ORIGINAL COMMUNICATIONS.

PHRENIC HERNIA.

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[Read before the Norfolk and Norwich Pathological Society.]

THE remarks I am about to make refer to a case of unusual occurrence, a disease about which, as far as I know, there is not much information to be obtained from published records. Such reports as I have been able to find, after a not very prolonged search, I shall bring before you in a condensed form, after having noticed the particular case which leads to these observations.

The brief history is, that I was summoned to a patient, aged 38 years, whom I found in a dying state, with great dyspnoea, cold extremities, and an almost imperceptible pulse. She was a fat woman, of middle height, the mother of several children, and again pregnant. She had for several years been the subject of umbilical hernia, about the size of a large orange, and caused by exertion during one of her labours. Four days before I saw her, she had been attacked with pain in the left shoulder and arm, extending to, and fixing itself in the region of the stomach. Vomiting soon followed, and became more and more frequent, until everything she took was almost immediately returned. There was no alvine evacuation, but the matter vomited was not stercoraceous. Next came fixed pain in the left side of the chest, and hurried breathing, terminating in death.

On examining the body, it was found that the peritoneum was perfectly healthy, and there was no constriction in the situation of the umbilical hernia. A considerable portion of the stomach had passed upwards through an opening in the diaphragm large enough to admit three fingers, about two inches anterior and to the left of the natural oesophagean opening. Probably more than a third of the stomach, together with a portion of omentum, both very much inflamed, had escaped through this opening, and excited severe inflammation of the pleura, in the cavity of which they lay. The left side of the chest contained a considerable quantity of serum and recently formed lymph; and the lung, though healthy, was compressed into a very small space. The edges of the abnormal opening in the diaphragm were smooth, and the omentum was firmly adherent to a part of the ring.

REMARKS. Phrenic hernia may occur in three different ways: 1. There may be a congenital defect in the diaphragm, an abnormal opening being left which admits of the escape of a portion of the contents of the abdomen into the thorax. 2. A portion of the abdominal viscera may enter the chest through one or other of the natural openings in the diaphragm; in which case the hernia will push before it a portion of peritoneum and thus be invested with a sac. 3. A hernia through the diaphragm may be occasioned by accidental violence, causing rupture or laceration of that muscle. The most frequent, probably, is that in which the protrusion takes place through a congenital opening in the diaphragm. Indeed, those cases which occur in adult age are best explained upon the supposition that a small opening originally existed, which had become gradually enlarged by repeated attempts at protrusion, and that at length so large a portion of the abdominal viscera had passed through as to become strangulated.

The diagnosis in the present case was very difficult, owing to the existence of several complications. In the first place, the woman was the subject of a large umbilical hernia of several years' standing, produced, it was said, by violent efforts in one of her labours. Constriction of the intestines in this situation would have accounted for her vomiting, constipation and death; and it was very natural to look to such a tumour for the explanation of the symptoms. But, on the other hand, there was no tension of the abdomen, no great pain on pressure, no peritoneal inflammation, and the hernia was reducible. Some other cause was therefore to

be searched for. Now, it was discovered that the woman was four months or more gone in pregnancy, and the day before her death there were attempts at abortion, with some hemorrhage, and a partially dilated state of the os uteri. Disorders of pregnancy have been known to occasion obstinate, and even fatal vomiting. Did the symptoms here depend upon death of the fœtus, disease of the ovum, or anything else producing uterine irritation? Such a view might explain the constipation, sickness, and exhaustion; but there was also a fixed pain below the heart, difficulty of breathing, and total inability to lie on the left side. Again, was gastritis the cause of the mischief? There was pain in the region of the stomach, great sense of heat and pain in the stomach as soon as anything was put into it, and no relief until it was rejected; considerable thirst, and a frequent, failing pulse. The tongue, however, was of a different character from what is usually observed in genuine gastritis; and there was obstinate constipation. None of these views appeared separately to afford a satisfactory explanation: but the *post mortem* examination cleared away the mystery, and demonstrated the inutility of the remedial measures that had been employed. Would it have been possible, without the abovementioned complications (which served only to mislead) to have ascertained the real nature of the case in time to make the reduction of the hernia effectual for the recovery of the patient? And could any method of treatment whatever have effected the reduction of the hernia? With respect to the first question, I think the nature of the disease could not have been ascertained, or perhaps even suspected, until after the mischief in the chest, indicated by the fixed pain and difficult respiration, had taken place; and that of itself was extensive enough to destroy life. For the pain and dyspnoea, superadded to the symptoms of strangulation, were the index to the locality of the disease. With respect to the second question, great doubt must necessarily be entertained. Samuel Cooper says the disease is quite out of the reach of art; and I can scarcely imagine it possible, even in these days of heroic abdominal surgery, that any operative proceeding could have been safely or effectually undertaken. Still the history of cases implies that, in some instances, phrenic herniæ have occurred in a slight degree at intervals during many years, giving rise to pain, vomiting, and more or less dyspnoea, and then have suddenly disappeared with the symptoms they occasioned; until at last a portion of intestine or other viscus too large to return to its natural situation has passed through the diaphragm and been strangulated, or has caused irreparable mischief in the organs within the chest. These repeated spontaneous reductions would rather lead to the hope that if phrenic herniæ could be ascertained with certainty in an early stage, something might be done to favour the return of the protruded parts; and when such a disease is suspected, the patient should be placed in an upright position, the warm bath and the usual methods of favouring the reduction of hernia adopted; and possibly the taking into the stomach some weighty substance, as quicksilver, which might act by gravitation, would add a little to the probability of restoring the displaced parts to their natural situation. It is, however, unfavourable to this suggestion, that what is taken into the stomach finds its way into the protruded part, perhaps during the action of vomiting; and, in the present case, the part of the stomach contained within the chest was full, that within the abdomen being empty or nearly so; and this circumstance would also render nugatory any assistance in diagnosis that might otherwise be expected from percussion.

The following are illustrative cases of phrenic hernia.

A case of phrenic hernia in a child is recorded by Dr. Macaulay in the *Medical Observer and Enquirer*, vol. i, p. 26. A full-grown boy, remarkably fat and fleshy, started and shuddered when first born, breathed with difficulty, and died an hour and a half after birth. The mother was healthy; she had three falls in the seventh month of pregnancy, but received no hurt.

At the *post mortem* examination, none of the intestines were contained in the abdomen, except part of the colon,

distended with meconium. When the sternum was raised, the stomach and greater part of the intestines, with the spleen and part of the pancreas, were found in the left cavity of the thorax, having been protruded through an aperture of the diaphragm, about an inch from the natural passage of the œsophagus. The mediastinum, the heart, œsophagus, and descending aorta, were forced a considerable way towards the right side. The left lung was very small. The œsophagus, having passed through the diaphragm, made a sudden turn to the left, and ascended through the preternatural aperture into the thorax, to terminate in the stomach, which was placed on the left side of the heart, resting upon the upper surface of the diaphragm, its fundus turned upwards. The pylorus lay in the aperture, from which the duodenum made one turn in the abdomen before the renal capsule of the left side, at the inferior part of which it received the biliary and pancreatic ducts, and immediately mounted again into the thorax. This was the only portion of the small intestines that remained in the cavity of the abdomen. The jejunum, ileum, cæcum, and part of the colon, were almost empty. The remaining part of the colon, which was distended with meconium, ran first upwards in the thorax, behind the stomach and lungs; it then passed across the spine, from left to right, between the aorta behind, and the œsophagus, vena cava inferior, and the heart in front; it was covered by an elongation of the posterior mediastinum, which the gut pushed before it, like a pouch. Hence it returned to the left again, running behind the lungs and canalis arteriosus, and mounted as high as the first rib, from which it descended in a straight line to the aperture in the diaphragm, behind the other intestines; in the abdomen it made two or three turns before it terminated in the rectum. The spleen lay lengthways in the lower posterior part of the thorax, along the heads of the lower ribs; and the pancreas lay in the doubling of the duodenum, partly in the thorax, and partly in the abdomen. The appearance of the opening in the diaphragm led to the belief that it was an original malformation.

A second case is recorded by Dr. Macaulay, with drawings, at page 31 of the same journal. The child, a female, at first breathed with great difficulty, and expired three quarters of an hour after birth. In this case, the abdominal viscera had passed into the *right* side of the thorax; and here also the wrong position seemed to be owing to an original malconstruction of the diaphragm, and not the effect of rupture or violence. The small intestines and part of the liver had passed into the right cavity of the thorax, through a chasm or discontinuation of the diaphragm at its right and posterior part. The liver, at the place where it passed through the chasm of the diaphragm, was contracted, and, above and below, it enlarged itself, but did not appear diseased.

The following case of hernia ventriculi is recorded by Astley Cooper in the *Medico-Chirurgical Transactions*, vol. vi, p. 374:—A man, aged 27, a strong and robust seaman, was thrown from the top of a coach, while in a state of intoxication, but seemed not much hurt. Next evening, he complained of sickness, pain in his left side, and shortness of breathing, for which he was bled. Next morning, there was severe pain in the left side, great difficulty of breathing, and violent and continued vomiting, chiefly of blood. The pulse was 120, small, tremulous, and irregular; the countenance was pallid; and the extremities cold. He expired the same evening.

At the *post mortem* examination, three pints of blood were found in the left cavity of the chest. A considerable portion of the large curvature of the stomach protruded through a fissure of the diaphragm, and was filled with a sort of half-coagulated blood. The left lung was much smaller than natural, occupying the upper and posterior part of the chest. A small semicircular aperture existed at the lower part of the thoracic or strangulated portion of the stomach, through which the blood had slowly escaped into the cavity of the chest. The stricture was so complete as scarcely to allow the point of the little finger to pass.

The abdominal portion of the stomach was perfectly empty. The fissure in the diaphragm was about an inch in extent, inclining towards the left side.

Another case is recorded by Sir A. Cooper, at page 2 of the *Medical Records and Researches*. Sarah Sloman, aged 28, had been afflicted with oppression of breathing from her childhood. After any great exertion, she was frequently attacked with pain in the upper part of the abdomen, with vomiting, and a sensation of something dragging to the right side. The cessation of these symptoms used to be as sudden as their accession. Some days previous to her death, she was seized with the usual symptoms of strangulated hernia, viz., *frequent vomitings, costiveness, and pain*: the pain was confined to the upper part of the abdomen, *which was tense* and sore when pressed. She was unable to lie on her right side, had a constant pain in the left, a cough, difficulty in breathing, and hiccough.

At the *post mortem* examination, the stomach and left lobe of the liver were found to be thrust towards the right side. The small intestines were in their usual situation. The great arch of the colon had been pushed into the left cavity of the chest through an aperture in the diaphragm. The cæcum and the beginning of the colon were much distended with air; but the colon on the left side, as it descended towards the rectum, was smaller than it is commonly found. A considerable portion of the omentum had been protruded into the chest through the same opening by which the arch of the colon had passed. The left lung was not more than one-third its natural size; it was placed at the upper part of the left cavity of the thorax, and united to the pleura costalis by recent adhesions. The protruded omentum and colon were found at the lower part of the left cavity of the chest, floating in a pint of blood-coloured serum. The colon was darker and softer than natural, and distended with feculent matter: the portion contained within the chest measured eleven inches. The omentum was also slightly altered, and adhered firmly to the edge of the aperture. The aperture was in the muscular part of the diaphragm, three inches from the œsophagus, of a circular figure, two inches in diameter, its edge smooth, but thicker than the other parts of the muscle. Sir Astley (then Mr.) Cooper supposed there had been a congenital opening of small size, which had been gradually enlarged by repeated partial protrusion, until at last the bulk of the protruded parts prevented their return, and strangulation and death were the consequence. He says, "This disease may be known in the living subject by the combination of symptoms of strangulated hernia with those of an inflammation in the chest, viz., vomiting, costiveness, hiccough, pain, and tension of the abdomen, together with cough, oppressed breathing, and an inability to lie on one side."

Mr. (Sir Astley) Cooper relates another case in which, after a fall which fractured seven ribs, a part of the stomach and arch of the colon had protruded into the chest. The left lung was much diminished; and the heart was thrust to the right side.

A case is also related by a Mr. Bowles, of Bristol, in the *Medical Researches*, p. 15. The patient, a man 50 years of age, had at various times laboured under asthmatic complaints, but nothing else of importance could be learnt of his history. He died from excessive vomiting, after the use of an emetic.

On opening the abdomen, only a small part of the omentum could be seen; and the right extremity of the stomach, as well as the arch of the colon, had entirely disappeared. A sac, considerably larger than a tennis-ball, was found in the right cavity of the thorax, which contained the right extremity of the stomach and the beginning of the duodenum, a part of the omentum, and the arch of the colon. The sac was formed of the united membranes of the pleura and peritoneum; and its orifice was placed at a small distance from the right side of the ensiform cartilage, where there appeared a deficiency of fibres in the large muscle of the diaphragm, corresponding to the size of the mouth of the sac. The parts which formed this hernia exhibited no marks of inflammation; they were free from adhesion, either to each

other or to the sac; and could be returned without difficulty into the cavity of the abdomen. The right lung was much smaller than usual. The stomach contained food he had recently taken; the internal membrane of the left extremity was highly inflamed, probably from the operation of the emetic, and appeared to be the immediate cause of death.

A case of fatal hernia of some of the abdominal viscera, strangulated in the cavity of the thorax, is recorded by Dr. Clarke, in the *Transactions of the Society in London for Medical and Chirurgical Improvement*. The whole of the small and part of the great intestines had passed through an aperture in the diaphragm into the cavity of the chest. This aperture, which probably had existed from birth, was on the left side, about three inches from the ribs, more forwards than the natural opening for the œsophagus. A portion of the epiploon was carried up with the colon, and also a part of the outer edge of the left lobe of the liver. There was very severe inflammation, producing symptoms of strangulation.

Norwich, February 1855.

PARTURITION FOLLOWED BY INVERSION OF THE UTERUS.

By W. H. BORHAM, Esq.

AMONG the most dangerous and distressing cases which occur to the accoucheur, perhaps none are so alarming as those where inversion of the uterus follows labour. Such events are happily very rare indeed; two only having been seen by Dr. Denman, one by the late Dr. Merriman, and one by the present Dr. Ramsbotham in a recent state whilst the patient was alive. Hence the narration of the following case, which occurred in my practice, will, I trust, plead a sufficient excuse for my giving it publicity. It also may be of importance to those who are engaged in collecting midwifery statistics.

CASE. Mrs. H., aged 25, residing near Paddington Green, a fine strong woman, was delivered of her first child with the funis twice twisted round the child's neck, on January 31st at 3 P.M., by Mrs. Collen of Paddington Street, a midwife of considerable experience, after a natural labour of sixteen hours' duration. The pains occurred at rather longer intervals than usual, and were very forcing. About an hour after the child was born, I arrived in consequence of a hasty summons, when the patient presented the following state. The whole of the uterus, dragging a small portion of the posterior part of the vagina with it, was lying (like a scrotal hernia) without the os externum; it was covered with the decidua and other membranes, and the placenta was entirely attached to its fundus. The patient was lying upon her back, with her knees bent up. She was pulseless, had difficulty of breathing, was cold, prostrated, and exhausted; in fact, in a state of collapse. The uterus had been exposed for three-quarters of an hour, and had become much contracted. I immediately detached the placenta by inserting the index finger of my right hand between it and the uterus, and then peeled off the membranes attached to it (those which spring from the placenta). The midwife now well greased my left arm and hand, with which I grasped the uterus, and returned it within the vagina. I then withdrew my hand a little, formed my fingers into a cone, reintroduced it, gently carrying the fundus before me until I had carried it up to a level with the patient's umbilicus, when I had the satisfaction of finding that the uterus had righted itself into its normal position in the pelvis. Its neck and os then commenced a gradual contraction on the fingers, when I carefully and steadily withdrew my hand, desiring the midwife at the same time to make pressure just above the pubes with her hand. After the withdrawal of mine, I had a saucer placed upon the lower part of the abdomen, and a bandage bound tightly over it.

During this time, which lasted about fifteen minutes, the patient was in a state of great exhaustion, and it was only by the aid of brandy that I could at all arouse her. I remained with her an hour, by which time she rallied considerably. I then left, prescribing for her a mixture of sulphuric acid, sulphuric ether, and camphor mixture, every two hours.

At ten o'clock I was again sent for, as a return was feared; but, on examining, I found it was only a clot escaping, and I placed a sponge in the vagina.

Feb. 1st. The patient remained in a very low state; the pulse was 150, and feeble; she was very thirsty; the discharge was moderate. She was ordered to continue the mixture.

Feb. 2nd. The pulse was 120. The patient was very excited, with peritonitis threatening. I ordered two grains of opium and five of calomel to be taken directly, and a saline mixture with prussic acid. The patient had a desire to micturate, and for the first time I desired her to be moved for that purpose, when she passed a great quantity of urine. She felt exhausted, but much relieved.

Feb. 3rd. The pulse was 110. She had had four very liquid stools in the night which produced faintness. She complained of much pain in the bowels, and was restless. The tongue was furred; there was a dragging or tearing pain in the bowels; the discharge was offensive and purulent. I ordered fifteen leeches to be applied to the epigastrium, and a poultice afterwards; I also prescribed grey and Dover's powders to be taken every three hours, and an effervescing saline draught with an excess of ammonia and prussic acid every four hours.

Feb. 4th. She was better in every respect. The medicines were continued.

Feb. 5th. She was progressing favourably.

She continued daily to get better. Her milk came at the ninth day; and I left her convalescent at the end of three weeks.

REMARKS. The midwife assured me that she did not use the slightest traction at the funis after the birth of the child, but that the uterus and attached membranes came out all at once with one pain about half-an-hour after the child was expelled; and she thinking it a "tumour" desired I might be instantly sent for. The funis being twice convoluted round the child's neck greatly reduced its remaining length, and doubtless this circumstance assisted considerably in dragging down the fundus, particularly as the pains were described as "very forcing"; the fundus thus becoming cup-shaped from unavoidable traction, the whole uterus soon became inverted and expelled.

There is a division of opinion as to the advisability of detaching the placenta from an inverted womb before returning it. Much must of course depend upon the contracted state of this organ; the length of time it has been exposed, etc.; but I think the placenta should always be separated before returning the uterus, if the latter be in a contracted state; for the less the substance to be returned the easier is it accomplished. Nor need we fear hæmorrhage, for the uterus being inverted would drag down the uterine arteries into its inverted cavity; they would become intussuscepted, the uterus contracting upon them, forming an artificial tourniquet; and thus the supply to the uterine sinuses would be cut off (as was the case in this instance, for there was no hæmorrhage during the operation of detachment). I therefore cannot think with some authorities that the patient is sure speedily to die of profuse hæmorrhage if the placenta be detached. On the other hand, if the uterus were in a very relaxed state, and its os well dilated or easily dilatable, the hæmorrhage might indeed be great if the placenta were partly detached; and in such a state there would be little difficulty in returning the whole mass, and perhaps it would be advisable to do so. But in a case like my own it was desirable to return the uterus with as little addition to it as possible, owing to the contracted state of that tissue.

That the uterus should be immediately returned there cannot be two opinions; or its contraction would soon pre-