

A CASE OF CHOREA COMPLICATING PREGNANCY.

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A. B, at the age of three years, during the dropsy following scarlet fever, was attacked by chorea, which lasted for six years, and then yielded to treatment. At ten, after a great fright, this disease returned for about a year. At thirteen it was again reproduced by fright, and continued until the appearance of the catamenia, in her fifteenth year. When sixteen years old, the shock of her father's sudden death caused a relapse of about three months' duration. In all these attacks the movements ceased during sleep. She was now free from any symptoms of chorea, but not from very severe headaches, which were accompanied by distressing vomitings. Her appetite was voracious, her intellect dull; she became very reticent and solitary in her habits, always laughing in an embarrassed manner when spoken to. At this time she worked in the damp cellar of a confectioner, and there contracted a subacute form of rheumatism—which affected her elbow and ankle joints—and also an intimacy with a young lad of her own age, which resulted in pregnancy. When quickening was first observed she was married to him; but shortly afterwards her old disease returned, increasing daily in severity, and interfering much with her rest at night.

She was admitted into the Preston Retreat on March

19th, 1870, when nearly eight months advanced, and within a few days of her nineteenth birthday. Her physique was that of an over-grown girl; her color, appetite, and digestion good. Choreic movements limited to the right extremities; facial grimaces constant; occasionally the tongue would protrude for a moment, and then rapidly disappear with an audible cluck. She experienced great difficulty in feeding and dressing herself; locomotion that of a drunken person. The pupils were dilated; conjunctivæ clear and nacreous; intelligence dull. Her pulse was over 100; cardiac impulse strong, but, owing to the constant agitation of her thoracic muscles, no accurate examination of this organ could be made. Urine high-colored, free from albumen, but dense with urates; specific gravity 1029. She was immediately purged, and put on a course of iron, quinia, and bromide of potassium.

March 20th. According to her own account she slept well last night, but her fellow-patients complain of her incessant movements and groanings. They took turns in keeping her covered up, and in preventing her from falling out of bed, which happened several times during the night. Under treatment she improved so rapidly that five days later, on the 24th, she exhibited hardly a trace of choreic movements, even when Dr. A. H. Smith, a stranger to her, saw her at my request; but this, unfortunately, was her best day.

March 25th. The old movements have returned in full force; complains of headache, and excessive muscular soreness, which she attributes to the constant motion. *March 26th.* Rested poorly last night; is no better.

A cathartic was given, and the bromide increased. *March 27th.* Did not sleep at all last night; had to be held in bed most of the time; movements worse than ever, and now bilateral; articulation jerking. A combination of valerian, morphia, and swt. spts. nitre soothed her for a time. At 1 o'clock P.M. she uttered a wild scream, and immediately began to contort the muscles of the whole body in the wildest manner imaginable. She was incapable of articulating, and seemed unconscious of the presence of even her husband, who soon after came in; yet she always opened her mouth for the medicine, and forced herself to swallow it, although deglutition was very difficult, and attended with such frightful choking spasms as to require three persons to restrain her.

At 4 P.M., observing that the paroxysms increased at regular intervals, I suspected labor, and grasping her tightly about the waist, supported her up three flights of stairs to the delivery-room, she staggering and stumbling all the way like a person excessively drunk. Although she was perfectly conscious, and tried hard to keep quiet, it required the united aid of three persons before I could make a vaginal examination. The cervix uteri was conical and barely admitted the finger, but it was evident labor had commenced with a vertex presentation. At the end of two hours, finding the movements so violent that it was impossible to keep her on the bed, and that the os was dilating very slowly, with great difficulty I put her sufficiently under the influence of ether to introduce the smallest of Barnes' dilators. But, although breathing stertorously,

so soon as inflation began she commenced the most frightful contortions, which no amount of ether could control. I now sent for my esteemed friend, Dr. A. H. Smith; spread several blankets on the floor, and laid the poor creature upon them; for the exertion of keeping her from falling out of bed was telling on all of us.

She now commenced a series of the most wonderful muscular movements; now nearly striking the nape of her neck with her heels; now almost hitting her chin with her toes; at the same time throwing her arms about in every conceivable manner, and rapidly protruding and withdrawing her tongue, which, however, she never bit. In a position of rigid opisthotonos, she would roll over sideways, or diagonally, sometimes making complete somersets; dashing her head, her arms, her legs first on one wall and then on the other of the narrow room. Three nurses were kept busy in preventing her from injuring herself. During this time she never spoke, but at long intervals uttered a wild scream; yet intelligence was not wanting, for she kept her eyes constantly fixed on me, as if imploring rescue from the clutches of some invisible demon.

At 10 P.M. Dr. Smith arrived, and we immediately decided on hastening delivery. The doctor tried to anæsthetize her, and after a long delay, succeeded in bringing on stertorous breathing. I at once passed up a larger dilator; but, as before, so soon as inflation was resorted to, no amount of ether could control the violent expulsive efforts and general muscular agitation. Chloroform, however, succeeded perfectly, and bi-polar version was rapidly performed, the tough mem-

branes being subsequently pierced with a pair of scissors.

A premature and badly-nourished infant was soon delivered, which weighed three and a half pounds, and lived for twelve hours.

We now hoped to find our patient quiet, and withheld the chloroform. Again she repeated the same frightful contortions; the pins of the binder were torn out, and although the hemorrhage was not excessive, she soon managed to smear with blood her person, her bed and bedclothes, and the wall, to a height of three feet. Her skin was as dry as parchment, and the surface heat natural, in spite of this excessive exercise. There was nothing like a convulsion in any of these movements; the symptoms pointed to a cerebral rather than to a spinal cause, and yet the brain seemed sane, whilst the muscles were mad. A hypodermic injection of one-sixth grain of morphia, followed soon after by another of one-third of a grain, and that succeeded by twenty grains of the hydrate of chloral, had no effect whatever. Yet she was so far conscious, that when I showed her the child she instantly checked herself for a moment, looked earnestly at it, and very distinctly jerked out, "I did not know it was born;" these were her last intelligible words.

Her pupils becoming contracted, the morphia was not pushed any further; but a drachm of chloroform given by the mouth succeeded in inducing one hour's sleep, out of which she awoke to resume the frenzied movements. Chloral was again tried to the extent of three doses of forty grains each, given in four hours,

but without any effect; I therefore returned to the inhalation of chloroform. This agent invariably produced sleep, which lasted one hour, when the choreic movements would become as violent as ever. During the twenty-four hours of the 28th inst., from midnight to midnight, she required eighteen inhalations of chloroform, and three hypodermic injections of half a grain of morphia each, to keep her reasonably quiet. Her urine—deep in color, and loaded with urates—was secreted abundantly, and regularly drawn off by the catheter while she was under chloroform. Pulse 145; no cardiac bruits; the impulse strong, and the pitch high. She was so far conscious in her wakeful moments as to open her mouth for her food, but this was not often given, as the act of deglutition nearly choked her.

By 10 A.M. of the 29th inst. she had inhaled the chloroform eleven times more, and had received one hypodermic of half a grain of morphia. Her pupils were somewhat contracted; there was a rigidity of the right arm and leg; pulse, 160; breathing, labored. During each inspiration the pulse would be lost at the wrists, but not in the lower extremities; showing, I think, a spastic contraction of the scalmi muscles, by which the subclavian arteries were probably forcibly compressed.

One-fiftieth of a grain of atropia was now injected under the skin; this rapidly produced suffusion of the surface, and, after the lapse of an hour, full dilatation of the pupils. At noon she became comatose, lying quite still and breathing stertorously; in this condition

she lingered until 11 P.M., when she died without a struggle.

Shortly afterwards the skin assumed a bluish tinge from capillary engorgement; whilst, four days afterwards—as her friends subsequently informed me—the body was livid with the bruises and abrasions she had received during the period of excitement. An autopsy was unfortunately not obtained, so that no light can be thrown upon the nature and situation of the nerve lesions.

*Remarks.* I have been thus minute in describing this case, because chorea in the pregnant female is a very rare disease, and is not included by obstetrical writers among the dangerous complications of gestation or of labor. Dr. Barnes (*London Obstet. Trans.*, vol. x., p. 147), who is the most recent writer upon this subject, has collected but fifty-six examples, of which so large a number as eighteen terminated fatally. Even in cases where the choreic movements were slight, and the disease seemed mild, grave symptoms would suddenly set in—especially during the time of labor—and the patient usually died, either exhausted by the incessant muscular frenzy, or else hemiplegic from some lesion of the nerve-centres. The important question therefore arises, whether the induction of premature labor would not be the best course to pursue under such circumstances. Indeed, in view of the facts that premature labor and abortion usually occur spontaneously in this disease, and that the children usually perish, it would seem more prudent to induce abortion at the earliest period consistent with safety, and at once remove the chief cause of irritation,

before the nerve-centres shall have received any grave lesion. Dr. Barnes is disposed to attribute this tendency to abortion to the accumulation of carbonic acid in the blood, through disturbance of the respiratory function; to the exhaustion of the *vis nervosa*, and to impaired nutrition. These agents no doubt have their weight; but I suspect this tendency to provoke abortion is due in a great measure to the mechanical irritation arising from the incessant muscular movements. Certainly, even a healthy pregnant woman, to be artificially exposed to a tithe of the muscular movements, and consequent agitation and succussion, both of the uterine walls and of the ovum, obtaining in chorea, it would be a matter of surprise did she not abort.

In many of the cases collected by Dr. Barnes, anodynes had no effect in calming the violence of the movements, and, indeed, seemed to aggravate these formidable symptoms. Chloroform, however, as in my own case, acted much better, and should not therefore be neglected. I am at a loss to explain the absolute inertness of the large doses of chloral administered to my patient, especially if, according to some writers, the effects of this drug are due to the liberation of chloroform in the system.

It has been remarked, both in puerperal and non-puerperal chorea, that the urine is unusually dense with urates and phosphates. The presence of the latter is due to nerve waste, whilst the excess of urea has hitherto been attributed to waste of muscular tissue. More recent investigations, however, cast doubts upon the correctness of this explanation, as regards the presence



of the urates in the urine (*Lond. Obstet. Trans.*, vol. x., p. 168). But if these urates be not due to waste of muscle, there must then be an important significance in the fact, that puerperal eclampsia and puerperal chorea present conditions of the urine precisely opposite to each other.

The theories with regard to the nature of this remarkable disease are so far unsatisfactory, that they do not naturally accommodate themselves to all the phenomena. It has been remarked by many eminent observers (*Vide* article Chorea in Diseases of Children, by Meigs and Pepper) that chorea and rheumatism are frequently associated together; and this fact, together with the frequent discovery of minute bead-like vegetations fringing the borders of the mitral valve and of its leaflets, has given rise to the theory of embolism as a cause. In other words, that chorea depends on the plugging up of the small arterial branches supplying sensori-motor ganglia, thereby interfering with their perfect nutrition. But may not the intercurrent rheumatism, so frequently observed in chorea, be nothing more than the inflammation of joints and muscles produced by the excessive fatigue arising from the constant movements?

*Per contra*, the opponents to the embolic theory—among whom Vogel, Barnes, and Ogle stand prominent—contend (a) That since these vegetations are so minute, and so slightly adherent as to be detached by a camel's-hair brush, they are mere blood fibrin deposited during the agony of dissolution. (b) That the unilateral character of this disease. and its usual termination in recovery,

militate against this theory. (c) That if rheumatic embolism were the cause, chorea should not so commonly be a disease of childhood, and of females. (d) That since the most frequent exciting cause is that of sudden terror, how can an emotion produce embolism? (e) That the spanæmic condition of choreic patients; the happy influence of the appearance of the menses, as in chlorosis; the contrary effect produced by pregnancy, when the albuminous basis of the blood constituents is below par, all point to impaired nutrition as a cause, rather than to embolism. Finally, that, in the present state of our knowledge, the most natural explanation is this: that the choreic movements are reflex phenomena, due to impaired nutrition of nerve-centres from impoverished blood; that the disturbance is at first merely functional, but may ultimately develop into organic lesions of the nerve-centres through the effect of prolonged irritation and shock.