

healthy. The heart sounds were weak, giving one the impression that the muscle was flabby; no murmur could be detected. No atheromatous changes were found in the peripheral arteries. The urine was of low specific gravity but contained no albumin or other abnormal constituents. The right foot was mummified and black; above it with the exception of the ligaments of the ankle-joint only the bare bones of the leg remained up to just below the level of the tubercle of the tibia and here the bones had been deeply eaten into by the granulations of the stump. On the day following admission the fibula and, shortly after, the tibia separated. The thigh was amputated by a modified Stokes-Gritti's method on May 13th, the posterior flap being made longer than usual on account of there being more skin available on this aspect of the leg. The patella was small; its cartilage was only partially removed and it was fixed in position by silk sutures passing through the periosteum of the femur. There was a little suppuration and the patient was discharged with a small sinus on July 9th, the patella being firmly adherent to the femur and the stump satisfactory.

Captain Leonard Rogers, I.M.S., examined the specimen and reported that "the lumen of the artery was nearly blocked by partly organised blood-clot with a small canal through it. Microscopically the inner elastic lamina was clearly seen and no atheromatous changes found."

These two cases in conjunction seem to be worth reporting as they show an advanced stage of gangrene which is rarely seen at the present day. The first case from the slower onset was probably due to thrombosis, the second to embolism from a thrombus forming in a weak heart during an attack of fever. Unfortunately, in the first case the arteries were not examined.

Calcutta.

EPIDEMIC CEREBRO-SPINAL MENINGITIS AND POSTERIOR BASIC MENINGITIS.

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THERE is a widespread belief—more particularly outside England—that posterior basic meningitis is a sporadic form of the epidemic disease. Koplik, for example, in his recent work on the Diseases of Children deals with the epidemic disease briefly and dismisses posterior basic meningitis with the remark that it is considered a separate disease in England and that it runs a protracted course.

Posterior basic meningitis accounts for one-third of all the cases of meningitis amongst the in-patients at Great Ormond-street Hospital (133 out of 393 consecutive cases). By the kindness of the staff of that hospital I have recently had the opportunity to investigate the histories of over 100 cases of posterior basic meningitis and the present seems an opportune time to record briefly and as far as our present knowledge permits in what points this disorder stands out and apart from epidemic cerebro-spinal meningitis as a disease *sui generis*.

No doubt the ultimate decision rests with the bacteriologists, but the bacteriology of the cerebro-spinal fluid is just now at a very perplexing stage. For example, Hunter and Nuthall in nine cases of posterior basic meningitis found a diplococcus identical with the meningococcus. In three cases the culture was pure, in three it was associated with the influenza bacillus, in one with the tubercle bacillus, and in one with staphylococci. Mya described three cases of fibrino-purulent meningitis in breast-fed infants in which the Pfeiffer bacillus was present. Gleon obtained these bacilli from the fluid yielded by lumbar puncture in a child eight months old. Schultze mentions a number of instances in which the pneumococcus has been found "in the so-called sporadic cerebro-spinal meningitis," and adds that it is found not seldom ("*nicht selten*") in the epidemic form. Osler says: "The pneumococcus has been found frequently in association with the diplococcus of Weichselbaum in cerebro-spinal fever." The pneumococcus, indeed, appears to be almost ubiquitous. "No organism is more variable than the pneumococcus in its virulence and pathogenic results. The form of primary meningitis set up by the pneumococcus may in every detail apparently resemble the post-basal form

described by Lees and Barlow, or the epidemic cerebro-spinal form." (Leith.)

It is very important to realise that one has not necessarily found the cause of the disease because one has shown the presence of a potentially pathogenic organism in a case of meningitis. I had under my observation a case which the physician in charge considered an example of pneumococcus meningitis. I performed a lumbar puncture and the pathologist reported that he obtained a pure culture of pneumococcus. Nevertheless, the necropsy revealed a typical tuberculous meningitis.

Clinically the epidemic disease shares many features in common with posterior basic meningitis. To those who consider the two diseases identical the differences are comparable to those which are found when two separate epidemics are contrasted. As Osler says, "The clinical features of the sporadic form present interesting variations which are worthy of additional study."

1. Although it proves nothing, it is a very interesting fact that our knowledge of the sporadic disease antedates the earliest descriptions of the epidemic fever by several years. Nothing was known of the epidemic disease before the nineteenth century and there was no description of its occurrence in the British Isles before 1830. Nevertheless, that one type of posterior basic meningitis was common enough in 1827 is shown by the description which Alexander Monro (the third generation of that family of great physicians) gave in his work on the Morbid Anatomy of the Brain, published in that year. Dealing with chronic hydrocephalus he remarks that the 14 cases which he himself had seen were all born with large heads and continues: "But according to some authors the disease appears soon after birth or even a few years after it. The child seems dull. This dulness is accompanied with headache and fever, which is much more severe at times and is attended by sickness and vomiting. The appetite is impaired and the food is apt to excite nausea. The headache becomes more severe and constant and is accompanied by *pain and stiffness in the neck* and with frequent and irregular pulse, but in some cases is slower than natural. The eye is dull and the vision is indistinct; the skin is hot and the pulse frequent and irregular. The urine is discharged with pain and difficulty. After the above symptoms the head expands." No one familiar with the disease would deny that this is a very succinct account of one form of posterior basic meningitis which results in hydrocephalus.

2. There is a very definite difference in the age incidence of the sporadic and epidemic diseases. Osler says that more than half the cases of the latter are in persons under ten years of age. More than half the cases of posterior basic meningitis are in infants under one year of age.

3. The protracted nature of many of the cases of posterior basic meningitis has no parallel in the epidemic disease. The significance of this difference which is generally recognised is difficult to gauge. Most of the sequelæ of the former disease are associated with internal hydrocephalus. For this reason and on account of its altogether insidious nature it is very difficult to give any general pronouncement on the duration of the disease. But there is every reason to suppose that the inflammation of the meninges not infrequently endures for several months.

4. I find nothing in the accounts of the epidemic illness of amaurosis without optic neuritis which is so remarkable a feature of posterior basic meningitis and which occurs in one-third of all the cases of that disease (27 out of 78 of my cases).

5. On the other hand, optic neuritis seems fairly common in epidemics (six out of 40 cases—Randolph). It is very rarely met with in posterior basic meningitis. There was only one undoubted instance in the whole of my series of cases.

6. "Moos found in 64 cases of recovery from cerebro-spinal fever that 55 per cent. of the persons were deaf." Only three of my cases complained of subsequent deafness. In one of these it was very slight and associated with large tonsils and adenoids and in another it was after three operations for subdural drainage. So that in only one case did it follow directly from the primary disease and it must be concluded that deafness is a rare sequel of posterior basic meningitis.

7. Skin lesions, although they occur, are much less common in posterior basic meningitis than in the epidemic fever. In my series herpes, which is so characteristic of cerebro-spinal fever, is only described twice. I know nothing of petechial rash in the sporadic disease. Osler, in his

description of cerebro-spinal fever in the *Encyclopædia Medica*, says: "A petechial rash, which was so common in the early epidemics that the disease had the name of spotted fever, was present in more than one-third of our cases."

8. There are further minor yet significant symptoms in posterior basic meningitis, such as retraction of the upper eyelids, which I do not find mentioned in the accounts of epidemics. How far these differences are dependent upon the earlier age incidence of posterior basic meningitis it is impossible to say. It is noteworthy that in that disease amaurosis is less common in older children.

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A SECOND CASE OF PNEUMOCOCCUS ENDOCARDITIS TREATED BY ANTI-PNEUMOCOCCUS SERUM.

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IN THE LANCET of June 4th, 1904 (p. 1561), one of us (T. J. H.), with Dr. A. E. Garrod, reported a case of pneumococcus endocarditis treated by anti-pneumococcus serum. The disease was very acute and the whole duration of it probably not longer than three weeks. The pneumococcus was cultivated from the blood three days after the patient was first seen. A case has recently come under our observation which was of longer duration, lasting more than two months. But a bilateral pneumonia, followed by a double empyema, occurring in a child convalescing from rheumatic fever constituted a very serious condition from the first. And the presence of pneumococci in the circulation was not demonstrated until quite late in the course of the illness. Nevertheless, seeing that during the present state of probation of bactericidal sera accurate diagnosis in the cases treated by them is of the utmost importance, it is considered advisable to publish a brief account of the case.

The patient, a boy, aged ten years, suffered from enlarged tonsils and slight sore throat at the beginning of November, 1904. On Nov. 18th he was taken suddenly ill with headache, pains in the back and limbs, and a rise of temperature (101° F.). On the third day the joints were painful and swollen. He was seen by one of us (H. C. L. S.) and the disease was diagnosed as acute rheumatism. On the fourth day a mitral systolic murmur was heard. Sodium salicylate was given; the pains in the joints passed off and the temperature fell to normal on the eleventh day. On the thirteenth day the temperature rose to 102° and signs of pleurisy with consolidation of the right lung appeared. On the fifteenth day similar signs appeared on the left side; the temperature rose to 103° and stimulants and oxygen inhalations became necessary. Defervescence took place by lysis, the temperature becoming normal again on the twenty-first day; but thenceforth it rose daily to from 100° to 101° until the twenty-seventh day. The signs in the lungs remaining, the right pleura was explored; pus was discovered; a portion of a rib was resected and an empyema was drained by Mr. T. Crisp English. The intermittent fever continued. On the thirty-first day the left pleura was explored with a similar result, a second empyema being opened and drained. The intermittent fever still persisted (102°–103°) despite efficient drainage of both empyemata. The mitral murmur was still heard and the pulse averaged 140. On the fifty-first day the patient was seen in consultation by Mr. C. B. Lockwood who found no evidence of any other focus of suppuration but suggested the existence of septicæmia. The patient was also seen in consultation by one of us (T. J. H.) on the same day and a blood examination was made. A blood count showed a leucocytosis of 11,600 and a blood culture grew pneumococci in considerable numbers in each of six culture tubes. By this

time loss of flesh had become very marked, the patient being quite emaciated. Anæmia was also marked. The heart murmurs pointed to the presence of mitral obstruction and incompetence. Both empyema wounds were discharging freely; the pus contained pneumococcus together with staphylococcus albus and bacillus coli communis. The urine was natural. On the fifty-second, fifty-third, and fifty-fourth days respectively ten cubic centimetres of Pane's serum No. 2 were injected subcutaneously. This was repeated on the fifty-eighth and sixtieth days. On the sixty-second day signs of nephritis appeared: œdema, albuminuria with blood and epithelial casts, and severe headache. On the sixty-fourth day the urine became very scanty; on the sixty-fifth day the temperature became subnormal and the patient died comatose on the sixty-sixth day.

No good result seemed to follow either of the two periods of administration of the serum. The patient was so much exhausted by his disease at the time the serum was used that its failure seemed inevitable. The fact that the leucocyte count amounted to 11,600 only in a pneumococcal infection in a patient aged ten years showed that the resistance was much lowered. If, as recent researches seem to prove, we are dependent upon the patient's tissues for their reaction to the stimulus provided by a bactericidal serum, that is, the action is not a direct but an indirect one, it is easily understood why failure should follow the serum treatment in this case. The importance of early diagnosis of the existence of septicæmia, and the nature of it, becomes obvious. Death with the symptoms of a terminal nephritis is a common event in malignant endocarditis, and the occurrence of these symptoms is always a matter of the utmost gravity in such cases.

CONGENITAL ELEVATION OF THE SCAPULA.¹

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JUDGING from the number of recorded cases this deformity is rare and as I have recently had the opportunity of observing one I have put together a few facts concerning this malformation in the hope that they may be of interest to the members of this society. The patient was shown at a meeting of the society on Jan. 22nd, 1904.

The patient, a girl, aged nine years, was taken to the Victoria Hospital for Children on Dec. 17th, 1903, because of deformity of the left shoulder-blade, which had been noticed for one month. There was no history of accident or infantile paralysis. No other member of the family had a similar or any other deformity. The patient had always been "delicate" but had had no definite symptoms. On examination the left scapula was found to be two and a half inches higher than the right but the bone was of the same size as its fellow. Movement of the arm, both active and passive, was normal. There was no osseous bridge to be felt between the vertebral border of the scapula and the spine, nor was there any lateral curvature of the spine. The spinous process of the third dorsal vertebra, however, felt thicker than normal and was apparently displaced slightly to the left. The inferior angle of the scapula was on a level with the interval between the sixth and seventh dorsal spines. There was no paralysis of any muscle. The x rays showed nothing abnormal and the two arms were of the same length. The child's head was rickety in appearance but there were no other signs of rickets or of any other deformity. The teeth were slightly notched and ridged, as is generally the case in ill-nourished children. As the child suffered absolutely no pain or inconvenience from her condition no active treatment was adopted, especially as the deformity was barely visible, except when the patient was undressed. In the only other similar case with which I am acquainted, where operative measures were adopted in order to correct the deformity, very little, if any, benefit followed a very severe operation.

Cases of congenital elevation of the scapula may be classified into four groups: (1) where there is a bridge of

¹ A paper read before the Clinical Society of London on Nov. 11th, 1904.