COMPOUND INTRA-UTERINE FRACTURE OF THE FEMUR, WITH REPORT OF A CASE.

Presented to the Section on Obstetrics and Diseases of Women, at the
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The two most prolific causes of fracture are falls and blows. The few recorded instances of fracture of long bones by unaided muscular action can be ascribed solely to violent and sudden flexion. It is a generally received opinion, however, that no long bone can be broken in its shaft by the mere contraction of its muscles. But it is a conceded fact that abnormal increase of the muscular power, as during convulsions, may be sufficient to account for it. Lente has seen both femurs broken in epileptic convulsions in a child 12 years of age. Park says the compression of uterine contraction and external violence may produce an intra-uterine fracture. Professor Gurlt, who has discussed the subject of intra-uterine fractures in an exhaustive paper fortified by cases, published in Berlin in 1857, and later in his classic "Treatise on Fractures," believes that many intra-uterine fractures result from external violence received by the mother during the advanced period of pregnancy. He says, in such cases the force may be transmitted to the fetus, fracturing its bones without at the same time leaving any marks of violence upon the maternal elastic abdominal walls. The long bones are the most apt to be broken, which from their shape are the most friable, and especially those of the leg, which, from the bent-up position of the fetus, are most exposed. The angular distortion observable in these cases is due to the pull of the muscles after the fracture, and the cutaneous dimple which invariably corresponds to the projection of the bony angle is the scar resulting from the perforations of the integuments by the sharp ends of the bones.

Professor Brinton, in the second volume of the "Transactions of the American Surgical Association," has reported two cases of intra-uterine fracture, with remarks on fifty-one cases already reported by different writers, and concludes from his own observation and from a study of the reported cases, that external violence received by the mother is certainly in many cases a sufficient direct cause of fracture of the fetus in utero. He states he is unable to understand why it should be held that force from without can not reach the fetus, and why it is not necessary to make muscular action an efficient cause of fracture. It is alleged that the child swims in the bag of water, and therefore is as removed from outer evidence as is a fish in a pond; but a moment's reflection, he says, will show us that the protecting influence of the amniotic fluid is over-estimated. Ask a woman who has been pregnant and she will often tell you that the movements of the child are felt as if just beneath the integument; in fact, to use a woman's expression, it is as if the child were trying to get out through the skin. It seems to her not that the child is deeply placed, but rather that it is almost under her touch; that she can feel with the tips of her fingers, as it were, the hardness of the head of the fetus, and the tremor of its limbs. He further states that it is this very exposure of the child which gives rise to, fosters, if I may so say, the instinct of the woman to protect

her future offspring, and leads her to guard her person with her hands alike in passing through a crowd of people or in treading her way among the many articles of furniture which encumber the modern house. A mother's feelings teaches the woman that the slightest harm to her may reach her child, and I think we may learn from her silent teachings.

The case I wish to report occurred during my service at the Home for the Friendless in the city of Lincoln, in 1894.

Mrs. P., aged 25; multipara; an epileptic; gave birth to a child which in every way seemed to be perfect, except a shortening of the right lower extremity, which showed considerable shortening. Thinking perhaps it might be a dislocation of the hip joint, I placed the child on a table, but found all the joints to be perfect. The right femur was shorter than its fellow, and a closer examination revealed a cicatrix in the anterior aspect of the middle third and that the femur had suffered a fracture—a compound fracture—in utero and had united at an obtuse angle. Two or three months later this angle had faded away considerably, until the bone assumed very nearly a straight line. I lost sight of the case for a time, but when the child commenced to walk the mother consulted me relative to securing an apparatus for the short leg, saying the baby was in perfect health and that it needed something to assist it in walking.

I am unable to assign a positive cause for this fracture. There is a history of an epileptic seizure of the mother in the fourth or fifth month of pregnancy, in which seizure she fell violently over a stove, but aside from the fall no pain followed the accident. Another theory is that the husband, who afterward deserted his wife, owing to a continuance of domestic infelicity, may have abused her, either by striking her or by some other violent means causing the fracture.

My other theory, and the one I wish to call your attention to especially is, that during an epileptic seizure, a compression of great severity produced by an abnormal increase of muscular power of the abdominal muscles would be sufficient to squeeze, as in a vise, the pent-up fetus, which would at that time, most likely, be raised up against the abdominal walls, consequently being more exposed to the spasmodic contractions of the muscles or walls of the abdomen. Nothnagle says that during the grand mal increased peristaltic action of the intestines occurs, with rumbling in the belly and discharge of flatus and feces and ejaculation of semen, and that Tissot and Portal report the escape of urine with so much force even as to rise in a stream five to ten feet high.

If this state of things can occur during the epileptic seizure, what is to prevent the abdominal muscles from acting in such force as to cause the fracture of the frail and slender femur, the patient being in opisthotonos, the fetus as a result up against the abdominal walls, the brittle shaft of the femur in perfect position to receive an injury?

ANATOMIC POINTS IN ABDOMINAL AND PELVIC SURGERY.

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I make no claim to know anything which no one else has knowledge of, but have observed a few things in my surgical work which proved to be of enough

importance to me that I became anxious that others might appreciate them more, and possibly save themselves and unfortunate patients trouble, suffering or life.

We often meet with adhesions between peritoneal surfaces, the legitimate ultimate result of peritoneal inflammations of all kinds, so numerous and extensive that all semblance to normal organs and landmarks is destroyed. These adhesions are always primarily conservative, but may lead to secondary grave complications. They may be so strong as to readily bear the patient's weight. The attenuation of these adhesions becomes possible when the inflammation causing it was traumatic, small in area, and a more or less constant tension was maintained thereafter. No man should for a moment think seriously of engaging in abdominal and pelvic surgery, who has not a thorough understanding of the relations of the normal peritoneum and all organs within the cavities he is to explore. He will at times find these familiar and usual landmarks obscured or obliterated. Then it is that the smallest hint may serve him for a guide, and he should be able to avail himself of it in time to save his patient's life, his own credit, and give his patient the best chance for future usefulness.

It is a well-known fact that union between peritoneal surfaces is the strongest union obtainable between the hollow viscera, and after it is a few weeks old, separation along the old line of union is well-nigh impossible. In attempts to affect separation, the peritoneum is torn off on one or other side, leaving the muscular coat or the areolar and connective tissue exposed, if the much more serious accident of opening directly into one or other viscus does not happen. If, upon opening into the abdominal cavity, we find everything a mass of agglutination, in which uterus, ovaries, Fallopian tubes, rectum, bladder, mesentery, omentum, etc., are individually unrecognizable, we may get a valuable aid in the large male sound, introduced into the bladder as a guide to the wall of this organ, and by care, may soon find our way down behind the bladder to the uterus, thence upward along its anterior and lateral surfaces to the cornua, and out along the Fallopian tubes and broad ligaments, working under these old lines and masses of peritoneal adhesions until we have found and dealt with the entire uterus and adnexa, as occasion may require.

Where the uterus is readily found but ovaries and tubes are buried in dense adhesions, connected to intestines, etc., it is usually much safer, and many times easier, to open into the broad ligament space by cutting the Fallopian tube, between ligatures, close to the uterine cornua, and begin your enucleation in the connective tissue space on the under side of the tube, beneath the peritoneum, working all the time, when possible, beneath the peritoneum, in this connective and areolar tissue space. The separation is much easier than breaking down old adhesions; the hemorrhage is usually insignificant; and, above all, you have a definite anatomical guide, instead of groping aimlessly about for something you can recognize to guide you, or tearing directly into the weakened intestines or bladder, or across the ureter. Either of these accidents may be as dangerous to the patient and as annoying to the surgeon as the original trouble for which the operation was undertaken. The best surgeon cannot afford to proceed with an abdominal operation, in dealing with adhesions, without definite

anatomic landmarks to guide him, and when those which are usually made use of are gone, it becomes his duty to search out others. In abdominal work it becomes important to quickly determine which is the stomach end of a given loop of intestine. If we keep in mind the parietal attachment of the mesentery extending from the left side of the spinal column on a level with and close to the body of the second lumbar vertebra, and extending thence downward to the right, obliquely across the spinal column to end at right sacro-iliac articulation or in the right iliac fossa, we will have a basis for immediate determination of the point in question. If the loop be brought up until the mesentery is taut, with the loop parallel with the long axis of the body, the index finger should be passed into the abdomen by the side of the loop, keeping the palmar surface in close contact with the mesentery as the finger is passed down to its posterior attachment. If the finger remains all the time on the side at which it started, then up is up and down is down. If, however, it passes across to the opposite side, then up is down and down is up, or the lower is the stomach end. Should there be one, or more than one-half, turn or twist in the mesenteric loop it (the turn) and its direction, is at once detected by the finger. Peritoneal adhesions being always primarily conservative, it is very important that we should not do harm in separating parts which nature has united for the individual's protection, unless we can remove the cause for which the union was produced. If adhesions are separated, we must see to it that resulting union shall not be more harmful than the former. Omental grafts should be sparingly used to cover abrasions of the hollow viscera, because of their tendencies to contraction.

We will often serve our patients better if we evacuate the septic products which cause the adhesive inflammation and make no attempts to separate adhesions. This is often the case in appendicitis, where the appendix is lost in a pus sac, and adhesive inflammatory exudate has passed far up on to the colon and has thrown its protective bridges far out among the small intestines, so that all our accurate guides to it are lost. In such a case, before the peritoneum is reached, in making an incision close to the inner side of the anterior superior iliac spine, the muscular tissue will show evidence of infiltration or boggyiness from serous exudate. This is due, not to the fact that septic material has passed *directly* through the peritoneum in the iliac fossa, but that it has, in all probability, passed along the loose connective tissue space formed by the divergence of the layers of mesentery to enclose the appendix. By following this space, the pus may appear external to the peritoneum at the base of the appendix, and often posterior to the cecum. This anatomic fact explains the large number of cases of appendicular abscesses, which may be opened extraperitoneally by the surgeon, and do sometimes so discharge without his aid. This puts at rest much speculation regarding our ability to reach and open so large a number of appendicular abscesses extraperitoneally when the appendix is normally an intraperitoneal organ, and this too, in many cases where there are little or no adhesions of abscess to the abdominal wall.

Great distention or contraction of parts of the colon, inflammatory or atonic changes may make its identification difficult, especially to those of slight experience. We should find the colon darker in color than

other parts of the intestine, but the longitudinal bands and *colica epiploica* will enable us to identify it readily in almost every instance, and a knowledge of its mesenteric or closer attachment to the parietes will be of material aid. In most cases, we should be able to pick it up and be sure of what part we have at once, without even the aid of vision. In appendectomy we often find the organ so firmly bound down by adhesions that it is with the utmost difficulty that we can separate them; in fact, often it is quite impossible. In these cases, if we can identify the peritoneal layer at any point and gain a start underneath it, we can usually enucleate the organ very rapidly and easily, doing all our separation work between the peritoneum and muscular coat. When so done, we can close the peritoneal rent and leave no denuded surface to form other troubles. We are again making use of our old plan in dealing with the Fallopian tubes. Many times our work will be greatly facilitated if we will first ligate the base of the appendix in two places, cut between ligatures, and start our enucleation process at the base, between the diverging layers of the mesentery. I have found this plan of especial help when the appendix tip was buried deeply in the pelvis under dense adhesions passing down over the external iliac artery and in contact with the ureter. In surgery of the gall-bladder and ducts, too many surgeons habitually depend on finding the fundus of the gall-bladder as an anatomic starting-point, forgetting that it may be congenitally absent, or the trouble for which the operation is undertaken has produced inflammatory adhesions and possibly buried the fundus and body of an atrophied gall-bladder so completely that he who persists in his search for it as a guide to subsequent manifestations may tear off its attachments to the liver and cause troublesome hemorrhage, and be no nearer than before to a recognition of the cause of the trouble, which is, in all probability, located in the cystic, hepatic, or common duct. In such cases, we will gain much time and save ourselves much annoyance by first locating the hepatico-duodenal fold of peritoneum, or grasp in it the common bile duct, hepatic artery and vena porta, with the foramen of Winslow beneath and hepatic and cystic ducts to the right; we can at once determine, in most cases, the location of the difficulty for which the operation was undertaken, if it pertains to the gall circulation, and with much less danger than by way of the fundus.

In perineorrhaphy work, too many cases have only a skin support, the normal perineal structures proper being in no sense restored as a supporting organ by the operation intended to relieve various forms of prolapsus, the defect being only hid; the result is altogether disappointing to the patient and surgeon, and brings this much-needed operation into disrepute.

In the flap-splitting method, in some cases the recto-vaginal septum is not located, but the vaginal mucosa only is raised, and when the sutures are introduced they cause strangulation necrosis of the vaginal flap or a large part of it, because it is impossible to get sufficient hold upon so thin a tissue without seriously involving its blood-supply in the suture clasp. The same danger occurs from a little carelessness in forming the flap on the opposite side, and there is great danger of fecal fistula. If, however, the recto-vaginal septum is followed, the separation may be made extensive enough to give any desired result in a new perineum, and no harm will result, if any care be used in suturing. I am convinced, however, that the

general plan of introducing sutures in the old through-and-through manner to the highest point of separation is a great mistake, and many such sutures will cut deeply and cause prolonged irritation and often a tender perineum.

Much better results will be obtained by introducing several layers of buried absorbable sutures, which will make a more perfect approximation of all parts of the deep wound. If a through-and-through suture is used, I am sure that better results are obtained by using here the same principle that Fowler applies in his "figure 8" abdominal method, because it secures more perfect approximation of all parts than by the old plan. The purse-string tendency of the old suture method makes our resulting perineum only one-third to one-half the depth and corresponding strength we originally supposed we would be able to attain.

TOTAL REMOVAL OF STOMACH FOR CARCINOMA OF PYLORUS—RECOVERY.

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J. Patrilli, Italian; aged 38 years; occupation, dairyman; admitted to St. Mary's Hospital on June 15, 1898, suffering from a tumor of the pyloric end of the stomach. The usual symptoms associated with that condition were present; as the patient was unable to speak English but imperfectly, no definite history was obtainable, but so far as we could gather, he had been ill, probably unable to work, for two and one-half months prior to entering the institution. He stated he never had any previous illness; moreover his immediate relatives were free from cancers or tumors. He complained of pain in the epigastric region, paroxysmal in character, vomiting and weakness. The physical examination revealed marked general emaciation, a distinct movable tumor in the right hypochondrium; the stomach was dilated and on stimulation of the epigastrium by rubbing could be made to contract violently, attempting to pass its contents on to the duodenum. By the clinical picture presented, I concluded the growth must have extended, at least, over a period of six months. His weight, unfortunately, was not taken. Feeling the hopeless condition of the patient, I decided to remove the whole of the stomach. To this he consented. He was accordingly brought into the operating room at 9 A.M., June 15, 1898. Ether was the anesthetic used, which he took badly, and half the operation was done without any, stimulants having to be administered hypodermically on several occasions.

The incision was commenced at the tip of the ensiform cartilage, continued down over the linea alba to half an inch below umbilicus on the right. On opening the abdomen the stomach and liver came into view, omentum devoid of fat; there were no adhesions. The first part of the duodenum and pylorus were freely movable. The great omentum was tied in portions about half an inch from the stomach and cut away to a point midway between the first part of the duodenum and splenic end of the stomach. The gastric hepatic was treated in a similar manner, to half way along the lesser curvature; fine catgut was the material used. The duodenum was now