

itself is any help, but its issue often coincides with recovery from the first and worst brunt of the infection.

So far as I may judge from my own experience, I do not think that initial symptoms of nervous poisoning belong in any special way to the malignant types of scarlet fever, for I have many times seen them in cases which otherwise did well, or which apparently would otherwise have done well. Malignant cases, of which I have now to speak, begin rather with the characters of general prostration, with great muscular fatigue and with heaviness of spirits. Without any excess of fever, the thirst increases, the tongue and mouth become dry, the stomach capricious, and the belly distended. Sleep is broken by starts and tremors and by muttering delirium, the expression of the face is anxious, and the pulse becomes rapid and slippery. Under the name of "typhoid symptoms" you have heard this state too often described for me to go into it anew. Perhaps it is connected with uræmia. I think that in its origin it is independent of uræmia; yet you cannot be wrong in soliciting the action of the kidneys by copious draughts and by fomentations to the loins, while you endeavour to sustain your patient by means of alcohol and food, and by such remedies as quinine dissolved in sal volatile and by camphor dissolved in the brandy. This malignant form of scarlet fever is, however, less rapidly and less certainly fatal than the two forms already described: it may end life in three days, but, by nature or art, the patient often survives the fourth day; he may linger on until the period of desquamation; or his life may be spared.

As I distinguish between early death from hyperpyrexia and that from nervous poisoning, so I have now to distinguish between two forms of death which resemble each other in the predominance of exhaustion. There is an asthenic or syncopic form of the malady which I am sure is different from the malignant or typhoid, though the difference is hard to make out plainly in words. Hard to make out, because examples of this latter kind are rare, and I have not preserved any adequate notes of the few which I have seen. At the bedside, however, the distinction is plain enough. In the syncopic form the signs are not so much those of cerebro-spinal oppression or of imperfect elimination as of vascular failure—of failure, that is, in the heart and circulation. For instance: your patient may be taken ill in the usual way; he may show no alarming symptoms in the first twenty-four hours, but by that time you will begin to feel very uneasy about his pulse, which becomes soft and rapid. He soon shows signs also of cardiac and pulmonary oppression; his face becomes pale, his forehead is bedewed with sweat which soon gathers into drops, his lips lose their hue, and his extremities become cold and damp. He will now begin to toss like a woman who has flooded; he will throw his arms about, roll from back to side, and look scared and agitated. His pulse will be probably 140, his respiration very shallow and rapid; and you see that he will die in a few hours, although you fail to discover any cause of death in the temperature, in the rash, or in any special character of the disease. You are obliged to tell the friends that the attack does not seem to be very severe as regards mere special symptoms, but the individual succumbs at once without the slightest attempt to rally. This is different from the more stubborn fight against an intracardial clot, but it would seem as though the poison fell in some exclusive way upon the muscle of the heart or upon its nerves. It is easier in these cases to prescribe an appropriate treatment than to promise any help from it.

In order to impress upon you more distinctly the duty of distinguishing between death by direct poisoning and death by hyperpyrexia, and the farther duty of curing the former, whatever you may be able to do with the latter, I will relate to you two contrasted cases, both of which have occurred in my own practice within the last few weeks.

The first case was that of a bonny healthy child of about four years of age, who was taken ill with fever and vomiting somewhat suddenly. Three other persons were ill with scarlatina in the same house. The medical man in attendance told me that three others had progressed favourably and were in a fair way of recovery. The present patient, however, who began to be ill about thirty hours before our meeting, had been more dangerously ill from the first. The child soon became restless and sleepless, and to this ere long was added more violent excitement and delirium. On our visit the patient was said to have been convulsed, and was struggling violently in the nurse's lap and screaming

incessantly. The child gave no sign of perception of external things, but was wholly abandoned to the play of violent internal commotions. To see the tongue or throat was impossible, but a free scarlet rash was out upon the body, and there was no pneumonia. The pulse was about 135 and sharp, and the temperature was 106.5° and rising. I told the gentleman whom I met what I thought of the case and what means should be adopted for the cure. The nurse, however, was a stupid busybody; the mother an amiable, tearful young person, of whom one could hope for less than nothing; the hour was late, and no skilled aid was at hand: so I was not surprised to hear of the death of the poor little patient within twenty-four hours.

The second case was, if possible, less promising so far as the features of the case were concerned; for the child, as heavily stricken with fever as the other, and in at least as distressing a condition, was a constitutionally delicate little fellow. His father was a medical man, and was in great distress about him. At my first visit his temperature was 105.3°, and rising. I hinted at the course which I should advise, but my words fell then on stony ground. A few hours later, when I called, the temperature was over 106°, still rising, and the symptoms of hyperpyrexia were very severe and alarming. I now pointed out decidedly to the father that his child would almost certainly die if we temporised further, and that if cool bathing were resorted to at once he might live. The father told me honestly that his prejudices were strongly against the procedure, but after some thought he said he would carry out whatever I wished; and, having thus promised, he carried out the plan most loyally and skilfully. I need scarcely say that my wishes were that the child should be put into a bath at 90°, which was to be cooled down to 70°, the thermometer being carefully watched the while; that when the child's temperature had fallen to 101.5° he was to be removed to a warm dry blanket, a hot-water bottle placed to his feet, and a little brandy-and-water administered. Struggling, screaming, and unconscious, the child was thus immersed, and on his removal the temperature, as usual, fell still further—namely, to 98°. On my return in a few hours, the little fellow was slumbering sweetly, and had slept for four hours. He had taken food consciously, and the fever temperature was 102.5°; it continued to rise, and the former symptoms began to reappear. The father again used the bath with the same good results; and from this time recovery was rapid and uninterrupted. I need not say how great was his surprise and gladness; nor need I say how great is mine also to number him among the few who, like brands snatched from the fire, have been restored to life by one of the most brilliant discoveries of rational medicine. What greater happiness have we than in the family of those whom we have thus helped to save, and whom, in the gift of a second life, we have a right to call in some sense our children.

HYDROPHOBIA.

By SURGEON-GENERAL MACLEAN, M.D., C.B.,

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THE subject of Hydrophobia has of late been brought rather prominently before the profession and the public. I do not profess to be able to throw a ray of light on the pathology of this justly dreaded disease; but as it has been my fortune to have to treat four cases, all occurring in people of tender years, I am able to make a slight addition to the slowly accumulating evidence as to the time of incubation, a point not without interest. Mr. Fleming, who has written admirably on this disease as it is seen in man and animals, has expressed what appears to me a well-grounded opinion against the popular belief, so widely entertained, of the great length of time the poison of rabies can remain latent at the seat of injury before it is taken up and carried with fatal effect into the system. I am tempted, also, to give a few details of the history of a sad case which many years ago caused a painful sensation in Western India, because it has some bearing on a point touched on by Mr. Fleming—viz., the possible so-called "spontaneous" origin of rabies in one of the lower animals. I had the particulars of this case from the late Dr. Alexander Walker,

of the Bombay Army, for some years before his death well known as the statistical surveyor of the Deccan. Dr. Walker was a man of science and an intimate friend and brother officer of the subject of my story.

Dr. C—, of the Bombay Medical Service, was, at the time of the following occurrence, employed in the service of H.H. the Nizam. Unfortunately for himself, he became possessed of a whelp of the wild dog of the Deccan—the *Kolsun* of the Mahrattas, the *Canis Dukhanensis* of Indian naturalists. The creature was in perfect health when captured, and was carefully reared. One day, when his master was caressing him, the animal bit his hand slightly, whether in anger or by accident I cannot say. In exactly six weeks from the date of this occurrence symptoms appeared, the dread significance of which was at once apparent to Dr. C—. It was the hottest season of the year, and the unhappy young medical officer at once determined to shorten his sufferings by the exhausting process of riding seventy miles in the sun to the house of a friend at the next military station. This he actually did, arriving in a state of horrible suffering, but fortunately also of extreme exhaustion, and in a few hours died in the arms of his friend, to whom he could hardly explain the cause of his unexpected appearance.

There was not the least reason to suppose that the wild dog had been bitten by one of his tame congeners; and had one of his own kind bitten him before capture, which was not probable, it is nearly certain symptoms of rabies would have manifested themselves at an earlier period. Unfortunately, the animal was killed immediately after he had bitten his master; it cannot, therefore, be positively affirmed that he had rabies at all, except by the, to most minds, too convincing proof of the effects of the bite on his master. About the period of latency of the poison there was no doubt; the symptoms followed forty-two days after the injury.

The first patient committed to my care in the General Hospital, Madras, on arriving in India, was a Brahmin boy, ten years of age, labouring under hydrophobia. He was brought to the hospital by his mother. I can never forget this singularly interesting child; his patience and courage astonished me, and the tenderness with which he endeavoured to soothe the agony of his parent, in the intervals between the paroxysms of throat constriction, is to this day the most vivid memory of my professional life. In this case I was able to fix with perfect certainty the period of incubation, which was forty-three days. The cicatrix of the wound inflicted by the dog on the boy's arm was evident; but when the symptoms supervened there was not a trace of irritation in or about it.

Four years afterwards, when serving at Hyderabad in the Deccan, I had just mounted my horse for an evening ride when my native gardener came to me, leading his son, a child of nine or ten years of age, by the hand. Turning to look at the child, the expression of his face in an instant brought back to my recollection that of my young Brahmin patient. Dismounting, I called for a glass of water, which I offered to the boy. He made a convulsive attempt to swallow a little of it, and fell into his father's arms in a paroxysm of the throat constriction characteristic of the disease. He died in the course of the following day with all the symptoms of hydrophobia. Here, too, there was no difficulty in fixing the date of injury. The boy had been bitten exactly forty days before by a large pariah dog. The bite was in the leg above the ankle, and beyond washing the wound with water, and afterwards dressing it with some simple native application, nothing had been done for the protection of the child.

Two other cases of hydrophobia were treated in the Residency Hospital during my time of office. Like the others, they occurred in children. The time of incubation could not be fixed with such exactness as in the other cases, but from certain circumstances ascertained at the time, in neither case could it have exceeded sixty or sixty-four days.

A child, son of the officer in command of the 13th Regiment M.N.L., was bitten by a dog, the property of an officer of the regiment, and the fatal symptoms followed in fifty days.*

* Since the above was written I have had a note from my brother-in-law, General Le Fleming, who was at Vellore at the time, reminding me of the exact circumstances of this case. "The child was bitten at 7 o'clock A.M., on the naked wrist between the bones. In thirty-five days from that date, exactly at the same hour in the morning, the symptoms of hydrophobia appeared, and the child was dead before night. The same dog bit two other persons on the same day—one a Captain D—, the other a housekeeper. Both were bitten through their clothes, and no ill-consequences followed."

When we consider the number of pariah dogs roaming about at will in the bazaars and native cities and villages of India, the wonder is that this fatal disease is not more common than it is. Yet it is certain that a large number of medical officers complete a lengthened period of service there without seeing a single case. I am assured also that in Constantinople, although packs of fierce scavenger dogs abound, each pack confining its operations to a certain quarter, yet hydrophobia is a rare disease in that city. If this be true, it seems to point to the fact that dogs in a domestic state are more prone to suffer from rabies and to propagate it than in a semi-wild condition.

It is certain that in Berlin and some other cities in the north of Germany, hydrophobia became so common as to call for stringent police regulations. There, dogs are much used for draught by the vendors of small commodities in the streets, but none are now to be seen without the regulation muzzle, which is so contrived as to admit of the animal depressing his lower jaw and protruding his tongue for free salivation—a process, as all the world knows, needful not only for the comfort but the very existence of the animal. Nothing more stupid and cruel than the muzzle in common use in this country can be conceived. One of my colleagues some years ago possessed a very handsome and powerful mastiff, but, being of rather a combative disposition, it was dangerous to take him out except on the chain. I brought with me from Dresden one of the German regulation muzzles, which the dog wore, not only with comfort, but with, his master thought, pride, rather despising "curs of low degree" undecorated with a handsome helmet like his own.

Should any regulations of this kind be called for in this country to restrain the spread of this frightful disease, it will be interesting to watch the rise of a new crotchet clique to agitate the "question" of free trade in hydrophobia, and the "vested right" of our canine friends to propagate it at pleasure.

Perhaps an ex-cabinet minister may be found willing to devote the time he can spare from the sacred cause of syphilis, and the criticism of Army Medical Reports, to head a vigorous agitation against the "compulsory" suppression of hydrophobia.

COMPOUND COMMINUTED & DEPRESSED FRACTURE OF VAULT OF SKULL; TREPHINING; RECOVERY.

By JOHN PENHALL, F.R.C.S.

ON August 19th, 1874, I saw Miss E. L—, aged eight, with Mr. Wadd, at 2 P.M. The child had fallen over the baluster of the staircase, while sliding down it, from a height of ten feet, head-foremost on to a bend of iron piping in the hall, from which she appears to have rebounded, and was found insensible on the floor. On examination, a small punctured wound, about a quarter of an inch in diameter, presented itself about midway between the external occipital protuberance and the occipito-parietal suture, from which there had been rather free hæmorrhage. For a space of three-quarters of an inch around the scalp-wound could be felt a deep depression, and on introducing a probe beneath the skin, a sharp ridge was found, this being especially marked at the right side and below. The surface was cold, the pupils widely dilated, pulse 84; there was tossing of the limbs, with a convulsive cry from time to time, and frequent vomiting. The head was ordered to be shaved, and a bladder of ice to be kept constantly applied.—5.30 P.M.: The symptoms of compression had continued unabated, with the vomiting, and from time to time grinding of teeth. Assisted by Mr. Wadd, I now proceeded to a more particular examination. As the child tossed about a good deal, Mr. Wadd administered a little chloroform, but when only a few inspirations had been made there was complete insensibility and cessation of movement, which continued to the close.

A crucial incision was made, having the scalp wound for its centre; the flaps were reflected from the bone, and there was then presented a deeply depressed gutter-shaped fracture, measuring about an inch and a quarter in diameter. The right outer and lower rim was completely wedged