lately acquired reflexes—namely, those subserving the erect posture; and there is a consequent release of a more primitive or ancestral form of postural reflex—namely, that approximating to the quadrupedal type; or, more precisely, to a type intermediate between the quadrupedal and the erect—namely, that of the anthropoid. In the quadruped the action of the prevertebral muscles must be of great importance in preventing hyperextension of the spine by the weight of the body, and these muscles must constantly be brought into play in such movements as running and jumping; in the anthropoid in particular the spine is flexed and the head held low.

The contraction of the prevertebral muscles in the cases under consideration may thus represent a return to a more primitive posture of the spine; their sectional and sometimes unilateral contraction corresponds to the scattered nature of the lesions in encephalitis lethargica, and is thus of a focal character.

It may be assumed that the primitive postural reflexes are relatively more potent in the young, and tend to become obsolete as life advances; this explains the occurrence of the localized curvatures in young subjects.

It lies outside the scope of this paper to discuss the relationship of the lesions in the lenticular nucleus, the substantia nigra, and the mid-brain to the hypertonus, the attitudes, and the localized curvatures. Investigation of the morbid anatomy of the type of case here described may perhaps throw light on this question.

Treatment.

Treatment is of more avail than the appearance of the cases would suggest. Corrective apparatus should be employed, having for its object the gradual overcoming of the resistance of the muscles, the reduction of the curve, and the prevention of osseous deformity. For the cervical

FIG. 1.—Antero-posterior curve of cervical spine.

FIG. 2.—Effect of chin-strap in correcting deformity. The chin-strap is attached to a jury-mast (not shown in illustration).

FIG. 3.—Posture after two months' treatment. Retentive apparatus is still necessary.

curves a poroplastic or celluloid jacket should be used, with a jury-mast and Sayre's chin-sling; in some cases (as, for example, when salivation is present) a frontal band passed round a pulley at the top of the jury-mast is better tolerated. Reduction should be by stages, the straps being gradually tightened; at the beginning it may be advisable for the apparatus to be worn only for a period each day. Patience and some ingenuity may be required, but the results reward the trouble; in two cases in which the carriage of the head had brought the chin into contact with the front of the chest, the children can now hold their

heads erect unaided. For the kyphosis and the lateral curves a poroplastic jacket should be used, applied with the patient suspended; as the curve improves, the jacket should be remodelled. The jackets should be well perforated, as the patients sweat freely.

Prognosis.

The general prognosis appears doubtful. In one case the condition progressed

in spite of treatment; the child became bed-ridden and died of intercurrent disease. Two cases show improvement, and in two the condition remains stationary.

Several cases have been observed in which, after an anomalous acute illness, children have developed an extreme lateral curvature, which has disappeared in a few weeks. Such cases are probably examples of an aberrant type of encephalitis lethargica, but their nature is at present doubtful.

Conclusions.

The spinal curvatures following encephalitis lethargica are due to a localized contraction of the prevertebral muscles, brought into play by the release of a primitive postural reflex, locally restricted in its operation. Treatment by means of corrective apparatus is followed by material improvement.

TETANUS IN A BOY: RECOVERY.

BY

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THE following details of a case of tetanus in a boy who, while on a visit to Newfoundland, met with a slight accident, appear to merit publication in view of his complete recovery after prolonged treatment.

On August 11th, 1926, a schoolboy, aged 15 years and 10 months, fell on some stones in pasture land where animals had been grazing, and received a wound on the back of the right forearm. This was cleaned immediately and tincture of iodine applied, but ten days later he noticed stiffness of the jaw and difficulty in chewing. On August 22nd the stiffness had increased, and by the next day had become so definite that he could open his mouth very little. He was then on board ship returning home, and was treated by Dr. McCarthy until August 30th. Stiffness of the jaw muscles continued the same until August 24th, when it increased and he became unable to chew. Tetanus was diagnosed, and an

injection of 1,500 units of antitetanic serum was given, this dose being repeated two days later.

On August 25th, the fourteenth day, it was noticed that he had bitten his tongue, and on the 27th he felt stiffness between the shoulder blades. On August 28th the stiffness of the back increased, and on August 30th he received an injection of 3,000 units of serum. An extra effort was made to speed up the ship to enable larger doses of serum to be given.

The boy was seen by one of us (J. D. C.) on August 30th, late in the evening, when it was obvious that it was a case of tetanus, but no spasms were noticed that night. On the following morning he was seen again and one spasm of the masseters was noted. He was then examined by both of us: marked rigidity of the masseters was present, and the boy was unable to open the mouth more than a quarter to half an inch. He was examined for erupting wisdom teeth, but none were seen. He was able to flex his neck, but contraction of the facial muscles caused the appearance of risus sardonicus. There was some rigidity of the spinal muscles, but no spasms were noted round the muscles of the arm at any time, even on exciting the muscles. The knee-jerks were then fairly active. The pulse was slightly increased, but the temperature was normal. Active tetanus was diagnosed, and energetic treatment was considered necessary.

A general anaesthetic was administered on August 31st, the twentieth day, in order to inject serum intrathecally. On this occasion some difficulty was experienced in getting into the cerebro-spinal canal. An anaesthetic was given again on the

following morning for a similar purpose, and to excise the wound by removing the skin and subcutaneous tissue, the wound being swabbed with antitetanic serum and undiluted chloramine. The cerebro-spinal fluid which was withdrawn showed a few polymorphonuclear leucocytes, but no organisms were found in films or on culture. This reaction was ascribed to the serum given the day previously. The fluid withdrawn on this day failed to give tetanus to a mouse inoculated with it, so that presumably any toxin was by now neutralized.

Treatment given.	Day of Disease.	Intra-thecal.	Intra-venous.	Intra-muscular.	Sub-cutaneous.
August 31st	20th	1,200	10,000	3,000	—
September 1st	21st	1,500	6,000	—	2,000
September 2nd	22nd	—	10,000	—	—
September 3rd	23rd	—	10,000	—	—
September 4th	24th	—	9,500	—	500*
September 5th	25th	—	9,500	—	500*
September 6th	26th	—	Serum stopped	—	—

* Desensitizing dose.

Restlessness and vomiting came on after the anaesthetic on August 31st (twentieth day), possibly post-anaesthetic; this continued till the twenty-second day, during which he was still restless, but the vomiting ceased in the morning. The pulse rate was now very slow but regular: in the morning of this day 52 was the lowest rate.

From the thirteenth day to the twenty-fourth day of the disease chewing was practically impossible, and fluid nourishment only was attempted to be given by the mouth. From the twentieth day to the twenty-third day vomiting was almost incessant, and liquids, such as grape juice and lime water, were not retained completely.

Medicinal Treatment.—Calomel 1/10 grain was given at intervals on the night of September 1st (2 grains in all), but some of this was vomited. To overcome the restlessness on the night of September 3rd an enema containing 15 grains of chloral hydrate and 1/2 drachm of sodium bicarbonate in 4 ounces of water was given; this was retained and he passed a good night. A mixture of chloral hydrate and potassium bromide (5 grains of each) was given subsequently for two days, three times a day. He settled down well after this, and from this time his convalescence became assured.

On the twenty-fifth day of the disease the patient began to masticate his food fairly freely; he became more restful, and the tonic spasm of his masseters and abdominal muscles practically disappeared. Convalescence now became assured, and within five weeks the patient was able to return to school. At this time all symptoms had disappeared; the mouth could be opened widely and the natural facial expression was present. The knee-jerks alone showed slightly increased activity.

This case of tetanus, in which well marked spasms of the masseters and abdominal muscles were associated with persistent vomiting, was cured by repeated doses of serum given chiefly intravenously and intrathecally. To accomplish this nearly 100,000 units of antitetanic serum had to be administered before the symptoms were finally subdued.

FOREIGN BODY IN THE OESOPHAGUS: DIFFICULT REMOVAL.

BY

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THE chief reason for placing the following case on record is the difficulty experienced in exactly locating the swallowed toothplate, in spite of the fact that a radiograph distinctly showed its presence, and also in removing it.

A woman, aged 64, was admitted to the Manchester Royal Infirmary on March 5th, 1927, with the following history. Fourteen weeks previously she had swallowed a portion of a dental plate; since that time she had been an inmate of another institution, where on two occasions oesophagoscopy had been performed, without, however, revealing the foreign body. A bougie had also been passed and met with no obstruction; a radiograph had not shown very definitely whether the toothplate was present or not.

A radiograph taken the day after admission to the Infirmary showed the toothplate very clearly at about the level of the sternal notch. Oesophagoscopy under local anaesthesia failed to reveal the plate, but a mass of granulation tissue at the level of the sternal notch was seen, from which haemorrhage was brisk enough to prevent further examination. Five days later, under local anaesthesia, the oesophagoscope was very cautiously passed again; the plate was felt in the granulations and was removed from their lower end with forceps. On attempting to remove the plate from its new position it was found to be too large to pass the site of the granulations; it was therefore released in order that an effort might be made to so place it that its narrowest width was crosswise. In attempting this the plate slipped downwards and was not seen again owing to the blood which was coursing freely from the granular area.

Toothplate: Half scale.

The patient was given a week's rest and the tube was again passed, a radiograph having shown the plate to be now about two inches above the diaphragm. To the surprise of the operator no foreign body could be seen, although a radiograph taken soon afterwards showed the foreign body still in the same place. After a further week's rest, under general anaesthesia a further examination was made, and again ended in failure.

It was now determined to try retrograde oesophagoscopy. One week later, therefore, the patient, having swallowed a length of silk, a gastrostomy was performed by Mr. Bryce, the silk thread brought out, the oesophagoscope passed on it to the cardia and a little over two inches up the oesophagus, when the plate was seen and removed at once without any difficulty.

The gastrostomy wound was kept open for ten days for the purpose of feeding and for giving rest to the oesophagus. The patient was now able to swallow any kind of food, and had apparently made a complete recovery. Whether the contraction of the granular area will bring about a stricture the future will show.

The case must be regarded as a relative failure because the foreign body was not removed *per vias naturales*, for it would be supposed that anything which had got into the gullet from above could also be removed from above. I cannot condemn too strongly the use of the bougie. In the case of an irregularly shaped foreign body it may easily drive the same into the oesophageal wall and cause impaction, or even perforation. The bougie should only be used under inspection with the oesophagoscope, and then only for treatment of strictures, not of foreign bodies.

The failure to find the plate on the third and fourth examinations was due to the facts that its thin upper border fitted closely the posterior oesophageal wall, that its colour was exactly that of the gullet, and that possibly a fold may also have obscured things.

The silk thread was used to guide the oesophagoscope quickly, because sometimes it is not easy to find the cardiac opening from below.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ACUTE INTESTINAL OBSTRUCTION BY BANDS IN CHILDREN.

Two cases of acute intestinal obstruction in children were admitted to the Worthing Hospital under my care, the one in December, 1922, and the other in June, 1927. Both cases were sent in by Dr. Thompson of Lancing, with the diagnosis of acute appendicitis, and in each case I operated through a gridiron incision, expecting to find an acutely inflamed appendix. In both patients physical signs predominated in the right iliac fossa, for reasons which will be obvious when the findings at operation are read.

Both patients recovered. The condition of Case I was dangerous for some twenty-one days after resection at primary operation, owing to broncho-pneumonia, and his stay in hospital was more than three months. Case II spent only fourteen days in hospital.

CASE I.

A boy, aged 8 years, admitted on December 7th, 1922, had abdominal pain (umbilical and hypogastric) for two days. The child was obviously ill. There was general rigidity of the