UNSUSPECTED LEAD POISONING IN CHILDREN.

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ALTHOUGH the literature of plumbism is so voluminous, yet very little has been written as it regards the influence of lead in children. In no work specially devoted to diseases of children can any reference to plumbism be found. For about three years I have devoted considerable attention to plumbism due to water contamination from lead service pipes. In 1888 my attention was drawn to the fact that young children may suffer from plumbism—this is only what might be expected. By careful research I found about a dozen cases recorded, but nothing very striking in connection with the reports.

I am not aware that the blue line in the gums has been observed in children during the first dentition; when present it is a pathognomonic symptom of plumbism. Its absence does not prove the contrary. In children tartar is rarely present compared with adults. This is the reason why the blue line is so seldom found in children. I have notes of four children under 5 years, in whom the blue line was present; also eighteen over 5 and under 10 years; total under 10 years, twenty-two; 10 and under 15 years, twenty cases. Besides these forty-two in which the blue line was present, there were others who were suffering from plumbism in whom no blue line could be found because the teeth were kept free from tartar. In *Brain*, April, 1878, Dr. Buzzard reports a case of well marked lead palsy in which the blue line was absent, due, as Dr. Buzzard believes to the exceeding care which the patient had taken to keep the teeth clean. In adults the blue line is most commonly observed in the gums of the incisors and molars. In children the gums of the incisors are often free, but the blue line may be observed on the gums of the molars. It is often associated with a peculiar form of caries, which attacks the crowns of the molar teeth at their junction with the fang. The surface or cusps of the teeth are sound; there is a cavity about 2 millimètres in diameter, which offers a nidus for food to lodge in. The food is decomposed probably by saprophytes and sulphuretted hydrogen is formed which combines with the albuminate of lead, and is deposited as the sulphide in the capillaries of the papillæ of the gums. The nature and mode of origin of the blue line in the gums are given in the *Medico-Chirurgical Journal*, vol. lix, 1876, page 327, by the late Dr. Fagge. Having made microscopical examination of the blue line I can confirm his views. The line is not continuous, but consists of a series of blackish brown dots, full of minute granules. Each dot is distinct from its fellow.

In twenty-one adults I observed blue patches on the mucous membrane inside the lips and cheeks. In every case it was opposite the deposit of tartar. Dr. Dobie, of Chester, reported two cases in which there were blue patches on the mucous membrane in adults,¹ and he thought it was due to abrasion of the cheeks. From my observations of the twenty-one cases referred to, I am convinced that it is due to the tartar on the teeth. The following is an interesting case. A child, aged 6 years, had the mucous membrane deeply pigmented. The first lower molar on the right was displaced, the fang projecting against the cheek had caused an ulcer which was free from blue pigmentation, but a blue line was on the gums, proving that abrasion is not sufficient to cause pigmentation.

Children are not so susceptible to the toxic influence of lead as persons between the ages of 15 and 50 years. Above and below those ages lead rarely produces the more severe symptoms of plumbism. In children, mercury, antimony and arsenic are known to be tolerated in comparatively large doses. This tolerance of lead in young children is probably due to lead being a nerve poison, and acts primarily on the nuclei of the nerve cells, especially the motor nerve cells. It is noteworthy how slight the symptoms of plumbism are in children in families where the adult members suffer from the most severe forms of the disease. In one house the father and mother were both suffering from lead palsy, colic, constipation, absence of the knee-jerk. The mother had saturnine epilepsy. Two children, aged 7 and 9 years, had the dark blue line; neither suffered from any symptoms calling for treatment. The water used for dietetic purposes by this family was largely polluted with lead. The chief symptoms of plumbism in children are constipation, colic, frontal headache, anæmia, ab-

sence of the knee-jerk—this is not constant. In one case it was excessive. There was only one severe case out of forty-two; this was a child aged 4 years. There was dark blue on the gums, severe colic, obstinate constipation, difficult and painful micturition, marked anæmia, tremor of the legs, which was followed by paresis and ultimately paralysis. The father was suffering from plumbism; he had colic, constipation, epileptic convulsions, loss of vision, paralysis of arms, paresis of legs. The mother of the child was also very ill, but had no lead palsy. On analysis the water supply contained $1\frac{1}{2}$ grain of lead per gallon. Under treatment the child made a slow recovery. The symptoms of plumbism in children are usually so slight that they may be easily overlooked. Anæmia is the most common symptom, and is generally well-marked.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.,

IMPERFORATE RECTUM: OPERATION: CURE.

Mrs. M., primipara, was delivered of a male child late on the evening of January 16th. On inquiry next day I found that the child had passed water quite freely, but no motion of any kind; the nurse had given the child a few drops of castor oil. On visiting my patient on the second day I found that still the child had passed nothing, but seemed fairly comfortable. I directed the nurse to use a small soap suppository, and arranged to see the child again the same evening. When I called in the evening I found that there was still no motion; the child was straining very much, and had vomited on two or three occasions. Suspecting that all was not right, I passed my little finger through the sphincter (which was perfect), and found that the rectum was merely a *cul-de-sac* about an inch and a half in length; but that when the child strained the impulse came direct upon the tip of the examining finger. Having obtained the parents' consent, I decided to operate, with the assistance of my friend Dr. H. Wright. I accordingly guided a small trocar and cannula to the spot where the impulse from above was felt, and, upon piercing the end of the *cul-de-sac*, had the satisfaction of seeing the meconium ooze through the cannula, showing that I had struck the bowel above. Having the parts held aside by a small fenestrated speculum, I next incised crucially, radiating from the puncture of the trocar, and, on passing my finger through the opening thus made, found that the bowel was patent and quite normal beyond. The child had several copious motions, and seemed much relieved. In spite of daily dilatation with the finger, the opening had by March 22nd contracted considerably, and straining had returned. I therefore forcibly dilated the constriction with several fingers in turn, and repeated the operation at lengthening intervals for several months. The straining entirely ceased after a very few dilatations. At the present time the rectum is perfectly patent throughout; no constriction is to be felt, merely a slight corrugation on the walls of the rectum at the point where the constriction was.

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MAJOR OPERATIONS ON OLD SUBJECTS.

Mrs. B., aged 80, a plucky but infirm old lady, injured her left elbow in the summer of 1888. In March, 1889, when first seen by my partner, Dr. Moore, and myself, the left arm was much swollen, and there was a free discharge of thin pus from two or three sinuses about the elbow-joint. On June 12th a circular amputation was performed in the middle of the arm. This step was rendered advisable by the continuance of severe pain and the fact that the patient was failing fast. The joint was found to be disorganised. The wound was kept aseptic, and united by first intention. On the second day the temperature reached 99.4°. On no other day did it exceed the normal. Convalescence was uninterrupted, and on the fourteenth day the patient was able to leave her bed. I heard from her in December; she was then in good health and spirits, having just celebrated her eighty-first birthday.

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¹ JOURNAL, vol. i, 1886, p. 20.