ANEURYSM OF THE FOOT.

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SINCE aneurysms of the foot are rather uncommon, and a conservative line of treatment often difficult to adopt, the following case seems worth recording:

Miss A. M., aged 25, was seen first in July, 1906. The dorsum of the left foot was the seat of an aneurysm, the centre of which corresponded roughly with the tarso-metatarsal joint, its limits being more or less indefinite, and measuring some $1\frac{1}{2}$ in. The chief supply was the anterior tibial artery, whilst the inner pillar of the dorsal venous arch, very much dilated, acted as the main return vessel. This latter joined below and above the inner ankle with the posterior tibial vein, as well as continuing its course up the leg as the internal saphenous vein. On the plantar aspect there was also a pulsating area extending along the centre of the sole for some 2 in. and about 1 in. wide. The skin of the foot was in an unhealthy condition, comparable to that associated with the impaired circulation of varicose veins, and in addition had two chronic ulcers, one on the outer surface of the tarsus and one over the heads of the middle metatarsal bones, each about 1 in. in diameter. The proximity of these to the aneurysm, to say nothing of the chances of an accidental wound, constituted obviously a very grave risk. As her general condition was also very poor, it was thought best first to try and improve this and at the same time give the ulcers a chance of healing by rest and the application of an Unna's dressing.

The previous history is unimportant, except that some years ago she had the anterior tibial artery tied in the lower third of the leg without appreciable improvement. The condition had been present since early childhood, and was attributed to a small punctured wound contracted on the seashore. The foot was gradually becoming more and more of a handicap to walking and more painful, and she urged amputation, which, however, did not seem justifiable without an attempt to obliterate the sacs.

The dressing was worn till September, and under it the ulcers cleared up considerably. At the beginning of that month she had a spontaneous haemorrhage from an enlarged vein, within an inch of the aneurysm on the outer side of the dorsum of the foot, which, however, was satisfactorily controlled by local pressure.

On September 18th, under ether and after the application of an Esmarch's bandage and tourniquet, the enlarged vein on the inner side of the dorsum was dissected out for about 2 in. of its course; then the dorsalis pedis, which was represented by a plexiform arrangement of vessels, an external calcaneal branch, and the external plantar arteries were tied; as pulsation in the sacs still persisted after removal of the tourniquet, the posterior tibial artery was also tied behind the inner malleolus, with the result that apparently the supply to the sacs was efficiently cut off. The wounds were then sutured and firm dressings applied.

As soon as possible she continued taking calcium chloride gr. xx t.d., which was commenced a few days prior to the operation. The foot was redressed on September 22nd; all the wounds were healthy, but there was pulsation in the plantar sac. Her condition was extremely neurotic, and in spite of most careful attention on the part of her nurse, it was almost impossible to keep the foot at rest; and one night, having torn off the splint and dressings, she kicked her foot against the wall, with the result that the little toe was seriously damaged, and pulsation recurred in the dorsal sac as well. This happened ten days after the operation, and was most disappointing, as, in spite of her continuous neurotic condition, one was led to hope that something had been gained. It was thought best to wait until damage to the little toe became limited, and the foot was quite sound, before attempting anything further. So that it was not until November 15th that a second operation was proposed.

On this date several small branches of the dorsalis pedis and a vessel in front of the external malleolus, which appeared to be supplying the sac, were tied. Then an Esmarch's bandage and tourniquet were applied, and both the dorsal and plantar sacs laid open for their whole length, and the interior gently curetted and packed with gauze. The dressing was completed by adjusting two short splints, 3×8 , transversely across the dorsum and sole of the foot immediately over the gauze packing, pressure being maintained by tying their free ends firmly together clear of the foot.

By this means it was thought that requisite pressure could be gained, whilst the inner and outer aspects of the foot would be free to carry on circulation to the toes.

The dorsal and plantar sacs were each estimated as capable of holding from $\frac{3}{8}$ to $\frac{3}{4}$ of blood. The former was situated between the skin and the tarsus amongst the extensor tendons, and the latter in the space between the second and third muscular "layers" of the sole.

The foot was subsequently dressed twice under ether, the first time with a tourniquet. The lining of the sacs sloughed, and then both wounds, representing the laid-open sacs, uneventfully granulated. Skin grafts were applied January

7th, 1907, and all healed up firmly. After some two months' further rest she was allowed to commence using the foot.

The present condition is as follows: There is a large healed wound on the dorsum corresponding to the sac of the aneurysm; both ulcers are also soundly healed. The distal half of the little toe is absent, the remaining portion being healthy. The other toes have not suffered as regards nutrition, but have very little power left, due to involvement of their tendons in the sloughing and subsequent granulation after the second operation. On the sole there is a deep longitudinal depression in place of the aneurysmal sac in this situation. Some pulsation can still be detected along the inner border of the sole and dorsal aspect of the first interosseous space, due, presumably, to the fact that the blood supply to the toes is almost entirely dependent on the internal plantar vessel, and thence via the first interosseous artery, but this seems quite separate from the original aneurysm.

Although she is still wearing a crêpe Velpeau bandage to control swelling of the foot and as a precautionary measure, she can get about better than before the operation, and is certainly in a very much safer condition; whilst if any further treatment is necessary, which is not at present indicated, very considerable progress has at any rate been gained.

EPIDEMIC CEREBRO-SPINAL MENINGITIS
WITH TYPHOID AGGLUTININS IN
THE BLOOD.

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THE following case is significant of the caution with which, under certain circumstances, a well-marked positive Widal reaction is to be regarded in the diagnosis of enteric fever, and, moreover, the case, which was one of epidemic cerebro-spinal meningitis, might, in view of the Widal reaction, have been considered to have been typhoid fever with meningeal symptoms. The essential points are as follows:

History.

A muscular woman, 27 years of age, was admitted to hospital with marked symptoms of meningitis; the circumstances of her life, which were intimately known to her family, showed no discoverable contact with any of the epidemic cases of cerebro-spinal meningitis that were, at the time, prevalent in Belfast. Her blood was twice tested by us as to its agglutinative power on the *Bacillus typhosus*, and on both occasions the serum in dilutions of 1 in 200 gave marked clumping within fifteen minutes. Her father assured us that she had had no illness since her ninth year, when she had scarlet fever, and that, therefore, for nineteen years she had never been a day in bed from any cause, and thus, apart from the improbable occurrence of ambulatory typhoid fever, it was extremely unlikely that the agglutinins in her blood had formed previous to her fatal illness.

Notwithstanding the positive outcome of the agglutinative test with *Bacillus typhosus*, her condition was strongly considered to be that of epidemic cerebro-spinal meningitis, owing to the complete predominance of meningeal symptoms, the character of the petechiae over the body, the constipation, the condition of the spleen, etc., and also for the subsidiary reason that epidemic meningitis was present in Belfast during the time of her illness, so much so that lumbar puncture, owing to stress of work, was not performed during life.

Post-mortem Appearances.

There was nothing suggestive of typhoid fever, the spleen was somewhat enlarged, Peyer's patches were normal. There was suppurative meningitis of the brain and cord, and from the pus we recovered, in pure culture and in great abundance, the *Diplococcus intracellularis meningitidis* of Weichselbaum.¹ Moreover, an exhaustive bacteriological examination of the spleen, mesenteric glands and urine was made for the *Bacillus typhosus*, but with uniformly negative results. Further, the autopsy revealed the usual conditions shown by one of us² to accompany epidemic cerebro-spinal fever, namely, slightly enlarged spleen, acute gastro-enteritis, enlarged and hyperaemic mesenteric glands, and particularly the swollen and prominent solitary follicles of the intestine, etc.

The *Bacillus typhosus* used in the agglutinative tests was the one that is customarily employed in this laboratory, and during the past year it gave in 112 examinations results which, clinically controlled, were correct in 97.3 per cent. of the cases.³

We may mention that we have in preparation a paper dealing with anomalous, or rather with unexpected

agglutinative effects exerted by the serum of cerebro-spinal meningitis on bacteria other than the specific coccus.

This case, then, is an example of genuine epidemic cerebro-spinal meningitis in which the serum gave a positive Widal reaction in a dilution of 1 in 200, and in which the *Bacillus typhosus* had no part in the infection.

REFERENCES.

¹BRITISH MEDICAL JOURNAL, June 22nd, 1907. ²Ibid., February 16th, 1907, p. 391. ³W. James Wilson, *Medical Press and Circular*, June 26th, 1907.

A CASE OF ANEURYSM OF THE ABDOMINAL AORTA WITHOUT SYMPTOMS.

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With a Note on the Pathological Appearances.

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THE interesting points in the following case are the absence of a history of any of the ordinary causes of aneurysm, and the fact that so considerable an aneurysm of the abdominal aorta could have existed causing practically no symptoms and no discomfort to the patient, who had led an active life as a midwife until a few years before her death.

The age of the patient when I first saw her was stated to be 86. Three years earlier she picked a pimple which was worrying her, and as it grew larger she applied some carbolic acid in vaseline from a tin which her nephew was applying to a sore on the back of a horse. As this application seemed to aggravate matters she consulted a doctor, who diagnosed rodent ulcer, but she refused all surgical intervention. When first seen by me a radical operation was practically out of the question on account of her general condition. The sole treatment during her past few months' illness was palliative—orthoform and resorcin playing a prominent part locally—but asthenia rapidly supervened *pari passu* with the malignant growth, which had taken on a fungating fetid character. When the patient was first seen, an abdominal swelling was observed which she said had been there for years, and which never gave her a thought, as it had never given rise to any symptoms either of discomfort or pain; in fact she was unconscious of its presence, and never worried about it. The patient, who was of a very cheery temperament, presented a rather anaemic and emaciated, in fact cachectic, appearance. A to-and-fro movement over the abdominal mass was seen easily, and appeared to respond to, or to be synchronous with, every heart beat; such motion suggested a tumour firmly fixed or connected with the arterial system. The swelling was mobile, easily defined, and solid, and principally occupied the umbilical region. It felt as large as a goose egg, and a heaving sensation was imparted on palpation; no thrill or diffuse pulsation was observed, nor any local varicose, abdominal, or other veins. The percussion note was dull, and auscultation over the tumour was negative. Occasionally, when gaseous distension of the intestine was present, the mass used to alter its position and give rise to uncomfortable sensations, and resemble a distended gall bladder in site and size. The arteries were somewhat thickened and calcareous but not tortuous. The radial pulses and pupils were equal. Inspection and palpation over præcordia, aortic region, and great vessels of the neck revealed nothing abnormal. There were no episternal phenomena. Percussion showed the heart slightly outside the nipple line, otherwise the outline was normal, as was the aortic arch. The apex beat was at fifth interspace, and both sounds were closed with slight accentuation of first mitral and occasionally reduplication of second. The aortic sounds were closed, but with impurity or roughness of the first sound, probably senile or atheromatous. The second sound was markedly accentuated. The tricuspid and pulmonary sounds were normal. There was no dropsy, lividity, pallor, or clubbing of the nose or fingers, or any other circulatory disorder, except cold feet occasionally. All the other systems were inquired into carefully, and nothing worthy of note was recorded. The spinal reflexes were active, and no evidence of pressure was manifested; all tactile sensations were unimpaired. The spinal column showed no deformity, or no tenderness could be elicited. Mental processes were active.

Necropsy.

In conjunction with Dr. J. H. McGee (who had seen the case previously with me) I opened the abdomen (*post mortem*) over the site of the tumour, and great difficulty was experienced in defining the mass, as adhesions were firmly binding down the intestines, omentum, mesentery, and aorta. However, after separation of the transverse colon and small intestines, the tumour was ligatured opposite the second lumbar vertebra above and at the origin of the iliac vessels below. It was found

continuous with the aorta, and all the other abdominal organs were examined, but nothing pathological was found. The kidneys were not movable, and the gall bladder was healthy. The liver was not enlarged. There was no evidence of any pressure effects on the vertebrae.

REPORT ON SPECIMEN BY CONSTANCE ELLIS, M.D.

The specimen consists of the lower 5 in. of the abdominal aorta, terminating in the two common iliac arteries. The aorta has been opened along its posterior surface, the orifices of the lumbar arteries being seen thereon, but neither coeliac axis nor mesenteric artery are present in the specimen. There are some atheromatous patches present in the aorta.

The mass of clot forming the aneurysm measures vertically about 4 in., and antero-posteriorly at its thickest part nearly 2 in. The aneurysm has evidently been formed by the giving way of the inner coat of the aorta on its

View from behind: artery wall vertically incised and reflected to show clot within. $\frac{2}{3}$ natural size.

anterior aspect, the condensation of the outer coat and the tissues around forming the wall of the aneurysm.

The clot is very firm and fibrinous and closely united to the condensed tissues forming the wall of the aneurysm. For about 1½ in. above the iliac vessels the clot is present in the aorta and is channelled for the passage of blood. Otherwise the blood flow has been unimpeded in the artery, as it lies behind the aneurysm, which has also left untouched the distributing branches to the abdominal organs. Hence we have the interesting fact, as seen in the notes, that so notable a pathological condition should have given rise to practically no symptoms and to no discomfort to the patient.

The photograph, taken by Mr. Sayce, of the Bacteriological Laboratory, gives an excellent view of the aneurysm.