TRANSACTIONS OF THE PHILADELPHIA ACADEMY OF SURGERY.

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The President, J. EWING MEARS, M.D., in the Chair.

EMPLOYMENT OF THE NEEDLE-HOLDER WHENEVER IN SURGICAL OPERATIONS SUTURING IS REQUIRED.

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ONE of the frequent remarks of the elder Gross was that "*the mechanical constitutes but a small part of surgery.*" He looked upon the causation and destructive effects of disease, its diagnosis and medical treatment, as worthy of the profoundest attention of the surgeon, but he looked upon the details of a surgical operation as something that should not engross one's attention, and concerning which no true surgeon would ever make a boastful display.

Were the eminent surgeon permitted to return to his former field of labor nothing would surprise him more than some of the palatial operating rooms, or to watch the details of an operation as performed in modern surgical practice. And while this would surprise him greatly, another matter would equally attract his attention,—viz., that in surgery there is no longer the former distinction between major and minor operations, but, unlike the surgery of former days, the utmost care and surgical detail are bestowed upon the opening of the simplest abscess, the passing of a catheter, the extrac-

tion of a tooth, or the vaccination of an infant. Formerly major operations found a limit when in amputations the surgeon severed the arm or thigh from the trunk, now the surgeon claims the entire human being as his rightful field of labor, never hesitating to enter where disease must be overthrown or accident repaired.

In marked contrast with the feeling held by the earlier surgeons, in which the details of surgery were assigned to a subordinate place, the surgeon of to-day does not hesitate to go before an association of the foremost surgeons of his age, and tell them the relative advantages of some new needle, or mode of preparing a ligature, or a special antiseptic for the hands. That which at one time would have been regarded as a trifle is now raised to its true importance, for nothing that contributes to success, nothing that will contribute to disaster, can be looked upon as a trifle.

With the advancement of surgery has followed, step by step, the ubiquitous statistician, who can tell you the percentage of deaths from every surgical operation, while a commendable rivalry has sprung up among surgeons with a view to trying how far death can be cheated out of his prey, and when death comes when he triumphs, the surgeon asks why, and assigns three general causes,—one shock, a second ether intoxication, a third sepsis,—three great causes of death, and these the modern surgeon feels that he can control, and when for any cause he does not control them, he places the blame where it belongs, not upon the patient, but upon himself, his assistants, or his nurses. To avoid shock, to limit, as far as possible, the period and amount of ether, the modern surgeon bends every energy to detail. He is ready the instant anæsthesia is reached, and with boldness, but not rashness, penetrates to the very heart of the mystery.

While my subject does not permit me to enter into all the details of an operation, there is one general aspect of it that claims attention,—viz., repair. The bistoury can divide, but it cannot do more. It cannot arrest hæmorrhage or close the wound. Upon the latter the immediate and future wel-

fare of the patient depends. How often hæmorrhage from a deep vessel in the abdominal cavity persists because the operator has not the skill to use an instrument or because he has not at hand the proper instrument. How often prompt and permanent repair is defeated by lack of skill and care in the readjustments of separated tissues. The medical student leaves his alma mater with the certificate that he has taken special instruction in operative surgery, but formerly, and I fear at the present day, the repair of his work, the careful suturing, the management of the needle and suture, the needle-holder had no part in his course: he was taught to cut and saw and bandage, but not the beautiful plastic work of repair,—the part that will be upon exhibition so long as the patient lives.

It is claimed by some eminent surgeons of the present day that Adam had in his possession the best needle-carriers ever invented, and that he has transmitted to posterity an inheritance that cannot be improved upon. Hence many modern surgeons employ the fingers and thumb for all superficial suturing, and only resort to artificial helps when the damage to be repaired lies in some deep cavity; apparently oblivious to the fact that it is under these circumstances that their greatest manual skill is required, and unless by practice they have acquired that skill their operation will be prolonged, much to the disadvantage of their patient or, as not infrequently happens, will be defective and result in failure.

But I take exception to the statement that Adam possessed the best pair of needle-holders. Certainly, if his equipment was complete, there would have been no room for a thimble. To the tailor and seamstress, who make a living by the needle, as well as the lady whose artistic piece of embroidery rivals the pencil of the artist, the thimble is an absolute necessity.

With the surgeon the toughness of the fabric that he must mend—viz., the human skin—demands some special advantage. He must have a thimble or a pair of forceps, or the needle itself must have cutting edges, piercing and cutting

as it is forced through the tissues; and those who boast that they do not require a needle-holder must confess that they have favorite needles. Cutting needles always leave permanent traces of their havoc, and should never be used in surgery of the face.

The difficulty of suturing in deep cavities has puzzled surgeons for many generations. Certainly the management of a needle in the jaws of a needle-holder in clefts of the palate or in suturing the tough uterine tissues presents many obstacles, and many skilful surgeons have abandoned needle-holders in these operations and employ special long-handled needles with eye at the point to be threaded after the tissues have been pierced.

Of needle-holders there are scores that possess great excellence, and between which no just discrimination can be made. I am not writing to suggest a new instrument, I am rather making a plea for the mastery of instruments already in our hands, and for that mastery the means lie at our doors. Not in actual surgical practice, for few surgeons will average a score of sutures a week, but rather in a harmless, painless drill in just such handiwork as has engaged our mothers, wives, sisters, and daughters in what would otherwise have been misspent time. I would seriously recommend, to the young surgeon especially, that he take a few lessons in embroidery. He will find the outlining stitch so easy that he can acquire it in a few moments; but while it can be learned in five minutes he will find that to work his monogram or the initials of his name neatly on an office towel, to do it quickly and with ease, he must devote many a spare moment; but these spare moments had better be spent upon a towel than that he fall short of skill when it shall be needed in a surgical operation.

Should the surgeon not think this suggestion beneath his surgical dignity let me make a still further suggestion. If one watch a fair needle expert upon her embroidery, he will find that she shifts it with every change in the figure,—sometimes having her work upsidedown, at others by the

side. The surgeon must educate himself to overcome this obstacle. To him the light enters often from one window, and he finds that he can neither shift the light nor his patient. Then it is that he wishes that he could take his needle-holder in his left hand. As a practice, then, I have myself embroidered without changing the position of my work,—working with either hand from right to left, from left to right, towards me and from me, as most convenient, and while at first I found it toilsome and awkward, I felt that it was only necessary to persevere, when the mastery, or if not the mastery, a commendable degree of excellence would be acquired.

I have thus far said nothing of the management of the thread. One may watch an accomplished needle-worker for hours and never note a tangle or a catch of the thread. But, alas, this cannot often be said of the surgeon, who, though he may have but a few sutures to use, these few by a perversion and obstinacy almost demoniacal, will kink, twist, get caught around hæmostats, or pull out at the wrong time, and thus give rise to delay that may add seriously to the final result.

My plea, then, is for the mastery of the needle-holder, for its universal employment, and I especially urge upon the younger surgeons the employment of spare moments in attaining ambidexterity with this instrument.

DISCUSSION.

Dr. J. C. Da Costa presented a needle-holder the motion of whose blades was parallel, and the grip of which was very firm, being secured by a "knee-joint" lever mechanism.

Dr. Deaver said that he worked with his fingers and hand more than with a needle-holder, and only used it when forced to do so. Personally he had found nothing more satisfactory as a needle-holder than the hæmostatic forceps. In the mouth and in operations on the cleft palate they are useful. In intestinal work, where one is able to bring the parts to be sutured to the surface of the wound, the finger answers every purpose.

Dr. Harte said that in the Pennsylvania Hospital there was

almost a museum of needle-holders which represented a great deal of money and ingenuity. Personally he used a needle-holder only in cavities. He could do three times as much with the finger and thumb as with a needle-holder, except in cavities such as the pelvis, vagina, or in the mouth.

DR. ROBERTS asked whether any of the Fellows were in the habit of using a thimble for suturing; he generally used the Glover needle slightly modified in shape, and recently he has been using the thimble with considerable satisfaction, when the skin is very tough or the tissues rather rigid. The thimble is the tailor's thimble, worn on the third or fourth finger; the tip of the finger sticks through.

DR. HARTE remarked that the great trouble with surgical needles is simply that their surfaces are made too smooth, and, as a result, they are imperfect. A harness-needle, costing fifteen cents a package, is the same as that sold at an instrument store for seventy-five cents, save that it is spoiled by being put upon a stone and polished until it is as smooth as a common needle. The needle, as received from the manufacturer, has a rough edge; this is easily felt by passing a finger over it. This needle will pass through tissue with perfect ease; but the same needle, polished upon a hone or revolving wheel, is introduced with considerable difficulty through the tissues. If one buys cheap needles one can throw them away, and that is the end of them. Needles are difficult to clean, and so, unless great care is used, the suturing material is infected; but if one throws the needle away after use, there will be no liability of infection.

DR. ALLIS rejoined that every one of the speakers said where the work was simply on the surface they did not want anything better than the fingers to manage a needle. He wished to emphasize the fact that those who only use the needle-holder in difficult places do not become masters of it. If they would use it in every place they would attain great dexterity in its use. Needles are blamed for breaking when, in fact, they have not been properly handled.

DR. MEARS said that in work on the mouth he had struggled for a long time with all kinds of needles and needle-holders, and finally adopted a long-handled needle, with a shank, to which could be attached needles of different curves. He finds that with this needle he can accomplish his work in the mouth better than with any needle-holder which he has yet used.

INTESTINAL OBSTRUCTION; RELIEF BY OPERATION.

DR. WM. J. TAYLOR reported a case of intestinal obstruction caused by a band of omentum. This was relieved by operation, and two years afterwards a second obstruction occurred, which was produced by a loop of small intestine becoming caught beneath adhesions which had formed between two coils of the bowel, evidently the result of inflammatory conditions found at the time of the first operation. Complete recovery from both operations. The history was as follows: The patient, a woman, aged forty years, was admitted to St. Agnes's Hospital on February 11, 1896. She was the mother of eight children, five of them are living. She had never been sick until two years before, when she had milk-leg following the birth of a child, and since then she has had some uterine disturbance.

On the 5th of February she was attacked suddenly with pain in the abdomen. There was vomiting and nausea, the bowels, which had been constipated, were moved by large enemata, but the pain was not relieved. On the evening of the 11th there was great abdominal distention and pain, and there had been no movement of the bowels for five days. Her general condition was very good, and it was decided to wait until the following morning before operating, and to see whether high rectal injections would not relieve her. There was up to that time no persistent vomiting, and it was not fecal. By the next morning her condition was much more serious; the bowels had not moved, nor had any gas passed, and coils of intestine could be distinctly seen through the abdominal wall, which was very thin. When the abdomen was opened in the middle line the intestines were found to be enormously distended. They were very much congested, being dark in color, and in several places the peritoneal coat was torn. Careful search was made for the cause of the obstruction, which was found to be a long, narrow band from the omentum, completely encircling the small intestine about eight to ten inches from the ileo-cæcal valve, and which passed through an opening in the mesentery, and was then made fast. The intestine was, therefore, completely encircled, as with a string, and the obstruction was complete.

This was not a very recent condition of affairs, as there were

quite a number of old adhesions, and the band must have been in position a long time, thus narrowing the calibre of the intestine. The constricting band was cut away, the adhesions broken up, and the intestine above, being enormously distended, was drawn well outside of the abdomen, packed around with gauze and towels, and an incision about two inches in length made in the wall of the gut, when a large amount of fluid fecal matter was evacuated. The wound in the intestine was closed by a Cushing right-angled suture, and over this a continuous suture of silk; a drainage-tube was introduced well down in the cul-de-sac, and the abdominal wound closed. Reaction was slow, but she made a complete recovery, and, with the exception of two small stitch-abscesses, her convalescence was absolutely uneventful. She was discharged from the hospital, perfectly well, on the 9th day of March, 1896.

On March 15, 1898, a little over two years later, she was suddenly taken with pain and vomiting and general abdominal distress. Matters continued to grow worse, and she was taken to the hospital on March 16, 1898; all her symptoms continuing, although there had been two stools, and, she asserted, wind had passed from the bowels, Dr. Taylor opened the abdomen again at the site of the old operation. The intestines were matted together by very dense adhesions, and at one point two coils of small intestine had been glued together by quite a firm adhesive band. Through the space made by the adhesions of these two coils of gut a large part of the small intestine had passed, and was constricted to such an extent that they were very dark in color, that portion above the constriction enormously distended, and directly at the point of the constriction the intestine which came in contact with the band was almost on the point of rupture. The adhesion was cut, the intestines liberated, and there was the greatest difficulty in separating the intestines from each other. This was eventually done, but at one point the wall of the intestine was torn clear through, while at two other points the outer coat alone was torn. All of these were closed with small silk sutures. The abdominal cavity was then thoroughly flushed with a hot salt solution, and about a quart allowed to remain in the abdominal cavity. The wound was then closed, iodoform dressings applied, and she was placed in bed, the foot of which was elevated after the manner suggested by Clark. Her recovery was absolutely uneventful.

The special points of interest in the report of this case are, first, the mode of constriction, which was an omental band, passing through a small congenital opening in the mesentery, and which was there, apparently, for no other purpose than to cause mischief; second, the slow onset of the intestinal obstruction; it was five days after the beginning of her symptoms before she was operated upon, and, from the appearance of the intestine, certainly four days after the obstruction began; and, third, after making a prompt recovery, she remained perfectly well and comfortable with no symptoms whatever referable to her intestines for two years, but that during that time she had been careful not to do any heavy house-work. The second obstruction began immediately after she had been washing clothes, the first work of this kind that she had attempted since her recovery from the first operation. It would, therefore, seem that the violent efforts of rubbing the clothes along the washboard had been sufficient to force the coils of intestines under the constricting bands.

In nearly all cases in which he had seen the abdomen opened a second time, after there had been any extensive inflammatory conditions involving the peritoneal coatings of the bowel, he had been astonished at the large number of adhesions and at the gluing together of the intestines. This can exist for a long time without producing any apparent discomfort to the patient. It therefore seems that surgeons should operate early in all cases of obstruction where a previous abdominal operation has been done, in spite of the fact that the symptoms at the time may not be acute, although progressive.

Dr. Deaver related the facts of a case of intestinal obstruction which had recently come under his observation, in connection with Dr. Forward, of Chester. Last summer he had been asked to see with Dr. Higgate, of West Philadelphia, a young girl who had recently graduated from the High School. She had peritonitis, with regurgitant vomiting, abdomen distended, extremities cold and clammy, pulse 140. Strange to say, she temporarily recovered without operation. He had not been able to make a positive diagnosis of the cause of the condition. She remained apparently well until later in the summer, when, after partaking of an unusually large meal, vomiting and pain with great distention came on. For four days her condition was so critical that it was believed to be useless to attempt any operative

procedure. Finally Dr. Forward changed his mind and cut down in the region of the cæcum, and found a band of omentum in which was a separated vermiform appendix constricting a knuckle of small bowel. In addition to this there were a number of adhesions. The small bowel above the seat of obstruction was greatly distended.

Dr. Barton remarked that in many cases the cause of the obstruction is trifling, though the obstruction is complete, so much so that when the abdomen is opened the surgeon may fail to find anything. He recalled the case of a woman with an umbilical hernia and strangulation, on whom he operated probably fifteen years ago. About eight or nine years afterwards she had well-marked symptoms of obstruction. He found the abdomen very much distended; the patient was lying on her back, pretty rosy, rather jolly, but every few minutes she would interrupt the conversation by expectorating reddish fluid; the bowels had not been opened and no wind had passed for several days. Operation was postponed until the next day. During the evening, while the nurse was scrubbing the abdomen in preparation for the operation, the woman said, "I am all right; it has given way." Wind passed shortly after that, and inside of an hour she had a free action of the bowel, and the next day she was practically well. Evidently in this case there was a most trifling catch, and yet it was most complete, no wind passing at all.

Dr. Taylor added that he had a rather similar case to that mentioned by Dr. Barton. It was that of a man, who had absolute obstruction for several days, with an enormously distended abdomen. No wind passed; in fact, nothing passed the bowels. He had been in the hospital but a short time and, therefore, there had been no preparation made on the belly. While his abdomen was being scrubbed, after he was under ether, suddenly the thing gave way, and he had an enormous stool with a tremendous explosion of wind. He made a perfect and prompt recovery.

OSTEITIS OF THE TIBIA.

Dr. J. Ewing Mears said that at the meeting of the Academy, in March of this year, he exhibited two skiagraphs of the right and left legs of a patient, who had recently come under his care, suffering with swelling of the lower end of the right tibia; and suffering pain, more intense at certain times, and espe-

cially during the night. The man had sustained, some five or six years previously, an injury to the lower end of the right tibia in jumping over a picket-fence, at which time the right foot was caught, the ankle-joint severely wrenched, and the inner surface of the lower end of the right tibia somewhat contused. He did not at that time apply for medical treatment, and at the expiration of a few days' rest began to use the limb in locomotion. A few weeks subsequently swelling, accompanied by pain, appeared, and these conditions had persisted, in varying intensity, since that time. He consulted medical advice and various methods of treatment were instituted under the different diagnoses which were made. Counter-irritation, internal remedies, mineral baths, change of climate, and, finally, under one diagnosis, of rupture of the internal lateral ligament, a mechanical appliance was placed upon the leg and worn for a period of nearly a year. When the patient came under the care of Dr. Mears, in February of this year, he was using crutches in locomotion, was taking anodynes to relieve pain, and his general health was very much deteriorated. Dr. Mears cut down upon the bone, making a groove two inches in length, extending from the origin of the internal lateral ligament upward, one-half inch in width and to the depth of one-half inch, with the chisel. Efforts were made with a strong drill to penetrate the cavity which was believed to exist, and at the upper end of the groove the bone was somewhat softened, but the drill, without using too much force, could not be made to penetrate. Under this condition, he contented himself with the attempt which had been made, and closed the wound. For a period of a week the pain was very much reduced and sometimes absent. After this time, however, the swelling, which had been abated, began to increase, heat and redness presented themselves as symptoms, and on reopening the wound, the point at which the softened bone was found in the previous operation, was in such condition that it was easily penetrated and pus freely escaped. The opening was enlarged, the cavity was thoroughly curetted with the spoon, and packed with 5-per-cent. iodoform gauze, the ends of the packing being brought out through the wound, and in this way drainage accomplished. This packing was renewed on the third day, and subsequently on the second day, a less quantity being used on each occasion, until the abscess cavity became obliterated and the soft tissues closed. The swelling de-

creased to such an extent that, when the patient passed from under the treatment, the circumference of the two legs at the point above the ankle was the same. The patient, as he continued to improve, discarded as soon as the wound healed the use of the crutches, and for a short period used a cane in walking.

The history of this case and the difficulties which presented themselves in the case, so far as related to the diagnosis, were characteristic. While the more marked symptoms of osteitis are easily recognized and the physical conditions assist materially in making the diagnosis, it is very often difficult to decide the question as to the presence of an abscess-cavity in the interior of the bone. The symptoms which indicate the presence of pus were frequently well marked in this case as deterioration of the general health, variations in temperature, pain of a boring or gnawing character, especially severe at night, with little or no discoloration of the surface. He used the chisel in this case in preference to the trephine, as he believed that in its use he should be able more certainly to reach the point of entrance into the cavity. The case further illustrates the necessity in these cases of making repeated efforts to penetrate the cavity; the fact that pus is not found in a first operation not being evidence of its non-existence. In this case the amount of hypertrophied bone tissue decreased sufficiently the resistance so as to permit the pus to declare its presence in more marked manner.