Aneurism of the femoral artery and A knife-wound of the intestines / by W.O. Roberts.

ANEURISM OF THE FEMORAL ARTERY

AND

A KNIFE-WOUND OF THE INTESTINES.

BY

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ANEURISM OF THE FEMORAL ARTERY—LIGATION OF THE EXTERNAL ILIAC—CURE.*

A negro man, thirty-seven years of age, presented himself the University clinic on the 11th day of last May, giving the llowing history: He had been a heavy drinker, and occasion-ly indulged in a protracted spree. Ten years ago he had been eated for syphilis, and having had no manifestations of the dis-se since, considered himself cured. He was an uncommonly uscular man, and while turning somersaults in a strolling play mpany he fell in the act and struck his right thigh against the o of a chair. He was confined to his bed for some days after, d the thigh swelled greatly. This was in the summer of 1882. e has been lame since that time, and has scarcely been free m pain in the hip, thigh and knee. Several months after the cident, while rubbing his limb, he discovered a small, hard mp in the upper and inner part of the thigh, at the point which d been struck in the fall. This gradually increased in size. In bruary last he had become so lame as to be unfit for any kind business, the tumor being about the size of the fist. He w for the first time consulted a physician, who recognized the mor as an aneurism, and applied Martin's bandage. This atment was kept up for a week, the bandage being applied rectly over the tumor, remaining on several hours of each day, en it had to be abandoned on account of the pain it produced. e tumor now increased in size more rapidly, and the entire mb began to swell from the foot up, and the lameness to grow rse. He came to the University clinic on the 11th of May t, walking with extreme difficulty and in great pain. I found immense tumor occupying the inner and anterior part of the gh, extending for an inch and a half below Poupart's ligament

*Read before the Louisville Medical Society, July, 1883.

to the lower third of the thigh. The vertical measurement over the surface of the tumor was twelve inches, and the transverse thirteen inches. The pulsation and bruit were very distinct over the entire swelling; the former could be seen even at some distance. The bruit was likened, by a companion who came with the patient, to the noise made by the breathing of a wind-broken horse, and the comparison was strikingly good. The limb below the tumor was edematous; there was marked hyperesthesia of the anterior surface of the leg and foot. The slightest touch on the latter gave him great pain. There was some tenderness over the tumor itself, so much indeed that the patient could not stand sufficient pressure upon the artery above to cut off its pulsation. The situation and character of the tumor at once suggested ligation of the external iliac artery as the proper treatment. The patient was therefore prepared for the operation by a purgation and by elevating the limb. On the morning of the 12th, assisted by Prof. D. W. Yandell and Dr. McMurtry, in the presence of the post-graduate class of the University, I operated as follows: The patient being thoroughly anesthetized, a slightly curved incision, beginning about half an inch above Poupart's ligament and to the inner side of *the* center and passing upward and outward for about three inches toward the ant. sup. spine of the ilium, was made down to the tendon aponeurosis of the external oblique. This was then divided the entire length of the former incision, and afterward the fibers of the internal oblique and transversalis muscles were very carefully cut through and the transversalis fascia brought into view. This was torn through with the fingers from Poupart's ligament and the peritoneum pushed upward, when the sheath of the vessel was exposed, the vein lying to the inner side and the genito-crural nerve on top of the artery, this vessel being in a healthy condition.

The aneurism needle was passed far within and outward, so as to avoid the vein, the nerve pulled aside, and the artery tied some distance above the region of the epigastric with a carbolized silk ligature. Both ends of the ligature were cut short, with the hope that it would become encysted. The incision in the aponeu-

rosis of the external oblique and the muscles beneath was then closed with the continued suture of whale tendon, and afterward the superficial wound brought together, except at its dependent point, which was left open for drainage. The two sets of sutures were thought necessary because of the great thickness of abdominal walls due to the immense amount of adipose tissue. The entire limb was then enveloped in cotton batting, which was confined with a roller bandage, and carbolized dressings applied to the wound. Pulsation ceased in the tumor as soon as the ligature was applied, and has never since returned. The hyperesthesia of the limb disappeared entirely. No peritonitis occurred, and the patient recovered from the operation without an untoward symptom, his temperature never rising above 100.5°. The temperature of the foot on the affected side, to the touch, seemed somewhat higher than that of the opposite one. The cotton and bandage were kept on for ten days, and when removed the edema had nearly entirely disappeared. The patient was kept in bed five weeks, and then allowed to get up and walk about. He has felt but little inconvenience in walking, and the neuralgic pains, from which he suffered so much prior to the operation, have not troubled him since. The wound healed, except at its most dependent portion, by first intention.

Ligation of the external iliac artery for the cure of aneurism of the femoral was first practiced by Abernethy in 1796; but it was not until 1806 that he met with success, the three operations prior to that time having terminated fatally. Dr. Dorsey, of Philadelphia, in 1811, was the first to perform it in this country. The tables of Drs. Norris and Cutter (American Journal of Med. Sciences) show that the vessel has been ligated, for all cases, 153 times, with 47 deaths: 17 died of gangrene; 9 of hemorrhage; 5 of peritonitis; 3 of sloughing of sac; 3 of exhaustion; 2 of tetanus; 2 of causes unconnected with the operation; 1 of pleurisy; 1 of delirium tremens; 1 not stated, and 1 doubtful. There have been three successful cases recorded in which both external iliacs have been ligated in the same patient; one by Arendt, in which the interval between the operations was

only eight days; one by Tait, the interval being eleven months; and one by Watson, with an interval of nine months.

Ligation of the external iliac artery is considered a much safer operation than that of the common femoral, for several reasons, viz., that the latter vessel, being so near the aneurism, its coats are more apt to be diseased; inflammation is more liable to attack the sac as a result of the close proximity of the ligature; the vessel being so short, and the origin of its large branches so near together, render it difficult for a solid coagulum to form above the ligature, and the liability of occlusion of the two great nutrient vessels of the limb with gangrene below as a consequence.

It goes without the saying that, in ligating the external iliac artery, care must be taken not to wound the deep epigastric artery, the spermatic cord, the peritoneum, external iliac, or circumflex vein, or genito-crural nerve, or to injure the sub-peritoneal cellular tissue. If the deep epigastric artery be divided, of course it can be ligated, but its occlusion would increase the danger of gangrene, as an important anastomosis would be stopped. Wounding of the spermatic cord is not apt to occur, as it can be easily detected and avoided. Wounding of the peritoneum is much less apt to occur when the abdominal wall is opened one half inch above Poupart's ligament, as recommended by Sir Astley Cooper, and when the transversalis is torn through than when it is cut through. Sometimes it is impossible to avoid injuring this membrane, especially when adhesions exist. The vein is not likely to be punctured if proper care is taken in passing the aneurism needle from it. The genito-crural nerve can generally be seen and readily pulled aside; even were it divided, no special harm would be done. Should the external iliac be found diseased, or secondary hemorrhage follow its ligation, then by an extension of the incision the common iliac may be secured. Of thirty-two cases of this operation, tabulated by Stephen Smith, of New York, only seven recovered. To this table Mr. Erichsen adds eight cases, and gives thirty deaths and ten recoveries.

A KNIFE-WOUND OF THE INTESTINES—ABDOMINAL CUT ENLARGED—THE GUT SUTURED—RECOVERY.

Mr. —, a stout man, aged fifty-four years, while in an altercation, August 28, 1883, was cut in the abdomen with a pocket-knife. The wound was on the left side and was three inches long—extending obliquely from a point three inches to the left of and two inches above the umbilicus. It had opened the cavity and penetrated the small intestine. A considerable knuckle of the gut at once protruded and there was much hemorrhage. The wound was dressed soon after by a physician who was near by. Dr. Turner Anderson, Mr. —'s family physician, now saw the patient, and had him removed to St. Joseph's Infirmary, where Dr. Palmer saw him with Dr. A. Considerable bleeding having occurred on the way and there being some bulging about the wound, I was sent for. It was quickly agreed among us that the sutures should be removed, the wound opened and the bleeding vessel sought for. Dr. D. W. Yandell was then added to the consultation, and concurring in our views, the operation was proceeded with. It was now midnight. The patient took chloroform. The sutures, which were found to embrace but the skin and superficial fascia, were removed, and the wound extended at its two ends so as to admit the hand freely. A large coagulum of blood was seen lying just underneath the abdominal walls. This was removed and the intestines carefully drawn out until the cut portion was brought into view, when it was found that, in addition to slitting the gut, the knife had penetrated the great mesentery in two places, each an inch in length. One of these was occupied by a clot and was not bleeding. In the other bleeding was going on rapidly from three small vessels. Catgut ligatures were immediately thrown around these, and the hemorrhage ceased.

The wounded bowel proved to be the jejunum, and, fortunately, was empty. The physician who first saw the patient had put interrupted sutures in the cut bowel, two in the larger and one in the smaller cut, but in neither was the opening closed. On removing the sutures one slit was found to be the size of a common lead pencil, the other that of a pea. Both extended into the gut. The knife had stripped off the serous coat of the tube over the space of an inch by one quarter of an inch, and this had retracted toward one of the lips and lay there.* In this denuded area, from which blood oozed freely, were the two bowel cuts. I secured the lips of both these cuts and the wound of the serous coat with continued sutures of catgut. When completed it was found that the stitches had considerably diminished the caliber of the tube, but not, it was believed, to an extent which would interfere with its functions. The peritoneal cavity was now well exposed to view by the aid of a mirror and thoroughly cleansed with sponges made hot in carbolized water; the intestine was returned; the external wound was closed by deep sutures of silk carried through the parietal peritoneum and the more superficial surfaces approximated by sutures of horse-hair. A drainage-tube of gutta-percha was left in the lower angle of the wound, and the entire abdomen was covered by a thick layer of absorbent cotton which was secured in place by a broad flannel bandage. A quarter grain of morphia was given hypodermically, the patient placed in bed and surrounded by bottles of hot water. It was now one o'clock in the morning. The patient's pulse was 108 and temperature in axilla 97.5° Fah. He slept well for six hours. On waking his pulse was 102, temperature 99.6°, respiration 28; no pain, no nausea. Some bloody fluid had come through the drainage-tube, soiling the cotton over a space

*I am aware that in all wounds of the kind I am describing, there is always considerable retraction of the peritoneal coat of the tube, giving the appearance to the underlying tunic of having been peeled; but the surface exposed in this case was so much larger than is usual, that I must believe the peritoneal coat had been more than simply cut, and that a portion of it had been actually dissected up by the knife. The medical gentlemen present concurred with me in this opinion.

as large as the hand. The soiled portion only was removed and replaced by fresh cotton, and the bandage reapplied. For five days the progress of the case was altogether satisfactory—the pulse falling to eighty, the temperature remaining under 100°, and a quarter grain of hypodermic morphia every four or six hours securing comfort and sleep. No fluid came any longer through the drainage-tube, and it was removed.

During this time no food whatever had been given. Water was allowed in small quantities, iced champagne when asked for, and crushed ice, of which he took a good quantity, *ad libitum.*

On the evening of this day—the 5th—the patient complained of nausea, and during the night vomited several times. The ejecta had a suspicious though not a positive fecal odor, but during the sixth day they became distinctly stercoraceous. The temperature, which had fallen to normal, and pulse were unchanged. On removing the dressing the abdomen below the wound was of normal fullness—above it was much distended and distinctly tympanitic. There was no tenderness except immediately about the wound, and there really only at the seat of the two upper deep sutures, at which several small abscesses had formed. The hypodermic morphia was changed to a suppository containing the same amount along with a quarter grain also of belladona, used every four or six hours. In the evening a quart of soap-suds was thrown into the rectum, but soon came away, bringing no feces and but a small quantity of gas. Abdominal features remain unchanged. Patient complains of the fullness of the stomach, has constant nausea, great thirst, and vomits after drinking water, the ejecta being of a deep yellow color and distinct fecal odor. The night was passed much as the day had been. On the morning of the seventh day castor oil was given by the mouth, in order to determine, if possible, whether the intestinal tube was closed or not. Two hours after the patient had a small action in which the oil globules were plainly visible. A hot water enema was now given, which was soon followed by a

copious dejection along with much gas. The nausea and vomiting ceased at once—all abdominal distension subsided, and the patient said he "felt like a new man." The sutures were now removed, the wound having closed except at the seat of the drainage-tube. In the line of two of the sutures, as I have stated, some suppuration had occurred and the little points continued to discharge matter for several days. Food was now given—first as milk, then as soup, etc. The bowels gave no farther trouble, and convalescence was rapid.

I think there can be little if any doubt that if the wound had been left as Dr. Anderson found it, the man would have died either from hemorrhage, peritonitis, or septicemia. The ligature saved him from the first danger, the sutures put in the gut averted the second, and the thorough cleansing of the cavity and the drainage-tube, prevented the third.

The sutures put in the bowel by the physician who first saw the case had failed of their purpose, and either opening still remained large enough to allow the escape of fecal and other matter into the peritoneal cavity. And few rules in surgery can now be considered as better established than that which declares that no wound, however minute, which opens a gut should be left unclosed. Professor Gross relates, in his monograph* on Wounds of the Intestines, that in several of his experiments —on dogs—"death was produced, not from any undue injury inflicted on the bowel from stitching or any rough manipulation, but from the interval between the sutures being so great as to prevent the perfect closure of the wound; a fact," he very pertinently adds, "which should never be lost sight of in the management of a lesion of this kind." "I do not care, therefore," he continues, "how small the wound may be, if it is only a line and a half, or two lines, in extent, it should by all means be sewed up." In confirmation of this practice,

*Nature and Treatment of Wounds of the Intestines. By Samuel D. Gross, M. D., Professor of Surgery, University of Louisville, 1843.

)r. Gross quotes the following from Mr. Benjamin Bell: However small a wound of the intestine may be, it ought lways to be secured with a ligature; for although it is alleged y some that we should rather trust to nature for the cure of small opening than to insert a ligature, to me it appears iat the opinion is by no means well founded; insomuch that would not leave even the smallest opening that could admit ither feces or chyle to pass without stitching it up."

I have introduced the foregoing authorities in order that ttention may be directed anew to the necessity for perfect losure of all wounds which penetrate the intestine—a fact which, s the case I have reported shows, is at least not always acted on; nd that I may quote the following from the monograph of Dr. ross referred to respecting the dilatation of the outer wound in rder to facilitate the search for the injured bowel. Writing of ounds which penetrate or divide the gut and allow of the scape of feces, he says: "Here the most prompt and decisive ieasures must be resorted to, or the person will perish from eritoneal inflammation. . . . It will not do for the surgeon) fold his arms and look upon the scene as an idle and ninterested spectator. Far otherwise. He has a duty to erform, and that duty consists *in dilating the external wound, it be not already sufficiently large, in hooking up the injured owel, and in closing the solution of continuity with the requisite umber of stitches, at the same time that the effused matter is care-ully removed with tepid water and a soft sponge.*" The italics re my own. What Dr. Gross suggested, now more than forty ears ago, as applicable to extensive wounds of the gut has, as is ell known, recently been widened so as to embrace all penetra-ng injuries of the bowel, but the honor belonging to the entire rocedure is now claimed by others.

I submit that it belongs to Dr. Gross.

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