they are quiet, unassuming, unaggressive, tender-hearted people who prefer long walks alone in the country to being at parties or in crowds, where, without justification, they feel that everybody is looking at them or passing remarks about them. Even if they appear well adjusted, they are timid anxious individuals, unduly dependent on and swayed by the opinion of others. Whatever they do is carefully weighed up beforehand, because of their preoccupation with potential adverse consequences. Some are shy in front of women or are even terrified of contact with them. Others state quite frankly that they feel more at home in their company. "Girls understand me better than boys," several said. If they marry they choose a sisterly or maternal type of woman who looks after them. They are meek and docile husbands, and if their wives are domineering, or even if they are unfaithful, they submit without protest. As might be expected, with very few exceptions they are poor soldiers. They are isolated in their units and often the butt of their comrades.

2. OSTENTATIOUSLY INDEPENDENT TYPE

This group comprises 12 patients, basically similar in structure to, though superficially just the reverse of, the first group. They adopt an active, energetic, masculine attitude towards life, but the ostentatious nature of their conduct and behaviour bears the stamp of its reactive over-compensatory origin. Vaguely aware of their inherent passive feminine trends, they have to show the world how tough they are, for fear of being found out.

They were usually robust as children, mixed easily and liked parties, whose "life and soul" they were anxious to be. They were good organizers, always ready to assume leadership. They liked to be in the forefront of everything, were involved in any mischief that was going, and were often the leaders of the local gang. They were stubborn and cheeky at home, and argumentative and quarrelsome with other children if these did not fall in with their views and arrangements. Like the members of the first group they indulged in grandiose fantasies, but in contrast they put them into action. They were fond of taking risks, excelled in sports and games, and, in general, "liked to show off brute strength," as one of the patients put it. They liked fighting for the fun of it, and prided themselves on having acquired such nicknames as "Tiger" or "Champ." Many of them, however, realized that this was not their real nature: behind a façade of self-assertiveness they were shy and diffident. They blushed easily, and joking insinuations implying their possession of girlish characteristics upset them unduly. A few fainted easily if it came to actual fighting, and almost all of them shamefacedly admitted they had always been subject to numerous morbid fears.

Half of them, in whom self-driving ambition and wish to show off prevailed, made a success in life before their breakdown. One of them, anxious to demonstrate his heroism, joined "the toughest tramp-ship company afloat." The others were either lazy good-for-nothing loafers or got into trouble because of their aggressiveness. Strange as it may appear, this group includes the only female member of the series. Grossly over-attached to her mother from early childhood onwards, she "went for" her drunken father on many occasions. Afterwards, in the face of many hardships, she tried to live up to her very high and rigid Spartan ideals. She joined the A.T.S. at the outbreak of war, and became severely depressed after her father's death through enemy action.

Their main characteristics fit these men well for soldiering. A few have distinguished themselves by their bravery; four who were poor soldiers were either inefficient from the start or became involved in disciplinary difficulties.

3. MIXED REACTION TYPES

The remaining 13 patients showed no predominance of their dependent or independent tendencies. They have certain characteristics in common with both preceding groups without falling into either of them. This group includes individuals who, struggling against a constitutional handicap, tried more or less successfully to emulate their strong brothers and fathers; chronically anxious individuals who somehow managed to master their morbid fears; apparently fearless individuals with deep-seated conflicts over aggressiveness; and solitary individuals without manifest social anxiety. Three patients of this group showed only minor personality deviations which approximated very closely to the normal.

(To be concluded. References will be given with Part II)

THROMBOSIS IN ARTERIOSCLEROSIS OF THE EXTREMITIES

BY

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At 25 years of age the arterial tree is seen at its best, and from this time onwards signs of wear and tear begin to appear. The downward course is slow and insidious, and the extent of the changes seems to depend more upon inherited quality of the arterial wall than upon any other single factor. Nature, however, possesses immense reserves, and, in general, the stiffened wall and reduced calibre give rise to no significant symptoms, though they no doubt play a part in the loss of bodily strength and mental alertness in later years.

In those arteriosclerotic patients in whom the embarrassment of the peripheral circulation of the limbs becomes serious the first signs of trouble are usually a persistent coldness of the extremities and an arresting cramp in the calf or foot on exertion (intermittent claudication). The walking distance gradually lessens; colour changes appear, at first rubor and later cyanosis. Finally, severe and continuous rest pain in the dusky digits is ominous of impending gangrene.

There are, however, other cases of arteriosclerosis in which serious consequences descend like a bolt from the blue in patients who have had no previous warning of any defect in their peripheral circulation. These accidents appear to result from a sudden thrombosis, and when one thinks how commonplace is thrombosis of the cerebral or coronary arteries it is not surprising that similar catastrophes should occur in the arteries of the limbs. During the last few years we have studied 19 cases in which sudden thrombosis of arteriosclerotic arteries has occurred, and we have watched the course of these patients over long periods. Of the 19 patients 16 were men and 3 women. The lower limb was affected in 17 cases and the upper in 2. The average age was 53, which indicates that thrombosis of the arteries of the limbs happens at a relatively early age in a patient who, already arteriosclerotic, is still capable of considerable muscular effort.

Symptoms

In most of our cases the attack has developed during a spell of active exertion—e.g., cycling uphill, climbing the gangway of a ship, pulling on a rope—and in one instance the trouble followed immediately on a fall from a lorry.

The first symptom is a sudden pain of crippling severity, usually in the calf. On examination the foot is found to be cold and waxy, and no pulsation can be felt. The acute pain usually abates and the limb then presents the well-known signs of arterial embarrassment; it is cold, shows rubor in the dependent position, and all active movement is sharply limited by the onset of severe cramp in the calf or foot, often within a few yards. Very gradually—it may be several weeks—the condition improves as some collateral circulation slowly comes into play, but recovery is always far from complete; some degree of claudication, cold, and rubor persists. Gangrene is not common, and

when it does occur it is usually slight and limited to the distal parts of one or more digits. In only one of our patients was amputation of the limb necessary for gross gangrene.

The cardinal feature is therefore the sudden acute onset followed by a severe claudication which, unlike that of progressive arterial disease, tends steadily to improve as some amount of collateral circulation develops. These features are shown in Cases 1 and 2—the one in the upper, the other in the lower, extremity.

Case 1.—A farmer aged 51 was pulling hard on a rope when he was seized with a severe pain in the right forearm and wrist. Within a few minutes his hand became cold, white, and completely useless. He went to his doctor, who found that the right radial pulse was absent. The pain gradually diminished, but the hand remained useless. When we saw him some months afterwards the right hand and forearm were wasted, cold, and pale; moderate exertion brought on severe cramp. There was no pulse at the wrist or bend of the elbow, but a strong pulse was felt in the upper half of the brachial artery. A right cervico-dorsal ganglionectomy was done, and gave a good result. He went back to his work and was able to do milking and other jobs on his farm. This patient eventually died suddenly from a coronary thrombosis eighteen months later.

Case 2.—A labourer aged 44 was crippled by a sudden pain in the right calf while walking to his work. We saw him in September, 1938, and at that time there was no pulse in or below the popliteal. The foot was cold, showing distinct rubor but no loss of tissue. He was unable to work, and could walk at best less than 400 yards, when he was stopped by severe cramp in the calf. He was seen at frequent intervals, and as he showed no improvement lumbar-cord ganglionectomy was done in April, 1939. This gave a good result. He is still at work, and can walk a mile at a good pace before he feels pain in the calf.

Pathology

The clinical features of all these cases suggest that there has occurred a sudden deposit of clot upon an atheromatous ulcer of the intima, and in one case we were able to obtain the thrombosed popliteal artery. This case was that of a man who at the early age of 33 was seized with a sudden thrombosis of the right popliteal artery. A massive gangrene of the foot developed, and amputation was inevitable. On naked-eye examination the artery showed gross arteriosclerosis; its wall was stiff and thickened, and its lumen over a length of three-quarters of an inch was blocked by a thrombus. Under the microscope it was seen that this was an organized thrombus situated on an ulcerated area of the intima; the media showed hyaline changes such as are found to precede calcification.

Diagnosis

Owing to the pain in the calf on walking these cases are apt to be wrongly diagnosed as "rheumatism," and owing to their onset during muscular exertion they have been taken for instances of ruptured muscle. These mistakes, which may be followed by useless and even harmful treatment, should be avoided if attention be paid to the coldness, pallor, and absence of pulse distal to the thrombosis.

Arteriosclerotic thrombosis is not likely to be mistaken for the acute embolism of cardiac disease. This latter is more acute, it happens usually in a patient already known to have a serious cardiac lesion, and it leads rapidly to massive gangrene because the post-embolic thrombosis is apt to extend over a great length of the artery and its extension blocks the collateral channels.

There should be no difficulty in excluding thrombo-angiitis obliterans, because this disease is found usually in younger men and, although its chronic course may be varied by occasional exacerbations, it is not likely to give

rise to a sudden incapacity. Moreover, in thrombo-angiitis obliterans there may be a history of phlebitis migrans, and in the more advanced cases the periarticular fibrosis can readily be felt as a massive deeply seated thickening in the popliteal space.

The actual diagnosis that the lesion is arteriosclerotic can be made only by section of an artery or by radiographic evidence of flecks of calcium in the arterial wall. This latter evidence is, however, available only when the degeneration is advanced.

The diagnosis of arteriosclerosis as the cause of the thrombosis depends upon the summation of a number of observations, no one of which is pathognomonic. Such are family history, age, premature greyness, arcus senilis, hardening and tortuosity of radial and brachial arteries, raised blood pressure, hypertrophy of left ventricle, and increased aortic second sound. Too much stress should not be laid on age or blood pressure. In one of our cases the age of the man was 33, and in another the systolic blood pressure was 120.

Treatment

Beyond the use of sedatives for pain there is little that can usefully be done during the first few days after the acute onset. We could, however, draw attention to what has seemed to us a point of importance in the nursing of the case. It is customary in the treatment of deficient arterial circulation in the lower extremity to send the patient to bed and to keep the limb horizontal or even elevated; some form of heat or warm wrappings are usually employed. We believe this line of treatment to be wrong. The raised position encourages the veins to drain away too rapidly a blood supply which is already gravely limited by the arterial block; an increase in the ischaemia results, and the starved extremity may be pushed over the brink of gangrene. The correct handling of such a limb is to keep it dependent and cool. It is remarkable how quickly patients with deficient arterial circulation learn to hang the limb over the edge of the bed in the open.

With the disappearance of pain the patient may be encouraged to get about, and the treatment should be directed to obtaining some degree of vasodilatation. Padutin or similar drugs and hot and cold contrast baths, with postural exercises, may be used with advantage. Treatment by intermittent venous occlusion is well worth a trial, and has seemed to bring about some improvement in several of our patients. Massage, radiant heat, and electric therapy should be avoided; they may be actually harmful.

Should the condition appear to hang fire after a thorough trial of expectant treatment, and if the patient still shows a restricted circulation with a very limited walking distance or the presence of a persistent ulcer, onychia, or other trophic disturbance, we would advise that a lumbar-cord ganglionectomy should be done. In those of our patients on whom we have thought it advisable to do this operation the result has been very gratifying. Case 3 is a typical instance.

Case 3.—A labourer aged 57 was thrown violently from a moving lorry in September, 1933. Immediately after the accident he felt severe pain in the left calf and found that his foot was cold and white. The acute symptoms passed off in a few days, but left him unable to work owing to claudication at 100 yards and a persistent and very painful ulceration of the third toe. When seen four months after the accident he was a tired man who had lost flesh and energy from pain and want of sleep. His blood pressure was 128/80, and the arteries of his legs showed many flecks of calcareous deposit. In the left lower extremity no pulse was felt in the popliteal artery or at any point below. An indolent gangrenous ulcer covered most of the medial surface of the third toe. Lumbar-cord ganglionectomy was done, with the result that pain was at once abolished

and the ulcer was healed within three weeks. He has been seen since on many occasions, and when last examined, seven years after the operation, he was in good general condition, able to do some work and to walk at least 300 yards without trouble.

Prognosis

The prognosis of this form of thrombosis may be described as good with regard to the life of the limb, but as poor with regard to function. Some degree of claudication and restricted use is the rule.

Summary

A condition of sudden thrombosis in the arteries of the extremities is described and treatment is discussed. For the more severe and persistent disabilities section of the sympathetic supply is advocated.

VOLVULUS OF CAECUM, ASSOCIATED WITH PUTRID PUERPERAL ENDOMETRITIS AND GANGRENOUS VULVITIS

BY

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The following case should prove of interest to the consultant obstetrician as well as to the general practitioner.

Case Report

A primigravida aged 38 was admitted to St. Helen Hospital at 3 p.m. on November 19, 1940, with "obstetric shock and complete perineal tear." About seventeen hours before admission she had been delivered, with forceps, of a stillborn infant twenty-two inches long. The delivery had been difficult—the head at 10.40 p.m. and the shoulders at 11.20 p.m.

On admission she was extremely ill, restless, dyspnoeic, cyanosed, and toxæmic. Her temperature was 97°, pulse 132, and respirations 32. The heart sounds were rapid, soft, and muffled in character, with systolic bruits over the praecordium. The chest was clear, but there was extreme gaseous distension of the abdomen, with generalized tenderness but no rigidity. Vaginal examination revealed a stinking lochial discharge and a complete perineal tear, the edges being black and gangrenous for half an inch on each side. The infection must have been very virulent to cause gangrene within seventeen hours of delivery.

Owing to her extreme restlessness 1/3 grain of morphine was prescribed. Mixed anti-gas-gangrene serum (40,000 units) was injected intramuscularly and subcutaneously, compresses of 50% aqueous urea solution were applied locally to the perineum, ergometrine was given, and she was nursed in the high Fowler position. I was greatly interested in her pronounced abdominal distension, as within the previous two years I had seen the following three cases, in which this extreme distension was a prominent feature:

Case A.—A multigravida with obstetric shock. Forceps had been applied by her own doctor with the head "floating" and the cervix not fully dilated. A deep left lateral cervical tear was caused, opening up the base of the broad ligament, with rupture of the cervical branch of the uterine artery, producing a huge retroperitoneal haemorrhage extending from the pelvis to the left perinephric region. In this connexion Berkeley, Bonney, and MacLeod (1938a) state: "It is important to remember that haemorrhage under the peritoneum produces even more marked flatulent distension of the intestines than that taking place into the abdominal cavity, and if the patient lives long enough this will be a very pronounced sign."

Case B.—A primigravida with a complete perineal tear (after difficult forceps delivery for an occipito-posterior presentation). She had puerperal pyrexia, phagedaena of the perineum, and extreme abdominal distension, which had been

diagnosed as pelvic peritonitis. She was extremely ill and toxæmic, vomited excessively, and looked so much like a case of paralytic ileus that I decompressed her gradually, using Holt's modification of Wangensteen and Paine's technique (Holt, 1936). She was completely deflated within twelve hours, and made an uneventful recovery under the usual routine treatment.

Case C.—This patient had puerperal pelvic peritonitis due to haemolytic streptococcal infection which cleared up after suprapubic drainage under local anaesthesia and sulphonamide therapy. In this respect Berkeley, Bonney, and MacLeod (1938b) state: "Great difficulty is experienced in diagnosing the presence of peritonitis [in the puerperium] and its characteristic signs, since those of rigidity and acute tenderness are frequently absent. The patient usually complains of abdominal pain, though tenderness is not pronounced. On the other hand, distension and the presence of diarrhoea are highly suggestive."

Bearing these three cases in mind, I carefully exposed the cervix with a speculum and found it to be intact. At the same time cervical and vaginal swabs were taken for culture. A tentative diagnosis of post-partum paralytic ileus or of post-partum peritonitis was made. Throughout her stay in hospital the patient did not vomit.

Slow intestinal decompression by the Holt-Wangensteen-Paine method of suction by duodenal tube was instituted, and, while the apparatus appeared to be working satisfactorily, there was not the dramatic deflation that was seen in Case B, although the abdominal distension was not so pronounced as on admission. The duodenal tube was left *in situ* for twenty-four hours. The patient's general condition improved, but her temperature began to rise. A further 40,000 units of anti-gas-gangrene serum was injected, and 1 gramme of sulphanilamide was given four-hourly. She took nutritious drinks and light diet readily.

The patient became very restless in the early hours of November 21, and morphine 1/3 grain was administered. At 10 a.m. she collapsed and was given a hypodermic injection of atropine 1/100 grain, adrenaline 5 minims, and strychnine 1/60 grain, this being repeated four-hourly for six doses. Later in the day 30,000 units of anti-gas-gangrene serum was injected. She was very restless and the abdominal distension had increased. I considered it unwise to give her enemata, as the bowel contents would be returned via the vagina and probably aggravate the local gangrenous condition. At 6 p.m. she was extremely ill, with rapid thready pulse and cold and clammy skin. A pint of human citrated plasma, Group A(II), was given intravenously, followed by a small suprapubic incision and drainage under local anaesthesia. A large quantity of sero-sanguineous fluid escaped, some of which was sent for examination and culture. The tentative diagnosis of peritonitis appeared to be justified. On return from the theatre her general condition was improved, but the abdominal distension was still severe. A further 40,000 units of anti-gas-gangrene serum was given intramuscularly and 20,000 units intravenously. Her general condition became poor again at 9 p.m., and 1½ pints of Group A(II) citrated plasma was given intravenously, followed by glucose saline drip. She improved for a few hours, then gradually became worse in spite of stimulants, prontosil soluble, and calcium gluconate therapy. She died at 11.50 a.m. on November 22.

At necropsy a volvulus of the caecum and about two inches of the ascending colon was found, with a twist of one and a half turns. The caecum was enormously distended, its walls showing patchy areas of haemorrhage, but there was no gangrene. The apex of the volvulus appeared to be the site of a mass of inflamed tuberculous mesenteric glands. There was a gangrenous vulvitis and vaginitis with putrid endometritis. The pelvis was a typical small one, through which an average-sized foetus would be delivered with great difficulty. Culture of the cervical and vaginal swabs gave a growth of haemolytic and non-haemolytic streptococci, staphylococci, and *B. welchii*. Culture of the peritoneal fluid produced a growth of haemolytic and non-haemolytic streptococci, *B. coli*, and *Staph. albus*.

An inquest was held, and the midwife who had supervised the patient ante-natally gave the following facts in her evidence: (i) The patient had vague pains on November 11. (ii) The pains had gone on the 12th. (iii) On the 14th an enema was returned clear. (iv) The membranes ruptured on the 16th—no pains. (v) Pains began again on the 17th, but were weak and