had a temperature of 99° F., after which his general condition gave no further cause for anxiety. Both tubes were removed within forty-eight hours. The knee was at first very swollen and painful, the swelling being mainly peri-articular, and large quantities of blood-stained serum drained from the more superficial of the drainage tube holes. This was apparently due to the extensive muscle laceration. The discharge, however, ceased within a week. Stitches were removed on the tenth day, and the splint on the fourteenth. By this time all the wounds were firmly healed, the knee had regained its normal contours, though the vastus internus was very weak, and the patient was unable to support the weight of the limb off the bed.

Passive movements were then begun, followed by active movements and massage, and within six weeks of admission the patient was able to walk normally.

He was discharged from hospital on June 15, 1929. He then was able to bend his knee to over a right angle; he had no apparent derangement, instability, or abnormal mobility of the joint; and the vastus internus of the affected side had almost recovered its normal size, tone, and strength.

REMARKS.

The interest of this case lies in the following: —

(1) The extensive laceration, not only of the peri-articular, but also of the endo-articular structures of the joint, in spite of which the recovery of function was almost perfect.

(2) The very comforting vindication of the doctrine of irrigation and closure without drainage of even a comparatively grossly contaminated knee-joint.

I am indebted to Lieutenant-Colonel C. R. Millar, D.S.O., R.A.M.C., commanding the British Military Hospital, Wellington, for permission to publish the notes of this case, and also to Major G. D’R. Carr, M.C., R.A.M.C., Surgical Specialist, Madras District, for very kindly permitting me to conduct the case from the very beginning.

PERIPHERAL NEURITIS AS A COMPLICATION OF BACILLARY DYSENTERY ASSOCIATED WITH TREATMENT BY ANTIDYSENTERIC SERUM.

By Major A. G. Biggam, O.B.E.
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The occurrence of polyneuritis following the administration of various antisera has been reported from time to time.

A similar type of neuritis has also been observed to occur during the course of an attack of bacillary dysentery, either in the acute stage of the disease or during convalescence.
Clinical and other Notes

L. Pollet [1] collected twenty-five cases with neuritic symptoms attributed to the serum treatment of various diseases. One case followed a rectal injection of Marmorek's serum for tuberculous enteritis, 2 occurred after antipneumococcic treatment, 4 after antitetanic treatment, and the remaining 8 after antidiptheritic treatment. Of these 18 cases only 6 followed definite attacks of the disease; the others came on after preventive injections. The onset of the neuritis he found to be nearly always late and generally preceded by erythema, urticaria, oedema and fever. The neuritis began with variable pains, either lancinating or cramp-like. The paralysis was found to set in from a few hours to two days later, and was soon followed by loss of muscular function. The region most often affected corresponded with the brachial plexus, especially the fifth and sixth cervical nerves. In many cases the paralysis was limited to one nerve. The reflexes were generally found to be diminished or abolished. The pain which occurred at first persisted for a considerable period in some cases. Atrophy of the muscles concerned was usual. Optic neuritis was observed as a complication. He attributed the occurrence of these cases of polyneuritis to the administration of foreign albumins.

W. Harris [2] states that repeated administration of antisera may be followed by symmetrical pains and tingling and the occurrence of muscular paresis. He also observes that bacillary dysentery may be followed by severe and chronic bilateral sciatica, but that generalized multiple neuritis is rarely seen after the disease.

A. Coyon and J. Debray [3] describe a case of polyneuritis following an attack of bacillary dysentery of the Shiga type. The patient, a young girl aged 19, suffered from an acute attack of bacillary dysentery of Shiga type at the beginning of August, 1921. The dysenteric symptoms cleared up slowly. She received 110 cubic centimetres of antidysenteric serum during the treatment. No emetine was given. On October 25 of the same year she noticed she could not walk, and on examination she showed flaccid paralysis of the lower limbs, reflexes abolished and tenderness in the muscles on pressure; the arms also suffered, but to a less extent. There was anaesthesia in the left leg up to the knee, and in the right up to the junction of the lower and middle third of the thigh. Cerebrospinal fluid was normal. By January 7, 1922, the condition had markedly cleared and the patient was gradually recovering the use of the limbs. The tendon reflexes had reappeared in the arms some time before, and were reappearing in the right leg.

P. H. Manson-Bahr and H. M. Perry [4] describe the occurrence of peripheral neuritis following bacillary dysentery, the legs being generally affected; loss of knee-jerks, glossy atrophic skin, oedema of the ankles and hyperaesthesia of the calves are noted.

R. Ruge [5] observes that in the tropics, dysentery (probably bacillary) is fairly often followed by multiple neuritis, which may in certain circum-
stances be mistaken for beri-beri. Such cases, with antineuritic symptoms in the peroneal and crural regions, were seen by Luee and Meinecke. Offrem saw one involving the right plexus brachialis. The paralysis of the right arm lasted thirty-two days and then disappeared.

During the war the occurrence of polyneuritis amongst cases of bacillary dysentery was occasionally observed, and in some of these cases the fact that antidysenteric serum had been administered during the acute stage made it difficult to determine whether the neuritis had been produced by the dysenteric toxins or by the antidysenteric serum.

The following case, at present under my care, would appear to be worth recording because the same problem as to the etiology of the polyneuritis arises.

S. M. M., male, aged 35, was admitted on April 22, 1929, complaining of diarrhoea with passage of blood and mucus and tenesmus, also pain and tenderness in the lower part of the abdomen, especially marked in the sigmoid region.

The present illness began suddenly ten days previously with about ten motions in the twenty-four hours, increasing up to twenty a day until admission, when the stools were found to be composed largely of blood and mucus.

Past History.—During the last five years the patient states he has had similar attacks about once a year, each lasting about twenty days. The attack previous to the present one occurred six months ago.

In the intervals between these attacks the patient states he has had no intestinal trouble and nothing abnormal in the stools.

Present Condition.—The patient is very weak and exhausted, tongue furred and rather dry. Temperature 38° C., pulse 110. The abdomen is tender, specially on the left side in the sigmoid region, where the gut can be felt hard, tender and contracted. Spleen and liver not enlarged. Heart not apparently enlarged, but first sound at apex of poor quality.

Urinary system: bilharzia ova (haematobium) present in urine, also few pus cells.

Nervous system showed nothing abnormal.

Culture of stools: Bacillus Flexner isolated and patient's blood aggluti­nated this organism.

Stools were negative for cysts and vegetative forms of Entamœba histolytica

Sigmoidoscopic Examination.—The passage of the instrument was somewhat painful and showed the rectum and pelvic colon diffusely red, inflamed and congested; widespread mucopurulent secretion was seen sticking to the wall of the gut.

Patient was put on diet and concentrated soda sulphate; antidysenteric serum, 100 centimetres, was administered intramuscularly on the day of admission and 60 centimetres on each of the following four days.
His general condition gradually improved, the motions becoming less frequent, and blood and mucus soon disappeared from the stools.

On April 29, 1929, eight days after admission, the patient complained of numbness in his feet, which gradually spread up to his knees, and this was accompanied by pain and tenderness in the calves; five days from the onset of the paresthesia the patient had lost all superficial sensations as high as the knee on both sides. Knee- and ankle-jerks were now absent and very marked weakness was present in the legs, especially affecting the muscles below the knee and completely incapacitating the patient from walking.

The abdominal and cremasteric reflexes were present, but plantar stimulation elicited no response.

There was no bladder or bowel trouble.

In the upper limbs the only thing complained of was numbness in the finger-tips of both hands. There was never any anaesthesia or weakness discovered in this region.

The skin of both feet, especially in the soles, became markedly glossy and perspiration in this region was very profuse.

The patient was obviously suffering from peripheral neuritis, but the aetiology of the condition required very careful consideration, so as to determine whether it had been produced by the toxæmia resultant from the dysenteric infection or whether it was the result of the antidysenteric serum given during treatment.

As no other signs or symptoms of serum sensitiveness, such as urticaria or joint pains, had been observed in this patient during the administration of the serum, it was decided to try the effect of large doses of antidysenteric serum intravenously on the assumption that the polyneuritis was the result of the dysenteric toxæmia and not the result of the antiserum treatment.

On May 3, 1929, 100 cubic centimetres of anti-dysenteric serum diluted in saline was given intravenously, and this was followed by 80 cubic centimetres by the same route on each of the following two days. No reaction followed any of these injections.

On May 10 sensation had begun to return in the legs, spreading from the knees downwards, and rapid improvement followed, so that by May 24 superficial sensations had returned right down to the feet. The patient was put on massage and electricity, and the power rapidly improved in his legs, so that by May 18 he was able to get about with assistance.

Present condition on June 30: Power in limbs normal, development and tone of muscles good, plantar reflex, flexor, knee- and ankle-jerks still absent even with reinforcement: No sensory change present.

**Conclusions.**

It would appear from the rapid improvement in the peripheral neuritis that took place in this case after the large doses of antiserum intravenously that this neuritic disability had been the result of the dysenteric
Clinical and other Notes

371

toxins, and had not been caused by the antidysenteric serum administered during the early stages of the acute bowel condition.

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A CASE OF CYSTICERCOSIS (CYSTICERCUS CELLULOSÆ).
By Major G. H. Dive, D.S.O.
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The patient, aged 23, a healthy adult of European extraction, was admitted to the Royal Victoria Hospital, Netley, in February, 1929, having been invalided from India for epilepsy.

He was born in India, and up to this time had not been out of the country.

The first series of fits, three in all, began on July 19, 1928, and terminated on July 21, after which he was apparently free from attacks until March 12, 1929, when he developed a new and very severe series of fits which lasted until March 30. Careful examination failed to reveal any evidence of organic disease of the central nervous system. The fits continued despite treatment and the patient became gravely ill, a condition of lethargy, almost amounting to coma, supervening.

Occasional rises of temperature were noted between March 10 and 28, after which an irregular fever of a "typhoidal" type developed, terminating on April 15.

On March 27 he began to complain, when roused, of generalized muscular pains, and incontinence of urine and faces commenced.

On March 30 a number of small, elastic, freely movable swellings were noted in the triangles of the neck and a few similar swellings in the subcutaneous tissue elsewhere.

The swellings, now recognizable as lenticular cystic bodies, became larger and many more could be palpated. The main distribution was: Scalp and face, triangles of the neck (most frequent), chest, back (frequent), fore-arms, groins, thighs, and calves. The largest were approximately two-fifths of an inch in length. Several were excised—actually from muscular tissue—and identified microscopically.

The patient's condition at the end of March was pitiable, anorexia and wasting being extreme—from then he commenced to improve and the fits ceased, although occasional incontinence of urine persisted until May 15.