attached by a pedicle to the right broad ligament posteriorly. The left ovary was normal. The tumour was removed, and proved to be a typical ovarian fibroma with no evidence of malignancy. Post-operative convalescence was uneventful. Further radiographs of the chest showed rapid absorption of the right pleural effusion, and ten weeks after operation only a trace of fluid was detectable. The right lung had expanded, and the patient's general condition had greatly improved.

Aetiology

No satisfactory explanation exists to account for the phenomenon. The suggestions which have been offered are: (1) lack of drainage of the right chest by the azygos vein; (2) repeated minor trauma to the peritoneum by the fibroma, causing a histamine toxicosis or anaphylactic shock plus accumulations of peritoneal and pleural transudate; (3) congenital communication between the abdomen and the chest—the so-called pleuro-peritoneal canal.

None of these explanations have been satisfactorily proved. Meigs *et al.* introduced a quantity of air into the pleural cavity, the patient then being tilted into the Trendelenburg position and x-rayed without any evidence of air being forced into the abdomen. The reverse procedure, whereby a considerable quantity of air was pumped into the abdomen to the point of discomfort and dyspnoea in an effort to demonstrate any passage-way for air from the abdomen to the thorax, has also