ACHLORHYDRIA IN LANDRY'S PARALYSIS

BY

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The cause of Landry's paralysis is not known. Cases have been described in association with many specific infections, Hodgkin's disease, myeloid leukaemia, and pyrexias of unknown origin. Quite often a patient is stricken down while in good health. Even more frequently paralysis follows symptoms of gastro-intestinal disturbance. Many authorities believe that the disease is actually a striking form of acute polyneuritis. In recent years a number of references have been made to the concurrence of polyneuritis and lack of free hydrochloric acid in the gastric juice. A case of Landry's paralysis is presented to demonstrate its association with achlorhydria.

History of Case

The patient, a boy aged 14, was admitted into the West End Hospital from a boarding school on May 18, 1938. His illness had begun twelve days previously as a feeling of undue tiredness while training for the school sports. He played cricket next day, and noticed that he was not running as well as usual between the wickets; he had some difficulty in holding the bat properly. On the following day his limbs, more especially the legs, felt rather stiff. He fell down twice, but on each occasion got up unaided. On the fourth day he could not get out of bed. His legs were absolutely immobile. He could not sit up spontaneously, and even by using his hands was only partly able to do so. Eating was accomplished with difficulty. Three days later the arms too became completely paralysed, and sitting up was impossible. On the tenth day of the illness, two days before admission, the upper limbs began to show signs of returning power, with voluntary twitchings of the fingers of the left hand and of both forearms. There was never any pain, tingling, or other paraesthesia; no diplopia; no difficulty in speaking or swallowing; no gastric disturbance. The appetite was good. Incontinence of faeces had occurred on three occasions "owing to the slowness of the school nurse." No rise of temperature or increase of pulse rate was noted. There was no history of sore throat, nasal discharge, or exposure to cold; and there were no recent cases of infectious disease at the school. It had been remarked that he was worrying unduly over the possibility of being beaten at the sports, especially in the hurdles race. After the illness started he became excitable and rather noisy at nights, particularly on hearing other boys in the dormitory corridor. On these grounds he had been treated as a case of hysteria. Careful questioning failed, however, to reveal any anxieties or mental conflicts referable to his life at school. His past health had been excellent.

EXAMINATION

The patient is slim and rather tall for his age; well nourished; colour good; expression rather anxious; tongue clean; teeth healthy; tonsils not enlarged or inflamed; no respiratory embarrassment; intelligence above average; cerebration active.

Central Nervous System.—Pupils equal and regular, moderately dilated, react briskly to light and accommodation—convergence; vision good; visual fields full; fundi normal; no nystagmus; no external ophthalmoplegia; speech normal; hearing good; no disturbance of other cranial nerves; slight pain in hamstring tendons on passive flexion of knees, slight tenderness of calf muscles; no other disturbance of sensation; no nuchal rigidity; head can be turned freely, but cannot be raised voluntarily from pillow; Kernig's sign negative; flaccid paralysis of muscles of upper limbs, trunk, lower limbs; slight voluntary flexor twitchings of fingers of left

hand, none of right; bilateral wrist-drop, no movements at the joints; very feeble movements at both elbow-joints, slightly stronger on the left side; shoulders shrugged relatively well, no movements at the scapulo-humeral joints; complete flaccid paralysis of both lower limbs; flaccid weakness of erector spinae and abdominal muscles—the latter can be held fairly rigid; the spine can be very slightly moved, but not enough to raise the trunk from the bed; no muscular wasting; tapping of tendons of supinator longus, biceps brachii, and triceps causes the merest twitch; the left supinator jerk is slightly more active than the right; knee-jerks and ankle-jerks absent; abdominal reflexes absent; no sphincter weakness.

The digestive system revealed no objective symptoms. Examination of the cardiovascular system showed a pulse rate of 86 per minute; no arrhythmia; blood pressure 112/76 mm. Hg; heart not enlarged; no murmurs. Nothing abnormal found in the other systems.

SPECIAL INVESTIGATIONS

The urine contained no abnormal constituents. Culture from a throat swab gave no Klebs-Loeffler bacilli; growth was mainly streptococci. The cerebrospinal fluid was under slight pressure and clear, with a faint yellowish tinge; cells 13 per c.mm., all lymphocytes; total protein 40 mg. per 100 c.cm.; globulin in moderate excess; sugar (Maclean) 78 mg. per 100 c.cm.; chlorides 725 mg. per 100 c.cm.; Lange's test 000112/11100. Examination of the blood gave an erythrocyte sedimentation rate (Wintrobe) of 5 mm. at the end of an hour; the white-cell count was 6,500 per c.mm. Fractional test meal (see chart): No free hydrochloric acid. Resting juice contained no excess mucus, bile, or starch; total acidity 36 c.cm. N/10 %.

PROGRESS

May 23, 1938.—Slight power of flexion in fingers of right hand; able very feebly to extend both knees and flex right knee; head can be raised from pillow. **May 25:** Slight movements of toes, wrists, and shoulders; symmetrical wasting of affected muscles now becoming apparent.

June 1.—Lumbar puncture: cerebrospinal fluid not under pressure; clear and colourless; cells 6 per c.mm., all lymphocytes; total protein 40 mg. per 100 c.cm.; globulin in moderate excess; sugar (Maclean) 68.5 mg. per 100 c.cm.; Wassermann reaction negative; Lange's test 0000113100. **June 10:** Electrical reactions of muscles: arms—diminution of faradic response in extensors of wrist and fingers; legs—diminution of faradic response in extensor longus digitorum, peronei, gastrocnemius, tibialis posticus, toe flexors, and intrinsic of foot. Weight 7 st. 3½ lb. **June 28:** Patient can turn over on his side; muscular wasting now very marked, especially in the distal muscles of the limbs.

July 5.—Sat up for first time. **July 14:** Propelling himself about the ward in a wheel-chair. **July 21:** Stood up for first time. **July 23:** Getting about with the aid of a walking-machine.

August 4.—Using a stick only; holds on to beds, chairs, etc., as he progresses along; gait waddling in character; cannot yet sit up without using his arms. **August 26:** Fractional test meal (see chart): free HCl 41 c.cm. N/10% in resting

Chart showing amounts of free HCl in fractional test meals.

specimen of gastric juice, 46 c.cm. N/10% after one and a half hours' digestion.

September 12.—Walking unaided. **October 20:** All movements stronger; inability to extend third and fourth fingers

of either hand fully; dorsiflexion of ankles relatively weak; gait much less waddling in nature; unable to climb stairs or rise up from floor yet; deep reflexes in upper limbs still much diminished, absent in lower limbs; abdominals absent. Weight 8 st. 3½ lb. Discharged for a month's holiday in the country.

November 19.—Feels stronger; can now ascend stairs, but has still some difficulty in getting up from the floor; no obvious muscular wasting; deep and superficial reflexes *in statu quo*. Weight 8 st. 8½ lb. December 3: Residual weakness now very slight; reflexes *in statu quo*. Discharged home.

TREATMENT

In addition to the usual measures, vitamin B₁ was given daily—4 mg. intramuscularly for ten weeks and 3 mg. orally thereafter. Dilute HCl was also given until the result of the second test meal was learned.

Discussion

Apart from a certain degree of mental disturbance the patient was in good health when taken ill. The discovery of achlorhydria was most intriguing, all the more so when a second gastric analysis, carried out when recovery was well on the way, showed free HCl to be present in amounts even greater than the average. The association of polyneuritis and achlorhydria has been stressed lately. Minot, Strauss, and Cobb (1933) investigated a series of fifty-seven cases of alcoholic polyneuritis. Only seven showed a normal free HCl content, fifteen secreted distinctly diminished amounts, and twenty-one secreted no free acid at all. Douthwaite (1936) recorded seven cases of "gastro-genous polyneuritis." Each was associated with a gastric disturbance involving a reduction or complete absence of free HCl. The cause of the achlorhydria in the present case is obscure. No other gastric symptom was elicited. One might theorize doubtfully upon the possibility of psychic disturbance having affected gastric secretion through the medium of the diencephalo-pituitary apparatus. Evidence is accumulating that some forms of polyneuritis, and even of localized neuritis, are in reality due to a deficient intake or absorption of vitamin B₁. In America alcoholic neuritis has been clearly shown to be produced by such a lack (Strauss, 1935, and later workers). The coexistence of achlorhydria in many such cases is surely more than a coincidence. Nevertheless one not infrequently encounters cases of polyneuritis in which the parenteral administration of the vitamin appears to have little effect. Recovery was not hastened very appreciably in the present case. There may be a deficient formation or absorption of some other neurotropic factor.

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REFERENCES

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The People's League of Health after an investigation extending over many months has now organized a scheme of clinical research with a view to determining the influence of diet on expectant and nursing mothers in relation to maternal mortality and morbidity. Systematic observation and records under expert direction are being collected at the ten London hospitals which are co-operating with the League in this research, and the results will be studied and published in due course. The League has just concluded the first year of its research, and it will probably be another six or nine months before the work is completed and the report published.

MYOMECTOMY IN THE PREGNANT UTERUS

BY

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DeLee, in his *Principles and Practice of Obstetrics* (p. 576), says: "Myomectomy has been frequently done during pregnancy, but it is a very bloody operation, and is followed by abortion in 17 per cent. of cases (Winter)." Speaking of the treatment of fibroids during pregnancy he says: "In the absence of unbearable pain, of severe haemorrhage, of very rapid growth, of great distress from over-distension of the belly, and of signs of necrosis of the tumour, or torsion, or acute abdomen, it is justifiable to wait."

By no means all fibroid tumours give rise to symptoms during pregnancy. All such cases, however, cause the obstetrician a certain amount of anxiety. It must be remembered that tumours which are easily palpable on the anterior or lateral uterine wall may be accompanied by others on the posterior wall, which are therefore inaccessible by the ordinary methods of examination. There is always the possibility that a fibroid low down in the posterior wall may cause obstruction of labour. For this reason in all cases where a fibroid is palpable I make an examination under a general anaesthetic at about the thirty-seventh week in order to be sure that such a condition does not exist. If such a growth is found the mode of delivery can be planned accordingly. Even after apparently safe delivery the anxiety is not over, as post-partum haemorrhage is not uncommon from inefficient retraction or where the placental site has lain over the situation occupied by the growth. The placenta may be adherent to a submucous fibroid, and may necessitate the "digging out of the two at once," with the danger of perforation of the uterus. Irregular haemorrhages which prolong the lying-in period are quite common, and the occurrence of pyrexia and offensive lochia following pressure necrosis of the tumour is well known and often gives rise to considerable anxiety. If symptoms appear some months before the expected date of delivery the possibility of a prolonged period of rest in bed, whether at home or in hospital, is one which the patient does not relish. If symptoms are acute the question of operative intervention must be considered.

The three cases reported below resemble each other in that pain was the chief symptom, and operation was undertaken on this account. The actual condition found at laparotomy was, however, different in each case. The following are the records.

Case I

A primipara aged 30 was admitted to hospital in great pain; this she referred to an area on the left side of the uterus, which was enlarged to about twenty-two weeks' pregnancy. A small mass, very tender, could be felt on the left uterine wall below the level of the umbilicus. She had been vomiting for several days, her tongue was furred, and she looked ill. On opening the abdomen a fibroid tumour the size of a large egg was found, having a broad base. An elliptical incision was made at the edges of the tumour, which was easily shelled out. Bleeding was temporarily controlled by hot packs, the cavity obliterated by mattress sutures, and the uterine incision closed by a continuous suture of No. 0 catgut. The hand was then