Ivalon on the front of the sacrum. We had no trouble, but I became nervous about intestinal obstruction and changed over to an open trough (Fig. 1), which is in any case easier to place in position.

We have done this operation fifteen times—the first five years ago. About half were recurrent cases. The prolapse has been well controlled in every case and all are continent. In two or three women over 70 in whom a separate repair of a vaginal prolapse did not seem justifiable, the standard procedure was carried out for the rectal condition with unexpected and complete relief of the vaginal prolapse as an incidental result. In one patient the abdomen was reopened for another reason several weeks after the repair and complete peritoneal cover of the sponge was observed with no overlying adhesions.

Technique.—The peritoneum on either side of the meso-rectum is reflected laterally as a flap, and the rectum with its superior rectal vessels is lifted forwards from the hollow of the sacrum. The dissection is carried forwards and downwards between the rectum and prostate (or vagina) for about a further 2 in. (5 cm.). A sheet of Ivalon is now attached to the anterior surface of the sacrum between the promontory and the third or fourth segment, by three midline sutures of thread. The rectum is then drawn firmly upwards and the Ivalon folded around it to enclose all save the anterior fourth or fifth of its circumference. The Ivalon is attached to the rectum by sutures along the anterior free edge of the sponge. Finally the flaps of peritoneum are replaced to cover the operative field.

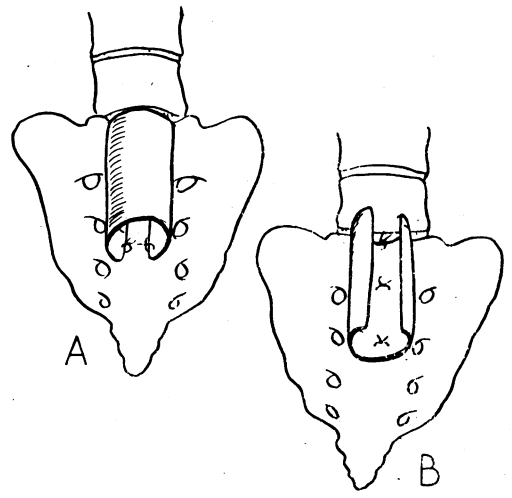

FIG. 1.—A, Sketch of Ivalon sponge attached by its free margins to the hollow of the sacrum to form a tunnel. B, Sketch of Ivalon sponge attached to the hollow of the sacrum to form a trough.

(The technique of the operation was illustrated by a cine-film.)

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A Brief Review of Dissecting Aneurysm of the Aorta and a Report of the Successful Treatment of a Case

By A. B. BIRT, F.R.C.S.

Norwich

DISSECTING aneurysm of the aorta has been recognized at autopsy for just over a hundred and fifty years, but it was not until 100 years ago that the first case was correctly diagnosed during life. Shennan of Aberdeen in 1934 in a review of 300 cases from the world literature in the seventy-eight years from 1855 to 1933 found that only 1·6% had been diagnosed before death; but in 1950, Levinson *et al.* reported a series in which 10·6% had been diagnosed during life. The first operative attack on a dissecting aneurysm of the aorta was reported by Gurin *et al.* in 1935, the patient dying of renal failure on the sixth post-operative day. Since then an increasing number of cases has been operated upon, at first without survival for more than a few days, but more recently with an increasing success. As far as I can ascertain from the world literature there have been 13 successful cases reported: 10 by Creech *et al.* (1956), one by Warren *et al.* (1956) and one by Swann and Bradsher (1956). All these cases were in the United States of America. There is one case from this country (Martin and Muir, 1958) in which operation was temporarily successful but the patient unfortunately died about eight months after operation from rupture of the aneurysmal sac into the pericardium. To these I should like to add my own case of a patient who was operated upon on November 4, 1956, and is still alive and well.

Increased success in surgical treatment entirely depends upon more accurate diagnosis and this will only be achieved if the possible presence of the lesion is always kept well in mind. The tear in the media from which the dissection originates is most commonly situated in the ascending

aorta, a little distal to the aortic valve. Next most common is a tear just distal to the left subclavian artery often associated with some degree of true aneurysmal dilatation of this part of the aorta. As the blood dissects downwards in the coats of the aorta the side vessels are affected in a variable manner. The dissection may extend outwards along these vessels; they may be enveloped and passed; they may be occluded; or they may be torn across at their origins. The dissection usually bursts through the outer coat of the aorta into the pericardium, mediastinum or pleura, but only rarely into the peritoneum or retroperitoneal tissues. Very rarely, the dissection re-enters the normal lumen of the aorta through another tear in the media lower down, and a spontaneous cure results. It is this natural re-entry tear which gives the clue to surgical treatment. In view of the rapidly progressive nature of the condition and its high mortality, I believe that all cases in a reasonable general state should be treated by urgent operation.

Warren *et al.* (1956) suggested that the aims of treatment should be: (1) The establishment of re-entry of the dissection into the normal lumen, (2) The prevention of distal extension of the dissection, (3) The relief of peripheral arterial obstruction, if present, (4) The control of hæmorrhage, if present.

In my opinion the approach to the aorta should be transthoracic, except when peripheral arterial obstruction is present or in the rare cases in which intra-abdominal hæmorrhage has occurred. The main method of treatment is to clamp the aorta in two places just below the left subclavian artery and divide it between the clamps. In the distal end the media is then approximated to the outer coat of the aorta by suturing. In the proximal end the media is cut back at one point to form a re-entry hole of adequate size and the remainder of the media is sutured to the outer coat (Fig. 1), after which the two ends of the aorta are re-sutured as an ordinary end-to-end anastomosis. Creech *et al.* (1956) point out that the re-entry hole in the media should be close to the origin of the dissection in order to minimize the risk of bursting of the outer coat of the dissection. The portion of the aorta just below the left subclavian artery is the highest point at which this can easily be done. If, on the other hand, distal vessels are occluded or intra-abdominal hæmorrhage is present, the aorta should be approached through the abdomen. A similar procedure is carried out to the dissecting aneurysm and normal blood flow through the occluded vessels re-established by the simplest means. Creech *et al.* (1956) state that in those cases in which the dissection starts below the left subclavian artery

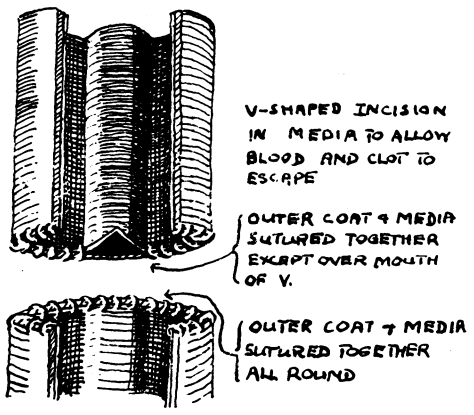

FIG. 1.—Normal method of repair.

and there is an associated true aneurysmal dilatation of the aorta, the affected portion of the aorta should be excised from above the tear in the media and replaced with a graft.

CASE HISTORY

A man aged 59 was admitted to the Norfolk and Norwich Hospital on the evening of November 4, 1956. About one month previously at an examination for insurance he had been found to have fairly severe symptomless hypertension. One hour before admission, he had suddenly developed a severe pain in the lower thoracic region of his back which radiated round both sides to the front at about the level of the costal margins. Soon after the pain started he felt "pins and needles" in his left leg followed by numbness of this leg. Examination showed that he was in great pain. His pulse was 68 per minute, regular, and could be felt in both arms. His blood pressure was 290/150 and was the same in both arms. The heart sounds were normal and no murmurs were heard. There was no abnormality found in his chest or abdomen. His left leg was considerably colder than his right leg, although there was no obvious change in colour. All pulses in the left leg were absent, but were normal in the right leg. A diagnosis of dissecting aneurysm of the aorta with occlusion of the left iliac artery was made. It was decided that urgent operation was indicated and in view of the occlusion of the left iliac artery it was decided that the aorta should be explored through the abdomen. In case it might prove necessary to clamp the aorta above the renal arteries, it was felt wise to perform the operation under hypothermia. The patient was therefore anæsthetized and hypothermia was induced by surface cooling. The abdomen was opened through a long left paramedian incision. There was no blood or fluid in the peritoneal cavity and the gastro-intestinal tract was normal. The aorta was exposed and a dark bluish discoloration was seen on its left side occupying about one-third of its circumference. The renal, mesenteric and right common iliac arteries were pulsating normally, but there was no pulsation to be felt in the left common iliac

artery. The bluish discoloration of the aorta was seen immediately below the diaphragm, and had obviously started above this. It extended down the full length of the left side of the abdominal aorta and then spread out to envelop the whole circumference of the left common and external iliac arteries (Fig. 2). To restore the circulation to the left leg,

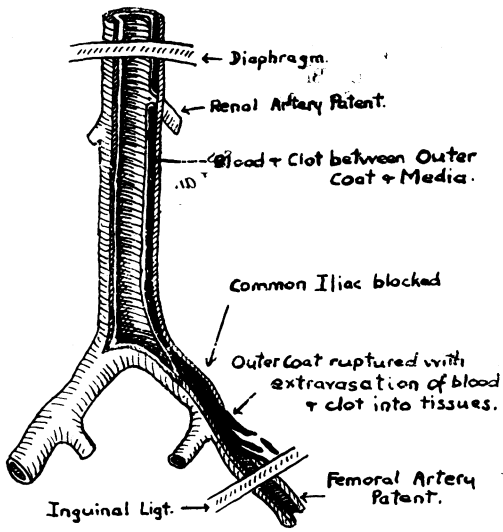

FIG. 2.—Diagram of findings at operation I.

a clamp was applied to the top of the left common iliac artery and the vessel was divided below. The proximal end of the vessel was found to be partially occluded by the dissection in its coats, but it was found possible to wash out and remove the blood and clot from within its coats so that the lumen was restored almost fully. The distal end of the vessel was completely occluded by the dissection in its coats, and it was found impossible to remove or wash out the blood and clot, so that its lumen could not be restored (Fig. 3). It was then decided to explore the left femoral artery to see if its lumen was occluded or not. The left femoral artery was therefore exposed just below the inguinal ligament. During the course of the dissection it was found that there was an extravasation of blood in the tissues around the artery, and it was therefore felt that the outer coat of the dissecting aneurysm had already begun to burst, probably somewhere just above the inguinal ligament. The left femoral artery itself appeared to be normal with a good lumen free of clot (Fig. 2). It was decided to restore the circulation to the left leg by means of an artery homograft, and at the same time to establish a re-entry hole through the media for the dissecting aneurysm.

The media and the outer coat of the proximal end of the left common iliac artery were approximated by a continuous arterial suture for about three-quarters of its circumference. At the remaining quarter of the circumference the media was cut back as an inverted V in order to form a re-entry hole (Fig. 4). The upper end of the graft was anastomosed end-to-end to the proximal part of the common iliac artery,

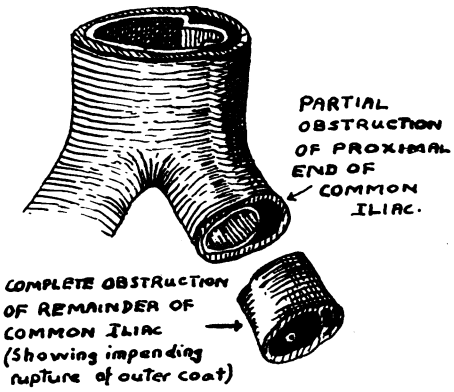

FIG. 3.—Findings at operation II.

sutured to all layers over three-quarters of the circumference and to the outer coat only over the part where the media had been cut to form the inverted V. The lower end of the graft was passed under the inguinal ligament and anastomosed end-to-side to the femoral artery.

On releasing the clamps, normal pulsation was restored throughout all the arteries of the left leg. It was realized that the re-entry hole through the media had been established a very long way below the original tear in the media, but the patient's general condition would not allow a further operation to be performed on his chest in order to establish a further re-entry hole there. It was therefore decided that nothing further should be done and the patient was returned to the ward.

He made an uneventful post-operative recovery except that on the fourth post-operative day his blood urea had risen to 80 mg.% but he passed a good volume of urine throughout. By the fourteenth post-operative day, the blood urea had fallen again to 38 mg.%. He was discharged on November 30, 1956, twenty-six days after admission.

While the patient was still in the hospital, my

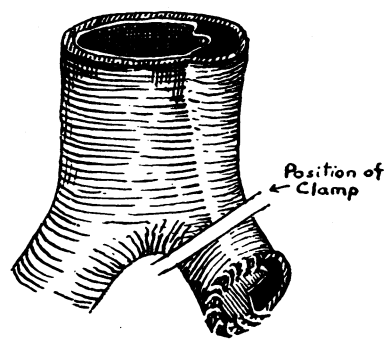

FIG. 4.—Operative procedure.

colleague, Dr. J. A. Campbell, started treating him for his hypertension and the patient has remained under Dr. Campbell's care ever since. He has been treated with Serpasil and Inversine and on January 16, 1959, his blood pressure was 155/90. He was then very fit and well and took exercise every day by walking about one mile in spite of the snow which was present in Norwich at that time.

I should like to thank my colleague, Mr. A. P. Bentall, for all the trouble he has taken in preparing the diagrams.

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Mr. T. HOLMES SELLORS showed a film entitled **Atrial Septal Defect.** (*See Lancet*, 1957, i, 1255.)

Meeting
May 1–2, 1959

MEETING AT BRISTOL

Programme

May 1, *morning, at the Royal Infirmary*

The following operations were performed:

Femoropopliteal Artery Graft.—Mr. R. HORTON.

Thyroidectomy.—Mr. ROBERT COOKE.

Porta-caval Anastomosis.—Professor R. MILNES WALKER.

Operation for Vesico-colic Fistula.—Mr. ASHTON MILLER.

Scientific demonstrations and cases of surgical interest were on show during the morning, together with an X-ray quiz competition set up by Dr. J. H. MIDDLEMISS.

May 1, *afternoon, at the Council House*

The following papers were read and films shown:

The Treatment of Window Fistula.—Mr. D. G. J. JENKINS.

Cineradiography of the Common Bile and Pancreatic Ducts.—Dr. F. G. M. Ross and Mr. P. J. W. MONKS.

Hazards of Surgical Diathermy.—Mr. J. P. MITCHELL.

Diagnosis of Colon Polyps.—Dr. J. H. MIDDLEMISS.

Carcinoma of the Duodenum.—Mr. K. D. J. VOWLES.

Film: **Bilateral Oophorectomy and Adrenalectomy in a Single Stage.**—Mr. D. S. M. BARLOW.

Neuromuscular Enteropathy.—Dr. J. M. NAISH and Mr. W. M. CAPPER.

May 2, *morning, at Frenchay Hospital*

The following operations were performed:

Plastic Department

Excision of Rodent Ulcer Involving Skull Bone of Temporal Region, and Scalp Flap.—Mr. G. FITZGIBBON.

Reconstruction of Mandible by Bone Graft Following Resection from Angle to Angle Two Years Ago for Carcinoma.—Mr. D. C. BODENHAM and Mr. W. BAKEWELL.

Film showing **Forehead Flap Technique.**—Mr. D. C. BODENHAM.

Neurosurgical Department

Subacute Subdural Hæmatoma.—Mr. G. L. ALEXANDER.

Torkildsen's Operation (Ventriculo-cisternal By-pass) for Pineal Tumour.—Mr. D. G. PHILLIPS.

Thoracic Department

Dismantling of Previous Gastro-enterostomy and Œsophagogastrectomy for Benign Stricture of the Œsophagus.—Mr. R. H. R. BELSEY.

Repair of Hiatus Hernia.—Mr. D. MEARNS MILNE.

General Surgery Department

Operation for Large Incisional Hernia.—Mr. C. H. BARTLETT.

The following papers were read:

Colon Transplant for Œsophageal Replacement.—Mr. R. H. R. BELSEY.

Pancreatic Function after Gastrectomy.—Mr. T. J. BUTLER.

The Radiological Department also showed a series of short films.