GENERAL CONVULSIONS IN EARLY INFANCY INDUCED BY THE TAKING OF FOOD,

AND THEIR BEARING UPON PYLORIC OBSTRUCTION IN
THE INFANT.

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It is a familiar fact that in early life convulsions of reflex origin and often of little moment may arise from trifling irritation acting upon the periphery of nerves in various parts of the body. In infants the alimentary canal is the most common seat of this irritation, and a general convulsive seizure induced by the pain and irritation of teething or by a meal of indigestible food is a matter of common experience with every one. It has happened to me to meet at rare intervals with a case in which a healthy infant has been thrown into violent fits a few minutes after taking a meal of some simple food which an ordinary child, even the youngest, would digest with ease, and this without the seizure being preceded by vomiting, crying, or the slightest sign that the food did not completely agree.

The first instance of the kind which came under my notice, and made a strong impression upon me, was in a baby of a few weeks old, the child of a hard-working and experienced practitioner, who was naturally much alarmed and perplexed by the singularity of the case. Since its birth the infant, although fed with judgement, had fallen into strong convulsions a few minutes after taking his bottle, and the fits had been repeated with the utmost regularity after each meal. At the father's request I went to his house to see the child. I found a seemingly healthy and well-nourished infant, who looked comfortable and placid, and appeared to be in every way in a normal state. The child was being fed upon Swiss milk and water. He was given in my presence about an ounce of this mixture, which he sucked from his bottle with apparent enjoyment. He finished his meal, and the bottle was replaced upon the table. The child then closed his eyes and appeared to be sinking into a quiet sleep, when in about two minutes he began all at once to twitch in the face; then to jerk his limbs in violent convulsions; his chest became fixed; he ceased to breathe; his complexion turned darker and darker; then he stretched himself out with a slate-blue face, and lay quite still. We did what we could to re-establish respiration, but without any success; the child was dead. The whole attack did not last longer than thirty seconds, if it lasted so long. This distressing experience occurred many years ago. Since then I have seen some four or five other cases of the same kind, although without the same tragic ending, and found that with ordinary treatment and some help to the digestion the attacks could be brought quickly to a close. All the cases have been in hand-fed babies, and have presented exactly the same characters. The patients have all been healthy-looking infants, well-nourished and apparently strong, not peevish or fretful, or sufferers from abdominal discomfort or other sign of indigestion, but who after each meal of the simplest food were thrown without any warning whatever into strong convulsive fits. The peculiarity of the cases is, of course, the complete absence of any sign of uneasiness between the end of the meal and the beginning of the seizure. If I had not seen with my own eyes that this could be so I do not know that I should be able to believe it; but having seen it I am sure of the fact.

I have brought these cases forward, not for their own sake, although their interest is not to be denied, but because they seem to me to throw a strong light upon the mechanism of pyloric obstruction in the newborn infant. There are some who hold that this contraction is a congenital lesion, that the infant comes into the world with a thickened and narrowed pylorus. Others, with whom I agree, look upon the contraction as due in the beginning to a reflex spasm of the pyloric wall induced by the taking of food, and believe that the continued repetition of the contraction determines a hypertrophy of the muscular layers which encircle the opening. That the signs of obstruction are often absent at birth, and may not appear until an interval of some weeks has elapsed is a strong argument in support of this view.

I submit that the cases I have just brought forward furnish a practically conclusive argument in favour of the spasmodic theory. If such mild irritation as is caused by the mere presence of food in the stomach can induce general convulsions in an impressionable child, why should it not be able to set up a local spasm of the pylorus? It has happened that the local spasm has been actually conjoined with general convulsions, as appears in a case published by Dr. Walter J. Harper,¹ a very characteristic case which ended in recovery. If these nervous manifestations can occur together, surely they may also occur independently of one another.

The tendency to local spasm in infants is a fact universally recognized. A common example of it is laryngismus stridulus. This laryngismus may occur alone, or it may be complicated with general convulsions, or even alternate with them. It may be said that if pyloric obstruction were due to local spasm induced by gastric irritation, the cases of general convulsions I have instanced above should all of them have been complicated by spasm of the pylorus; but this does not necessarily follow. To take laryngismus again. This local spasm is commonly the consequence of post-nasal irritation, and can be put a stop to by treating the post-nasal catarrh. General convulsions may also be induced by post-nasal irritation, as I have seen again and again; but either may occur without the other, although the irritant capable of exciting them is the same. So I see nothing unreasonable in believing that gastric irritation may set up general convulsions without pyloric spasm, or pyloric spasm without general convulsions, or both together.

REFERENCE.

¹ *Lancet*, August 19th, 1905.

THE INFECTIVITY OF ENTERIC FEVER.

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SPORADIC cases of enteric fever are of almost daily occurrence in all large cities, the source of infection in each instance seldom, if ever, being ascertained. Occasionally outbreaks of enteric fever occur, due in most instances to a contaminated water or milk supply. The following seven cases, however, are of interest, and worth recording in illustration of the extent to which personal infection plays a part in the dissemination of this disease.

Name.	Age.	Residence.	Situation.	Date of Sickness.	Date of Removal.
L. R.	7½	All same address	3 up, 1st R.	Feb. 3, 1906	Mar. 2, 1906
M. C.	9		1 up, 2nd R.	Feb. 16, 1906	" "
D. C.	4		" "	Feb. 23, 1906	" "
N. A.	9		1 up, 1st L.	Feb. 25, 1906	Mar. 4, 1906
S. S.	8		2 up, 1st L.	Mar. 4, 1906	Mar. 9, 1906
B. C.	1½	Next close	1 up, 2nd R.	Mar. 9, 1906	Mar. 12, 1906
T. H.	3½		2 up, 2nd R.	Mar. 5, 1906	Mar. 8, 1906

It will be seen that L. R. suffered from an indefinite illness for thirty days before removal. She was not so ill as to compel her to take to bed throughout, occasionally being up, when she associated at play with the others above mentioned. In point of fact, the day before her removal to the Infectious Diseases Hospital her mother, not being satisfied with the child's condition, had taken her to one of the dispensaries in the city. The matter was reported by the dispensary to the Health Department, which thus put us on the track of the others.

The dates of sickening of the other six support the view that all were infected from L. R. They all attended the same school, but occupied, with the exception of M. C. and N. A., different class-rooms, and, no other cases of enteric fever having occurred in connexion with this school, it is not to be considered a factor in the propagation of the disease. The milk supply, likewise, in all instances, was from a different source.

All the cases occurred in the same tenement—six in the one close and one in the other. The block is of four flats, composed of dwellings of two apartments—four on each flat—one w.c. serving for all four families. All the

patients were under 10 years of age, and were playmates, their playground being the lobbies and stairs. The view that the waterclosets may have served as a source of infection is negatived by the fact that none of the adults (twenty-eight in number) resident in those three flats were attacked, and it is not thought that the situation of the houses in respect of their water supply, some being placed on different sides of the stair, was a factor in the causation. The evidence points strongly to personal infection during play, and, this method of spread of enteric fever being comparatively rare, it was deemed worthy to place these cases on record.

SUCCESSFUL AMPUTATION OF THE LEG AT 94 YEARS, WITH AN ACCOUNT OF A NEW OPERATION.

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It is not often that a simple amputation of the leg presents features which call for a special report, but the age of my patient and the excellent result are sufficiently interesting, I believe, to justify a publication of this case.

I shall take this opportunity, also, to describe an operation which seems to have elements of utility. I always perform it where great rapidity is desirable, and the leg is spare enough to permit of it.

The left hand seizes the outer side of the leg at the point of section of bone, thumb to the front. The skin over the tibial surface is drawn forcibly outwards, the point of the knife is made to enter at the edge of the tibia, graze the fibula, and emerge as far inwards as possible on the back of the leg, and a flap is then cut downwards.

On releasing the leg the front of the incision flies inwards, so that it is now possible to enter the knife and clear the tibia to reach the point of exit behind, and cut the internal flap, which should equal the external.

With the catlin a semilunar periosteal flap is cut from the front of the tibia, and quickly stripped upwards, the bones cleared, and the saw entered first obliquely, then straight, in the usual way, so as to take off the front corner of the tibia. This point of bone is in the anterior angle of the wound, but being covered by the periosteal flap never becomes adherent.

Two acupressure pins (devised by Dr. W. J. Branch and catalogued by Arnold and Sons) are inserted between the bones crosswise, so that the anterior and posterior tibial arteries lie in the opposite angles. A stout silk is now wound by figures-of-8 so as to close the pins together and compress the arteries. The pins are slightly withdrawn from their cannulae, so that the points are hidden, and the tourniquet removed. Two sural vessels in the heads of the gastrocnemius usually require ligature, and nothing remains but to suture, leaving the heads of the pins and the end of their silk protruding from the anterior angle of the wound. The pins are removed about three or four days after, and the silk, then loose, easily comes away.

In this way I have removed a leg in twenty-one minutes, including chloroform and bandaging. The actual amputation takes two minutes.

In all amputations at the seat of election I cut equal lateral flaps, usually by a racquet-shaped incision. Lately I modified this by making the incision from a shallow curve upwards on the back of the leg, so as to give a rounded stump when the flaps are brought together, instead of the prominent nose formed by the simple racquet incision. I always make the periosteal flap. My patients can only obtain common peg legs, and the position of the scar on the face of the stump is of no account. But the resulting stump is usually so good that I believe it would suit any form of artificial leg. I have amputated at the seat of election fifty-one times in the last four years.

CASE.

F. L., a negro, aged 94 years. The age of a West Indian negro is often a doubtful quantity, but in the present instance it was fixed by the fact that she was born one month before the volcanic eruption of 1812.

The patient is quite deaf and nearly blind, but physically strong and active. She used to live alone and do all her own shopping and cooking. On February 1st, 1906, she was knocked down by a cart and sustained a compound fracture of the lower

third of the leg. I was informed of this by telephone, and by the time the patient arrived all preparations were complete. She was at once placed on the chloroform table, and the skin prepared with lysol soap and ether and packed with sublamin.

The leg was removed by double transfixion as detailed above. Pins were not used. There was great tendency to ooze, though there was no atheroma of vessels, and no less than seven ligatures were used (sterilized silk). Dry sterile swabs were used and the wound flushed with sterile normal saline. The wound was closed accurately with silk and dressed with plain sterile gauze. Chloroform was begun at 1.02 p.m. and the operation at 1.11 p.m.; amputation was completed at 1.14 p.m., and bandaging at 1.32 p.m. The whole operation therefore took thirty minutes, and the patient was in bed an hour after the accident.

Owing to continued oozing the stump was reopened the same night under chloroform. Clots were cleared out, but no bleeding point was found.

There was no shock. The wound healed aseptically. A small spot of gangrene appeared on the skin of the knee over the inner side of the tibia. This formed an ulcer as big as a shilling, which, however, did not affect the progress of the recovery.

The patient was discharged well on March 6th, 1906, thirty-four days after her accident.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL.

THE BEHAVIOUR OF ETHYL CHLORIDE.

THE following case may help to throw a little more light on the behaviour of ethyl chloride as a general anaesthetic. The patient was a male, aged 38 years, heavily built and well developed, 42 in. round the chest in the nipple line, and weighing 14 st. There was a small tidal wave, but otherwise he was healthy.

In February, 1905, he had a large perirectal abscess evacuated under ethyl chloride and chloroform. The ethyl chloride was given in a single dose of 3 c.cm. in a Swan's inhaler without admission of air. No difficulty was experienced, the whole time taken being twenty minutes.

In the following April the resulting fistula was to be operated on. The patient was prepared in the usual way. Ethyl chloride was given as before, but without getting the patient under its influence, whereupon 3 c.cm. more was sprayed into the bag, making 6 c.cm. in all.

The patient was coughing, but not struggling. When the conjunctival reflex was absent the inhaler was removed and a Skinner's mask applied. The patient suddenly stopped breathing (about half a drachm of chloroform had been dropped on the mask). His tongue was pulled out, and his larynx examined with a finger. There was no jaw spasm or cyanosis and the pulse at the most was 80 per minute and full. The chest was fixed, and the pupils, at first widely dilated, settled down to midway dilatation. At first there was no discolorment, but afterwards he became cyanosed. There was remarkable rigidity of the body and limbs, so much so that Sylvester's method of artificial respiration was impossible, the abdominal wall was as rigid as a board. The method employed was to put the patient on the floor, and fall on his thorax with outstretched hands, together with rhythmical tongue traction. For ten minutes this was practised, his pulse remaining remarkably good. He then began to breathe automatically. During the actual performance of the artificial respiration, very little air, if any, could be forced into the lungs owing to the rigidity of the chest wall.

On returning him to the table he again stopped breathing. The previous treatment was again commenced. He was now becoming cyanosed. There was no twitching nor movement of the eyes. Liq. strychninae hydrochlor. mxx was then given in two doses at five-minute intervals, and in fifteen minutes the patient began to make spasmodic efforts to breathe. He was very deeply cyanosed, almost black in colour; his pulse was still to be counted at the wrist, being about 140. A capsule of amyl nitrite was inhaled as soon as natural breathing began.

He was left lying on the floor wrapped in hot blankets, and in twenty minutes he expressed himself rather sore about the ribs and tongue, but otherwise well. The only other after-effect was severe headache, which the large dose of strychnine would account for. The operation