A CASE OF HYPERTROPHIC STENOSIS OF THE PYLORUS IN AN INFANT; RECOVERY WITHOUT OPERATION.

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IN connexion with the paper on this subject which was recently brought before the Royal Medical and Chirurgical Society by Dr. E. Cautley and Mr. C. T. Dent, and the discussion which ensued,¹ the following case, which occurred in my private practice, seems to be of interest.

The patient, a healthy male and a first child, was born on Jan. 30th, 1902. He weighed at birth 8 pounds 8 ounces. He was brought up until the illness commenced entirely by the breast and was in perfect health until March 20th, when he began to suffer from diarrhoea. At that time his weight was 11 pounds 8 ounces. It was then found that the mother, too, was out of health, and her milk was noticed to be very thin. Some three weeks previously the nurse had left and since that time it was thought that the mother had been doing too much. Notwithstanding treatment both for mother and child the diarrhoea persisted and on March 30th vomiting commenced. On about April 10th, as the child had been gradually getting worse, he was finally taken from the breast and various kinds of food were tried—viz., a malted proprietary food, bread jelly, unsweetened condensed milk, and peptonised milk, all diluted to varying degrees. All, however, caused more or less vomiting, usually about half an hour after they had been taken, except in the case of the bread jelly, which, though prepared with the utmost care, was generally returned at once. The child at first steadily, and then rapidly, lost weight. On April 24th his weight was 9 pounds 12 ounces and a note was made that he had lost nine ounces in the last five days. All food was then stopped except whey. With the increase of the sickness the diarrhoea had ceased and the bowels had become constipated, the scanty motions being green and slimy and very offensive. On the 26th the child was apparently sinking. He was then ordered to be fed with a teaspoonful of whey every 20 minutes. It was found that brandy in any form and even in the smallest quantities was immediately vomited. About this time visible peristalsis of the stomach was first noticed. The cardiac end of the stomach would form into a ball almost of the size of a small Tangerine orange and this ball would pass as a wave obliquely across from left to right and slightly downwards until it reached the site of the pyloric orifice where it would stop and, as it were, melt away. This recurred in quick succession and could generally be perceived whenever the abdomen was laid bare, or if not it could always be provoked by the application of a cold hand or by any slight stimulation.

On April 29th I asked my surgical colleague, Mr. L. J. Godson, to see the child with me. He discovered on deep palpation a somewhat soft, ill-defined, rounded swelling which was situated behind the left rectus in the region of the pylorus and seemed rather smaller than a pigeon's egg. This tumour was often afterwards searched for and could generally, but by no means always, be felt. The vomiting was at this time less owing to the extremely careful feeding, but the child was still losing weight. The question of operation was therefore considered and it was put to the parents that an operation might be the only means of saving the child's life. It was not, however, strongly urged, partly because we were ignorant as to the pathology of the condition and as to the significance of the tumour which we felt, and partly because we did not then know that any such operation had ever been performed with success. (An exploratory operation with the possibility of gastro-enterostomy was what was in our minds.) The parents, however, decided to wait a little longer and very gradually the child began to improve. The lowest weight recorded was 9 pounds 5 ounces on May 4th. From that time the vomiting, though still very troublesome and occasionally severe, gradually became less frequent. The bowels for a long time remained obstinately constipated and had to be relieved by olive oil enemata. Whey was for a long time ordered as the

principal diet; a little malt was soon added, dissolved in the whey; then barley water and maltine were given occasionally as a change. Gradually a little raw meat juice, or sometimes a little white of egg, was cautiously added to the food and the quantity was gradually increased from one to two, three, and four teaspoonfuls at a time, the interval between the feeds being prolonged. Later a few drops of cod liver oil or of cream were sometimes added and a little grape juice, but for a long time care was taken not to give anything that could possibly leave any residue. The addition of a little milk to the food was tried but it was found not to suit. The sickness gradually abated and the child slowly regained weight until about the beginning of June when he caught a severe cold and developed a troublesome cough. He then rapidly lost weight again, falling in a week from 9 pounds 8½ ounces to 9 pounds 2 ounces—the lowest weight registered during the whole of his illness. Curiously enough, however, when the cough and cold commenced the vomiting ceased and diarrhoea appeared in place of constipation. When he recovered from the cold he rapidly increased in weight and he was never again troubled with sickness. On June 22nd it was no longer considered necessary for anyone to sit up with him at night. Since the middle of August he has never had a bad symptom of any kind. Early in October he was successfully vaccinated. He is now a healthy looking child, plump and firm of flesh, the only point against him being that he has as yet cut no teeth. When last weighed at the age of 10½ months he scaled 20 pounds—two and a half pounds above the average.

This case appears to present all the characteristics of those described by Dr. Cautley and Mr. Dent under the name of "congenital hypertrophic stenosis of the pylorus"—viz., (1) the obstinate vomiting; (2) the constipation; (3) the wasting; (4) the visible peristalsis of the stomach; and (5) the presence of an ill-defined tumour in the region of the pylorus. As to whether the stomach was dilated or not I cannot say, not being sufficiently familiar with the normal size of an infant's stomach; it certainly was not greatly dilated, but it was noticeable that sometimes when the child had not been sick for some hours he would suddenly, to the despair of his mother and his nurse, bring up seemingly all the food he had taken during that time, just as an adult often does when suffering from a dilated stomach.

The noteworthy points about the case appear to be the following:—1. There seems no possible doubt that the affection was not congenital. Not only was the child at birth two pounds above the average weight (8 pounds 8 ounces as against 6 pounds 8 ounces, the average), but at the age of seven weeks, when the illness commenced, he had reached 11 pounds 8 ounces—three pounds above the average, which is given as eight pounds; or, to put it in another way, he had during those seven weeks gained three pounds in weight, the average gain during that time being given as 1 pound 12 ounces. There could hardly, therefore, during those first seven weeks of his life have been anything wrong with his digestive apparatus.

2. The disease seems to have been caused at first by there being something wrong with the mother's milk, owing to the mother herself getting out of health. It would seem as if the milk as it became thin and poor gained at the same time some irritating quality. The first effect of this was the diarrhoea, which had lasted some ten days before the vomiting commenced; then came the spasm of the pyloric orifice, probably at the same time as the vomiting. It would almost seem as if the pylorus was trying to shut out the noxious milk and to prevent it entering the bowel. One supposes that the spasm thus induced caused after a time hypertrophy of the muscular coat of the pylorus, and so produced the thickening which could be afterwards felt as a tumour. This muscular hypertrophy and probably also an irritable condition of the mucous membrane causing ready spasm would, in their turn, be the cause of the increased peristalsis and the vomiting, and so the trouble would persist even after the food had been changed.

3. The fact that improvement only commenced when everything that could possibly have left any undigested residue had been discontinued as food and when only very small quantities at a time were given. The pyloric sphincter would then get almost perfect rest.

4. The curious fact that what completed the recovery was the cold and the cough which accompanied it, though the child himself was greatly reduced in weight and strength thereby. It occurs to me that the cough must have forced

¹ THE LANCET, Dec. 20th, 1902, pp. 1679 and 1693.

the food through the pyloric sphincter, thus acting as a dilating agent. Perhaps the "cold," too, helped by causing general relaxation of muscular tone.

5. The ultimate recovery of the child without any operation, although the case seemed at one time well-nigh hopeless. Indeed, I was sent for one night because the nurse thought that the child was dying. The recovery also was complete; the child regained his strength and vigour; no trace can now be found of any dilatation of the stomach, of any difficulty in the passage of food from the stomach into the pylorus, or of any thickening of the latter organ.

Shrewsbury.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Bullet Wounds of the Intestines.—Tuberculosis of the Œsophagus.—A Case of Congenital Tuberculosis.—Two Cases of Congenital Heart Disease.—Cholesteatoma of the Pineal Body.

A MEETING of this society was held on Jan. 6th, Mr. R. J. GODLEE, the Vice-President, being in the chair.

Mr. G. LENTHAL CHEATLE showed the Lesions in a case of Bullet Injury to the Abdomen. The wound was inflicted by a Jeffrey's modification of the Mauser bullet. It had passed through the cæcum, left the small intestine practically uninjured, and then caused the man's death by inflicting large wounds in the sigmoid flexure from which extravasation of fæces occurred. The bullet remained impacted in the skin wound of exit. The wounds of the cæcum were quite free from extravasation and there was practically no pericæcal peritonitis. Microscopical sections of the wounds of penetration and emergence demonstrated that extravasation was prevented by the valvular condition of the opening made by the bullet and induced by the different degree of elasticity possessed by the various tissues forming the different parts of the intestinal wall. The most important factor in bringing about this result was probably the muscular coat. The sections clearly showed that prolapse of the mucous membrane could not have had any share in preventing extravasation. Incidentally Mr. Cheatile pointed out that skin wounds of exit usually showed, at any rate microscopically, extrusion of adipose tissue between the epithelial margins. He showed that the tissue might contain sweat glands in its extruded meshes and also that skin wounds of exit have a larger subcutaneous hæmorrhage than those of entrance. This case showed: (1) that a bullet of low velocity was capable of inflicting as insignificant an injury as one of high velocity; (2) that a bullet might traverse the region occupied by the small intestines without perforating them; (3) that an expanding bullet need not, and he believed did not, expand when it came in contact with soft parts; (4) that the absence of extravasation in small-bore bullet wounds of the intestines was prevented not by prolapse or extrusion of mucous membrane, but by the valvular form of the tissue assumed by the track of the bullet; and (5) that the best, and often the only, means of deciding upon the direction in which the bullet travelled was by making careful microscopical sections of all the tissues struck. This point, Mr. Cheatile said, might be of considerable importance in medico-legal questions.—Mr. S. G. SHATTOCK said that he had had the opportunity of examining one bullet wound at the site of entrance and had been able to find hardly any evidence of injury; the tissue was but little displaced and there was no necrosis.—Dr. PURVES STEWART asked whether Mr. Cheatile could give any explanation why the bullet came into the exit wound with the hind end foremost. He said he had seen one case in which the bullet had entered the skull in the frontal region and had been found in the occipital region of the brain with the nose of the bullet pointing in the direction of the entrance wound. In this case the position was to be explained by the rebound from the inner wall of the skull, but such an explanation would not serve in Mr. Cheatile's case.—Mr. CHEATLE, in reply, said that it was probable that the bullet had a low velocity at its time of entrance and that it revolved on its long axis and therefore came to lie with its hind end outwards.

Dr. W. T. MULLINGS and Dr. F. C. SHRUBSALL showed a specimen of Tuberculosis of the Œsophagus. This condition seemed to be very rare, since no case had been described in the British Isles. The specimen was from a man, aged 50 years, who was admitted to the Brompton Hospital under the care of Dr. T. D. Acland suffering from hydro-pneumothorax. During life the only evidence of œsophageal lesion was dysphagia which came on suddenly a few days before death; the pain on deglutition was considerable and was only relieved by *swallowing* a solution of cocaine. There was no evidence of pharyngeal ulceration, though early tuberculosis of the larynx was discovered. At the necropsy tuberculous lesions were found in the lungs, intestines, right testicle, trachea, and great bronchi. The bronchial and mediastinal glands showed no macroscopic evidences of tubercle. The extreme upper portion of the œsophagus was not examined. The middle portion showed extensive ulceration over a length of three and a half inches, the individual ulcers being oval with their long axis in the long axis of the tube. Below this there were a few scattered ulcers. Microscopically typical tubercles with giant cells and tubercle bacilli were demonstrated. The case was one either of extension from the pharynx or a local infection through the sputum, the evidence being more in favour of the latter cause.—Dr. P. HORTON-SMITH said that he considered that the condition was extremely rare. In some 200 necropsies which he had performed on tuberculous subjects he had never met with ulceration of the œsophagus, and in some 2500 necropsies performed by Dr. S. H. Habershon the condition had been met with on only two occasions.

Dr. F. W. ANDREWES showed three rare specimens which he had recently investigated from amongst the contents of the museum of St Bartholomew's Hospital and which had hitherto not been adequately described. The first was an apparently authentic example of congenital tuberculosis in man. The specimen consisted of the thoracic viscera of an infant stated to have died shortly after birth—a statement confirmed by the size of the organs and by the fact that the ductus arteriosus was still pervious. The tracheal and bronchial glands were much enlarged and caseous and the lungs contained numerous miliary tubercles. The histological appearances were characteristic of tubercle. The glandular lesions must evidently have arisen long before birth and it was suggested that infection might have occurred per os by the swallowing of amniotic fluid. The other two specimens were instances of rare forms of congenital malformation of the heart. In one there was complete absence of the right auriculo-ventricular orifice, with a double orifice on the left side, the right ventricle being rudimentary, the foramen ovale widely patent, the inter-ventricular septum perforated by a small aperture, and the ductus arteriosus practically closed. The two orifices connecting the left auricle and ventricle were provided with separate and well-formed valve curtains and chordæ tendineæ. The possible origin of this rare abnormality was discussed. In the second case there existed a thick muscular septum dividing the proper cavity of the right ventricle from that of the conus arteriosus, perforated only by a minute aperture admitting a good-sized probe. This form of pulmonary stenosis was evidently a true developmental anomaly and not due to foetal endocarditis.

Dr. H. M. FLETCHER showed a Cholesteatoma of the Brain from a youth, aged 19 years, who while lifting a parcel on to a van suddenly became unconscious and died 36 hours later in St. Bartholomew's Hospital. The tumour, which was of the size of a small walnut, was situated in or beneath the velum interpositum, behind and compressing the pineal gland. It was hard and had a pearly lustre. It consisted of a dense fibrous-looking outer portion with a soft granular core. The lining epithelium was of the stratified squamous variety with a well-marked corneous layer, forming concentric laminae with abundant cholesterol crystals. In the majority of cases described the tumour had been found at the base of the brain. Cholesteatoma was usually regarded as a proliferation of the endothelial cells lining the sub-arachnoid trabeculae, but Dr. Fletcher was inclined to look upon it as allied to dermoid cysts in origin.—Dr. F. J. POYNTON said that he had seen one case of cholesteatoma in which there were two tumours, one considerably larger than the other, situated symmetrically at the base of the brain between the pons and the cerebellum. He called attention to the suddenness with which coma and other symptoms developed in cases of simple tumour of the brain —