urine is excreted. Under such circumstances, pure blood or blood clot may be passed through the mouth of the ureter, or pus may escape in putty-like bands which issue slowly from the ureter.

When haemorrhage takes place into the pelvis of the kidney, and the blood is retained there for a considerable time, it becomes so altered that it does not mix freely with the contents of the bladder. When it passes from the ureter it may appear like a ribbon or band of melted red wax, which flows slowly from the mouth, and, after it has attained a certain length, breaks off and floats away.

ERRATUM.—In the BRITISH MEDICAL JOURNAL for March 24th, p. 665, col. 2, line 17 from bottom, the words, "includes 75 per cent. of a circle" should read, "includes 75 degrees of a circle."

THE PROGNOSIS IN POSTERIOR BASIC MENINGITIS.

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POSTERIOR basic meningitis is by no means so rare a disease as is generally supposed. It accounts for one-third of all the cases of meningitis which occur among the in-patients at Great Ormond Street Hospital—133 out of 396 consecutive cases. Some account of the general prognosis in this disease, therefore, may be useful, the more so since there is no illness in which it is more difficult to forecast the future. This difficulty arises in chief from the frequency with which the inflammatory exudate interferes with the circulation of the cerebro-spinal fluid, giving rise to some degree of hydrocephalus. The symptoms of concealed hydrocephalus have been described elsewhere.¹ They were divided for purposes of description into four groups.

1. Sudden death; relapse; sudden attacks of vomiting, headache, and pyrexia.
2. Convulsions; insanity.
3. Paralysis; retarded development.
4. Inability to gain flesh, headaches, incontinence, peculiarities of temper, morals, or emotions.

There are, however, certain other sequelae which cannot be ascribed to hydrocephalus, which must be considered in some detail before we proceed to a general survey of the prognosis.

Amaurosis without Optic Neuritis.

This is the most remarkable of these. Carr² does not mention this condition. Lees and Barlow³ say: "Although optic neuritis is rare yet blindness more or less complete is not uncommon," and they cite cases. Stephenson in 1902 reported from the Royal London Ophthalmic Hospital 4 cases of "fleeting amaurosis in infants presenting symptoms of meningitis."

In more than one-third of my cases the child was either blind, or its power of vision was uncertain at some period of the disease. Of these, over 60 per cent. were under 6 months at the time of onset of the disease, showing that the condition is more common in younger patients. The oldest child was 2½ years. In most instances the blindness begins insidiously. In half my cases it was not recorded until more than a month after the disease set in. Generally the condition endures for a few weeks—from three to six weeks; sometimes it lasts much longer. In 3 cases it was present ten months, one year, and two years respectively, but the following history presents my most remarkable example of the condition.

CASE X.—Aged 3 months. He "fell out of bed and injured his brain." In the next five weeks he had nine fits. A week after the fall he was found to be blind. He was an in-patient in three London hospitals. He remained blind for five years, and then sight gradually and completely returned. Two years later, at the age of 7, he began to talk. My own notes say: "Age 10. Can't walk. Legs slightly spastic. Big, healthy-looking boy. Idiot. Very hilarious and good-tempered. Vision normal." There was evidence in the old notes of an early hydrocephalus which became arrested.

Vision returns gradually. In one case two years after the illness the mother told me that, although the sight was perfect usually, yet "when the child is indisposed vision seems blurred." Stephenson gives an almost identical description. Six months after the attack "the sight seems to fade away when the baby is poorly." The fundus oculi is usually pale, but otherwise normal.

The condition is often referred to the excessive intra-cranial pressure so commonly found. The following facts militate against such a view:

1. There was other evidence of hydrocephalus in 29 per cent. of these cases, as against 36 per cent. of all my cases of posterior basic meningitis.

2. Blindness sometimes begins long before there is reason to suspect increased pressure—for example, Case IX became blind immediately after the onset of the disease. Eight months later the head was first noticed to enlarge.

3. The amaurosis disappears, although the hydrocephalus may be progressive.

4. The condition is not included in descriptions of chronic hydrocephalus.⁴

The condition is probably never permanent. In only one case, which I was unable to trace, was the amaurosis persistent when the child was last seen.

Optic Neuritis.

Optic neuritis does undoubtedly occur in posterior basic meningitis, but it is very rare. In many cases there are ill-defined appearances of some change in the fundus insufficient to warrant a diagnosis of neuritis. A necropsy of a case in which optic neuritis and retinal haemorrhages occurred is described in vol. xv of the Great Ormond Street records. It occurred in only one undoubted case in my series⁵; the boy's general condition, seven months after the attack, was steadily improving, but he remained totally blind.

Pseudo-glioma.

Lees and Barlow⁶ describe one case; another has been recently recorded by Dr. Blaber.⁷ I have two instances to add.

CASE LXXXIX.—The child was an out-patient, and the notes are scanty. About the third week, the right eye became affected. "Mr. Lister and Dr. Batten are agreed that the condition is probably a mild degree of pseudo-glioma." A year later vision is normal.

CASE XXXVIII.—Aged 1½ years. An illness which was probably posterior basic meningitis. At the age of 2 years and 3 months he was admitted for fits and blindness. Well nourished; head retracted; legs strongly adducted. Whilst in hospital hydrocephalus rapidly developed. Note by Mr. Lister: "In my opinion there is undoubted chronic iridocyclitis (pseudo-glioma)."

Deaf-mutism.

Apparently this condition is rare. Its frequency is apt to be overrated because it is quite common in certain epidemics of cerebro-spinal fever. I have found only two cases, of which one (Case XXIX, loc. cit.) developed the condition after several operations for subdural drainage.

CASE XXXIV.—Aged 2½ years. Posterior basic meningitis. At the age of 2 years and 10 months, in hospital, "comparatively well, but is not sane; her memory is gone; she does not know her people; she is dirty in her habits; her mother thinks she does not see at all. The child is an idiot." At the age of 6 years and 10 months the father writes, "I am pleased to state she enjoys the best of health, and appears to have all her faculties. I am sorry to say she cannot speak, and her hearing is very dense."

Insanity.

Insanity is not very uncommon, and it often lasts for some months. Consequently the patient is often sent from the hospital *in statu quo*, and this has given rise to the idea that the condition is not rarely permanent. I have records of three such cases where the child ultimately became quite sane. My only permanent cases are the idiot child described above (Case X), and another who had frequently recurring fits during the two years that she survived (Case XXX, loc. cit.).

General Prognosis.

Out of 133 cases in which the diagnosis of posterior basic meningitis was made, 43 were sent out of hospital alive. This does not indicate that one-third of all the cases recover, because:

1. The more severe cases are more commonly sent to hospital.

2. Mild cases are treated in the out-patient department.

3. Many of those who are sent out alive die subsequently.

Probably the survivors of the original illness number considerably more than 1 in 3, whilst in distinctly less than one-third of all cases can ultimate recovery be expected.

(a) I was able to follow up 17 cases which were sent out "cured." None of these have died, although the history, with one or two exceptions, extends over several years; 8 are completely cured; 5 have very minor troubles, which may be of no significance; 2 belong to the group "retarded development" (Cases LXIX, LXXXVIII, loc. cit.). There remain 2 who have developed hydrocephalus since leaving the hospital, but neither of these was really normal on leaving—one was still frequently vomiting, and in the other the limbs were still slightly spastic—so that one may conclude that once a child appears to be completely cured of the disease the prognosis is very good; but when one turns to those who were sent out "better" or "improved" the outlook becomes distressing.

(b) Out of 7, only 3 survive. Of these, 1 has hydrocephalus, another is paralysed, and the third shows "retarded development"; at 3½ she cannot walk alone; 4 died, 1 from scarlet fever (the exanthemata not infrequently carry off these patients during convalescence), and the other 3 from the disease itself or its sequelae.

(c) Out of 13 cases sent out "*in statu quo*," 4 developed hydrocephalus whilst in hospital; 2 others died of "water on the brain" subsequently; 1 died of the disease itself, and 1 of measles; 3 are permanently disabled, and only 2 are cured.

It is almost impossible to give any prognosis early in the disease. One can judge of the severity of the infection by the pyrexia, spasticity, mental condition, amount of vomiting, presence of fits, and so on; but the very mildest cases sometimes develop hydrocephalus, and in one fatal case which I saw there was for many days some inflammation about the joints before there was any indication of intracranial disease. On the other hand, Case xci, who represented the very worst type, was, seven months later, steadily improving, and many of the cases that ultimately recovered were ill for several months.

It is well known that the prognosis is better the older the child. Nevertheless, one-third of my cases who completely or partially recovered was under 6 months at the time of onset.

In conclusion, it should be recognized that the prognosis largely depends, in not a few cases, on careful and unremitting attention to the artificial feeding of the child; the value of this process should be regularly checked by weighing the patient, and every effort should be made to avoid setting up a catarrh of the nasopharynx and respiratory system.

REFERENCES.

¹ Hydrocephalus and Posterior Basic Meningitis, *The Practitioner*, August and September, 1905. ² *Med. Chirurgical Trans.*, 1897. ³ Simple Meningitis in Children, Clifford Allbutt's *System of Medicine*. ⁴ *Brain*, vol. xiii. ⁵ Case xci, loc. cit. ⁶ Loc. cit. ⁷ *Lancet*, November 4th, 1905.

A CASE OF POSTERIOR BASAL MENINGITIS WITH FEW CEREBRAL SYMPTOMS.

By J. G. G. CORKHILL, M.D., L.R.C.P.

THE following case possesses much interest from the almost entire absence of symptoms. Certainly there were none of the classical ones present, and their absence gave rise to great difficulty and delay in diagnosis. The onset was similar to that of one of the zymotic diseases, and though these one and all were eliminated by time, there was nothing of a very definite nature pointing to the condition of the brain until very late in the case.

The entire absence of headache, the slight amount of vomiting, the absence of head retraction and rigidity and of Kernig's sign made a positive diagnosis wellnigh impossible, and caused much anxiety alike to the parents and the medical attendant.

V. S., female, aged 2 years and 2 months, was always a robust child, weighing at birth slightly over 9 lb.; the head somewhat large. Twelve months ago she had a sharp attack of vomiting at Christmas-time, which lasted three or four days; with this exception she had always been strong, healthy, bright, and intelligent.

Family History.

Some thirty years ago one of the father's sisters was said to have died of "water on the brain"; with this exception, all members of the father's and mother's families were strong and healthy.

History of Illness.

On January 20th suddenly vomited and appeared to be ill; the vomit was nothing more than undigested food. The child, seen in my absence by my friend, Dr. Brown, seemed to have a cold in the head. The temperature was 102°, though four hours later it had risen to 104.4°; respirations 60, pulse 160; no examination was then made, as the child was sleeping well and peacefully.

On January 21st the temperature was 103.2°, respirations 50, pulse 148. The bowels were constipated, and the tongue coated with a thick white fur. There had been no further vomiting. Careful examination showed lungs, heart, and kidneys healthy; the abdomen was distended. Child bright and intelligent, making no complaint, though wanting to be put back to bed during the examination.

On January 22nd temperature varied from 102° to 104° F., respiration was hurried and somewhat of the Cheyne-Stokes type; the bowels had been well moved, the motions being slimy and green, and containing much curd. Examination proved negative.

On the morning of January 23rd the condition was much the same; but in the afternoon I was called by the parents, as they noticed that she had become "strange," lying on her right side, looking vacantly towards the right, and no longer "taking notice," though answering questions when spoken to; there was some paresis of the external rectus; the pupils reacted readily to light, and were neither dilated nor contracted; there was no retraction of the head; she had vomited curdled milk. I ascertained that two quarts of milk were being given in twenty-four hours, and ordered one pint of whey instead.

On January 24th I saw her with Dr. Ashby; the result of the examination was negative. Temperature, pulse, and respiration much the same; there was no optic neuritis; no diagnosis was made.

On January 25th the child had improved in general condition, and was playing with dolls, though the temperature rose to 104° towards evening. From this date till February 1st the condition remained very much the same; the temperature was easily controlled by phenacetin gr. v whenever it rose to 101°; then it rose suddenly to 106.4° at 5.30 p.m., though at 8.30 p.m. it was normal. The child was intelligent, doing as told, and answering questions. The paresis of the external rectus had disappeared on January 27th. The bowels were moved during this time three or four times in twenty-four hours. The motions were somewhat loose, with more or less slime, but the colour became more natural. Some spasmodic pain in abdomen, which was distended, was complained of. Examination of the blood for typhoid gave a negative result.

On the morning of February 5th the child was much as before, but at 12.30 p.m. I was hurriedly called as the breathing had become "strange." There was marked rigidity of arms and legs; the pupils were dilated, but reacted to light, and there was no optic neuritis. The temperature was 105.4°; the pulse small and too rapid to count; tepid sponging brought the temperature to 101° in half an hour, and the rigidity passed away entirely with the fall of temperature. In the evening the temperature was normal.

On February 6th I had a further consultation with Dr. Ashby. The child was bright and intelligent, the temperature as before. Lungs and heart were normal, and the bowels as described above. No diagnosis was made.

On February 8th the temperature ran up in the afternoon to 105.6°, but fell rapidly after sponging. In the evening the child was dull, taking no notice; the pupils reacted very sluggishly. There was slight retraction of head.

On February 9th the general condition was much the same, though there was more marked listlessness and some rigidity of the upper cervical muscles.

On February 10th the child was comatose, or almost so, rigidity of the head and neck being very marked. I had a consultation with Dr. W. B. Warrington of Liverpool. The condition much the same as on the previous day. Kernig's sign was absent, lumbar puncture was advised, about 1 drachm of turbid fluid was drawn off; when dried and stained with methyl violet it showed many multinuclear cells and small diplococci.

On February 11th the right arm and leg were rigid, and later in the day the jaw became so rigid that she could not be fed. This rigidity of jaw passed away on the following day, but the limbs on the left side became rigid, and the spine so much so that she could be lifted by the hand under the occiput.

On February 13th, after a good morning and a show of marked improvement, she suddenly vomited at 5 p.m., and half an hour later, after some grinding of the teeth and one or two convulsive movements, died.

THE PREVENTION OF TUBERCULOSIS IN SPAIN.—The Permanent Commission for the Prevention of Tuberculosis recently nominated by the Spanish Minister of the Interior was formally constituted at a meeting held in Madrid on March 16th, under the presidency of the Minister, Count de Romanones. Addresses were delivered by Señores Espina, Ortega Morejon, and other members of the Commission. Count de Romanones stated that a Committee had been appointed to draft rules for the conduct of the work of the Commission.