BREECH EXTRACTION AS A CAUSE OF CORD LACERATION AND PARAPLEGIA*

BY L. M. LINDSAY, M.D.

Montreal

CROTHERS, in 1923, called our attention to the fact that dystocia associated with breech presentation is not infrequently the cause of laceration of the spinal cord. Several other observers since then have corroborated this statement, which in truth is not new, for in 1870 Parrot published "Un note sur un cas de rupture de la moelle chez un nouveau-ne par suit de manoeuvres pendant l'accouchement."

One recalls that the cord is held firmly above the foramen magnum by the medulla oblongata and is supported by the strong nerve roots in the cervical region, while below, it is fixed by the strands of the cauda equina. Between these two anchors there is but little support given by the slender, oblique nerve roots which emanate from the thoracic part of the cord. Moreover, although the vertebral column is capable of considerable stretching, the cord itself cannot be elongated to any extent without danger to the delicate nerve structures. When, therefore, undue traction is exerted on the lower part of the child, as in a breech extraction, one of two things may happen. Either the cord will hold and drag the medulla into the foramen magnum where it becomes impacted. In this case fatal medullary pressure will lead to the condition of shock, (usually referred to as "asphyxia pallida") and death. Or on the other hand the cord may yield with laceration of its substance, and hemorrhage in or about the lesion. This will result in more or less complete loss of function of the parts below the damaged segments, and a train of symptoms similar to those produced experimentally by a cross-section of the cord.

The clinical picture is very striking, though it varies somewhat according to the site of the lesion. Three stages are usually described. First, there is a flaccid paraplegia of both lower extremities, which may be associated with paralysis of the muscles of the abdominal wall, the thorax and even of the upper extremities, according to the level of the injury. There is loss of sensation over the affected parts and retention of urine and feces. This is followed, in a few weeks, by a gradual reappearance of the reflexes in the parts below the lesion, and the action of the bladder and rectum becomes "automatic". This constitutes the stage of reflex activity, which may last indefinitely unless sepsis supervenes from de cubitis, cystitis, etc., in which case the reflexes disappear again and a flaccid paralysis ensues. This is the third stage. If the original lesion is in the lumbar enlargement the reflex activity of the lower extremities will not return as the reflex arc is interrupted. In this case there is a permanent flaccid paraplegia, as in the case I am about to cite.

It is obvious that the reactions correspond to the three zones into which the spinal cord may be divided, viz., the damaged segments and those above and those below the site of the lesion. In uncomplicated cases the brain is not affected, so that the intelligence is not impaired and there are no convulsions, though the picture presented during the second stage may simulate an intracranial hemorrhage, and indeed it is probable that many cases are designated as such. During the flaccid stage, or when the lumbar enlargement is involved the flaccid paraplegia is suggestive of amyotonia congenita or of spina bifida occulta.

Post mortem examination shows that the cord at the site of the lesion is more or less completely destroyed and the nervous tissue is replaced by connective tissue and organized blood clot, with ascending and descending degeneration of the tracts as described in Kooy's notable case. In more recent cases the meninges are found to be torn asunder and a blood clot surrounds the cord. The substance of the cord is soft and when sectioned found to be infiltrated with blood.

*Presented before the fourth annual meeting of the Canadian Society for the Study of Diseases of Children, Gananoque, Ont., June 11, 1926.
The vertebral column is usually found intact, so that the damage is done entirely by traction, and not by fracture or dislocation of the vertebrae.

The frequency of the cord injuries following breech extraction is difficult to estimate, but there is sufficient evidence to prove that it is far more common than standard text-books on either obstetrics or neurology would indicate. The most frequent injury consistent with life is situated in the mid-thoracic region. Next come cord lesions resulting from traction on the brachial plexus, in the endeavour to dislodge one of the arms.

The prognosis depends largely on the extent of the damage as well as on the site of the lesion. Naturally, if the medulla and phrenic nerves are involved, death is immediate. When the lesion occurs in the upper thoracic region of the cord, breathing becomes entirely diaphragmatic and the patient may succumb to pulmonary disease. Infection of the bladder will not occur, unless catheterization is practised, and this is rarely necessary. Trophic changes, such as decubitus, atrophy etc., are sometimes present. In general it may be said that the higher the lesion in the cord, the more serious the outlook. Injuries affecting the cervical cord are usually fatal within a week or two, while those in the lumbar region are compatible with an indefinite existence. The paralysis and anesthesia may slowly improve to a certain extent, due to absorption of the hemorrhage in and about the cord, but complete recovery can never be expected.

There is little to be recommended in the way of treatment. The nutrition and tonus of the affected muscles should be maintained as far as possible by suitable means and contractures prevented.

In conclusion it may be said that breech extraction is a totally unphysiological procedure, and particularly dangerous is the combination of hyperextension and traction in the delivery of the after-coming head. But the solution of this problem does not come within the province of the pediatrician.

The following case illustrates some of the points I have been discussing.

A French-Canadian girl, six months of age, was first seen in February, 1926. She was the ninth child in the family, born at full term, weighing about seven pounds. The labour was said to be very difficult, and a breech presentation. No instruments were used, but much pulling had to be exerted in order to effect the delivery. The child was then found to be very blue and remained feeble for a few days. After this she began to improve and was able to nurse at the breast, but it was soon noticed that she did not move her legs. There were no convulsions. During the next six months the child thrived fairly well—first on breast feeding and then on the bottle, but still there was no movement in the legs. Apart from this she was active and mentally bright. The bowels were constipated, but could be regulated with laxatives.

Examination in February, showed a rather small pale baby of six months weighing twelve pounds. She was unable to sit alone, but when supported, she sat with considerable lordosis. The head was steady and the fontanelle small. The cranial nerves were normal. Respiration was both thoracic and diaphragmatic. The upper extremities moved naturally, but the legs lay in a flaccid, helpless manner in any position. From the groins down, both legs were soft and toneless, but there was no wasting and the circulation was good. Neither pinching nor prickling with a pin could elicit any evidence of sensibility to pain. The knee jerks, ankle jerks and plantar reflexes were absent. The abdominal wall ballooned out on inspiration, and although the reflexes were not obtained, she appeared to feel painful stimuli over the abdominal region.

The following conditions were considered as possible causes for the symptom complex: Spina bifida occulta, amytotonia congenita, and traumatic laceration of the cord. Repeated x-rays of the spine failed to show any abnormality. The Wassermann reaction was negative and after due consideration the diagnosis was made of laceration of the lumbar cord resulting from a difficult breech extraction.

The patient has been under observation now for about four months, during which time her general health and nutrition have much improved. She can now sit alone quite steadily. Her abdominal muscles have regained their tone and reflexes. There is still total insensitivity to pain below the groins in front and below the iliac crest behind. This indicates that the upper level of the lesion is at the first lumbar segment of the cord. No reflexes can be obtained below
this level. There is flaccid paraplegia but no definite wasting of the limbs. The circulation is good as a rule, though sometimes the skin of the legs is mottled and the feet become blue and cold. Recently there has been quite definite movement attributed to the iliopsoas muscle on the left side. The bowels move once daily and she urinates every hour or two.

Very definite improvement has taken place even in the short time she has been under observation. It is idle to speculate on what further improvement may take place, though it will be interesting to observe her from time to time and to report any progress.

I am indebted to Dr. F. P. Yorston for having referred this case to me.

REFERENCES


DIAGNOSIS OF COMMON SKIN CONDITIONS*

BY G. GORDON CAMPBELL, B.Sc., M.D.

Clinical Professor of Dermatology, McGill University

AMONG the more common skin diseases there is one that easily holds the first place numerically. It preponderates to such an extent that it includes nearly two-fifths of all forms, common or uncommon. Formerly universally known as eczema, a disease of unknown etiology, it is now possible to classify a large proportion of the cases as dermatitis of known etiology. A dermatitis or eczema, regardless of the cause, presents a fairly constant clinical picture, and this I will briefly outline, familiar as you no doubt all are with it. The first symptom is redness like sunburn, accompanied by a sensation of slight itching or burning. This is soon followed by greater hyperaemia with more or less swelling, and later, by the appearance of tiny vesicles which soon rupture, and their serous-like contents dry as straw-coloured crusts. On removing the crusts the surface underneath, especially if subjected to some irritation such as friction, is rapidly clothed with fresh exudate, which can be seen to form small droplets on the inflamed area. This one feature, the recurrence of "weeping" as it is commonly called, is the corner stone in the diagnosis of dermatitis; no other disease exhibits it. At a later stage the skin becomes indurated and perhaps fissured, and now and then pustular, from the accidental implantation of pus-producing organisms. Other diagnostic features are the intolerable itching, usually occurring in crises and especially after irritation, and the usual absence of any well-defined margin to the inflamed area which fades gradually to the colour of the surrounding normal skin.

The object of all diagnosis is the acquisition of knowledge which will lead to an effective method of treatment, and no method of treatment can hope to prove effective unless the underlying cause of the disease is known and removed. Hence, a mere diagnosis of dermatitis is futile unless we are able to couple with it the cause. Fortunately, all but a few of these dermatites are found upon the exposed parts of the body, the face and hands, and this narrows our investigation to agents coming in contact with these parts. Prolonged exposure to heat, cold, antiseptic solutions, soap, water, oils and chemicals are all well known causes. Susceptibility to certain proteins explains those cases due to the organic dusts incidental to certain occupations. In the same class are the dermatites so commonly met with in the users of face powder which contains either rice or orris root as one of its ingredients. One can add here, too, as occasional factors, the long list of proteins causing hay fever and asthma. Mechanical irritation probably accounts for a large group of fur and wool dermatites, the effect produced