After locking the blades hard enough to crush the walls and hold them firmly a slender chisel-pointed blade is thrust through the two grooves which form a sort of tunnel in the closed blades (Fig. 2). This cuts a linear opening entirely through the walls of both viscera. For the sake of greater asepsis and hemostasis I have sometimes followed this by the cautery blade shown in Figure 3. In other cases I have omitted this, but have had no cases of hemorrhage or infection in either method.

Figure 4 shows a simpler and earlier form of the forceps which I used for about two years in over sixty cases on the human subject, but did not publish a description of it. A similar appliance is described by Flint,[1] who had independently hit on the same idea. The devices are so similar that this form (Fig. 4) might with propriety be called Flint's forceps.

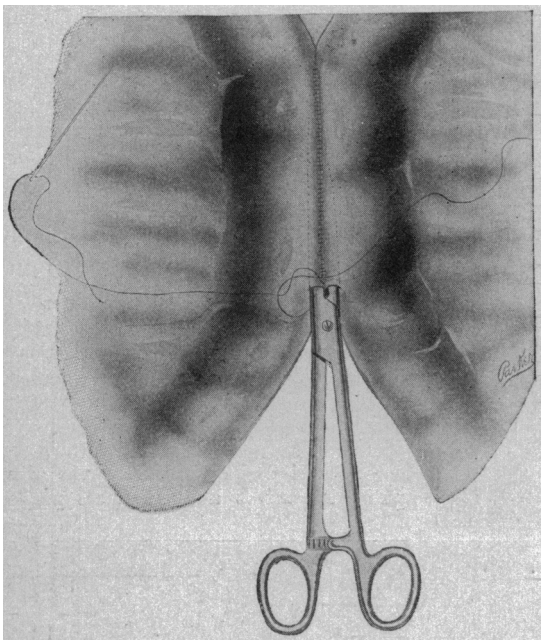

Fig. 4.—Scissors form of enterotome. Stitches employed as in Figure 1.

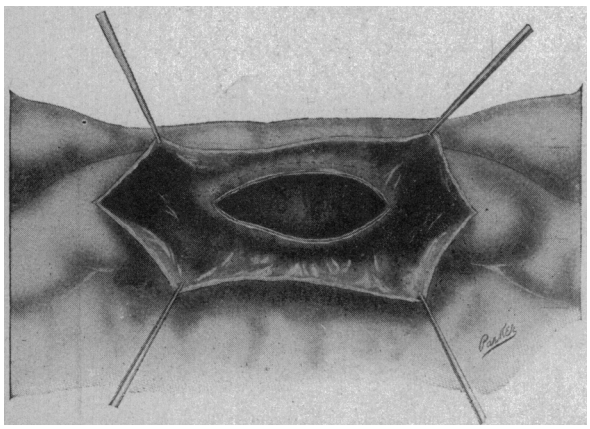

Fig. 5.—Bowel laid open to show results of enterostomy.

A drawback to the use of sharp scissors-like instruments is that they may cut the encircling stitch unless great care is used. A number of the forceps of this form have been sent out by the instrument-makers under my name, and it has been the experience of myself and several teachers that a novice in using them is liable to cut the stitch and let the viscera fall apart on one side. This can always be avoided by turning the loops of bowel over and looking at the back suture before making the blades cut through, to make certain that no part of it is caught in the blades.

A more serious feature of both forms as well as the Werelius cutting ligature is the possibility of hemorrhage. Nearly all experienced observers raise the question at once as to how this is avoided or detected. I believe it is a substantial danger and drawback, but one which can be avoided entirely by care. No large arteries like those in the stomach wall should be crossed by the line of anastomosis in this or any type of operation. The line of opening should be between parallel branches.

The crushing action of the improved forceps and the subsequent use of the heated probe tend to make the work bloodless, but our main dependence should be on careful deep suturing. Each vessel should have a continuous loop of linen thread thrown about it as the stitch line crosses it. In fact the whole suture should be deep and mattress-like; something between a Lembert and a Connell stitch, resulting in a clamp-like grip of the thread almost as effectual as the Murphy button in compressing all the coats in its loops.

In experimental and teaching work this is by far the most rapid method of anastomosis. It can be done on inflated animal gut in from three to five minutes, the stitching being fine enough to be air and water tight, i. e., about eight stitches to the inch.

In actual operations two or three times as many minutes should be spent in order to get a fine closely set suture, every loop of which goes deeply into the visceral walls and occludes every vessel of dangerous size. Intestinal and stomach clamps are not to be employed.

1. Eine neue Methode zur Herstellung von Anastomosen am Magendarmtrakte, Archiv f. klin. Chirurgie, 1906, lxxx, 4, 988.

Clinical Notes

UNRECOGNIZED FRACTURES OF THE HIP.

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This article is prompted by the belief that fractures of the hip in adults occur more often than is usually admitted, and that not infrequently the true condition is masked by a diagnosis of sprain or bruise. That these fractures are often unrecognized can be attributed mainly to two reasons:

1. The trivial fall causing the injury, such as stumbling over an obstruction when walking.

2. The fragments are often impacted and with such an inappreciable amount of shortening that the medical attendant fails to detect it. Feeling no crepitus or unnatural mobility, he assumes that the injury is only to the soft parts.

Within the past two months three patients with recent fractures of the femur have limped into my office unassisted, except by a cane. One sought electric treatment for pains about the joint, the others came for Roentgen diagnosis. As I consider these cases of some interest, I will give a brief report of each, with comments:

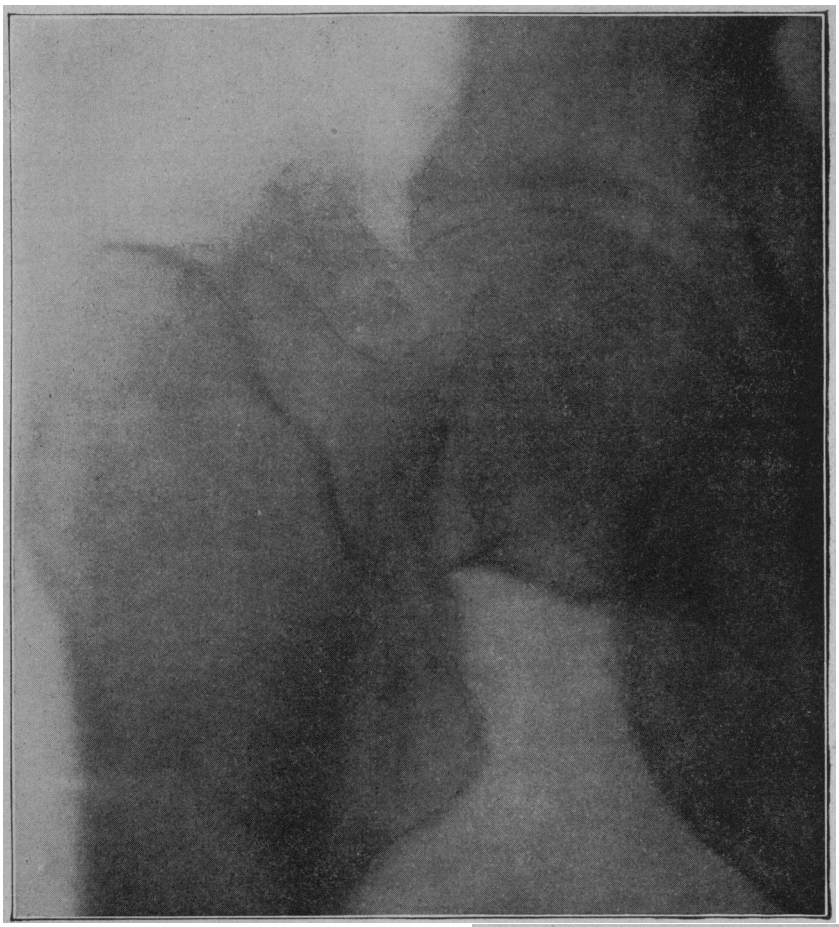

Fig. 1.—Fracture of neck of left femur.

CASE 1.—Man, about 40 years of age, in good physical condition, was wrestling with a friend. Both fell to the ground, side by side. The friend got up, unhurt. The patient arose with great difficulty, said he felt weak, and had an acute pain in the hip on which he had fallen. Supported by the friend, he walked three blocks to a physician's house. As there apparently was no reason to suspect a fracture, he was given a hurried examination. A liniment and a few days' rest in bed were prescribed. After a week the patient returned to work. The hip was somewhat swollen and painful, but the man was able to get about fairly well with a cane. However, after six weeks of more or less suffering, he was directed to my office for electric treatment. A radiogram of the injured side showed impacted fracture of the femoral neck (Fig. 1). At present there is nearly an inch shortening, and patient still complains of pain from irritation produced by using the leg too much. The soft parts about the joint are enlarged; bony union is firm. Result good, considering treatment.

CASE 2.—Woman, aged 48, either fell over a chair on to the floor or out of bed to the floor, striking the side of the thigh and hip. The fall was insignificant, but the pain and discomfort were so acute that the patient went to bed and called a physician. On examination he pronounced it an injury to the ligaments of the hip. Hot applications were advised for a few days, after which the patient was told to get up and exercise the leg. This caused severe pain, and the patient complained that the leg would not bear her weight. The doctor assured her that the pain would leave as soon as she began to walk a little. As improvement seemed so tardy, the patient's daughter, a trained nurse, called in several physicians. They corroborated the first physician's diagnosis. One, however, said it was hysteria. Electric treatments were advised for the latter condition. Meanwhile the hip was still painful, more swollen and unwilling to support that side of the body. Exercise and electricity were applied every day. The hip getting worse and the patient failing generally, she was advised to go to California for her health.

In Los Angeles the lady presented herself to Dr. E. H. Garrett for treatment, who, in turn, referred her to me for *x*-ray diagnosis. Figure 2 shows a complete fracture of the femoral neck, with impaction.

CASE 3.—This gentleman, in stepping out of his automobile, fell to the street and injured his hip. Dr. E. J. Cook, on examination under anesthesia, found the femur dislocated, the head lying on the anterior lip of the acetabulum. No crepitus nor other signs of fracture could be detected. Reduction was made successfully. The patient was put to bed and treated according to the condition found. Ample time being allowed for the repair of the soft structures, the patient was permitted to get out of bed. On attempting to walk, it was evident that the amount of pain, discomfort and weakness present was

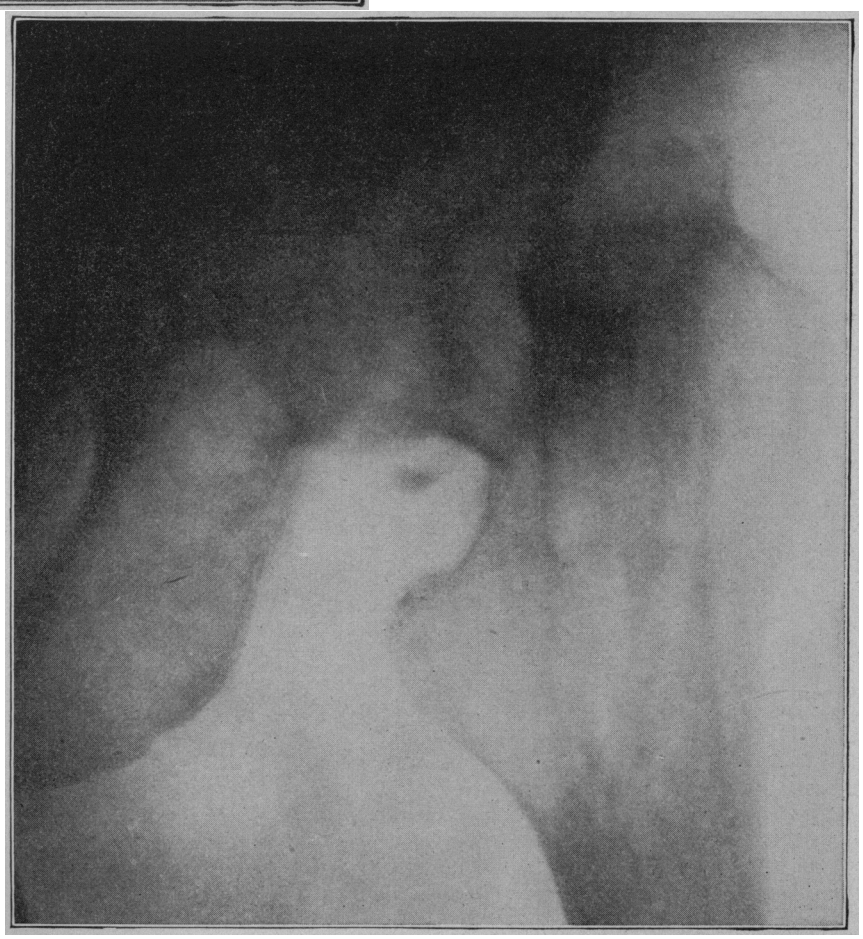

Fig. 2.—Fracture of neck of right femur, with impaction.

out of all proportion to the comparatively slight injury incurred. Therefore, Dr. Cook instructed the patient to have a Roentgenogram of the injured side taken, which is shown in Figure 3. Imagine our surprise to find a fracture, and one so thoroughly impacted that it remained intact during the manipulations necessary to reduce the dislocation. In the plate can be seen the reason for the rigidity of the fragments and the insignificant shortening. The neck of the femur is only partly telescoped, the head rotating just far enough upward to permit the sharp angle of the lower fragment to be driven into the center of the upper frgament as a wedge. The lesser trochanter has become firmly braced against the lower angle of the upper fragment, thus preventing any upward displacement of the shaft.

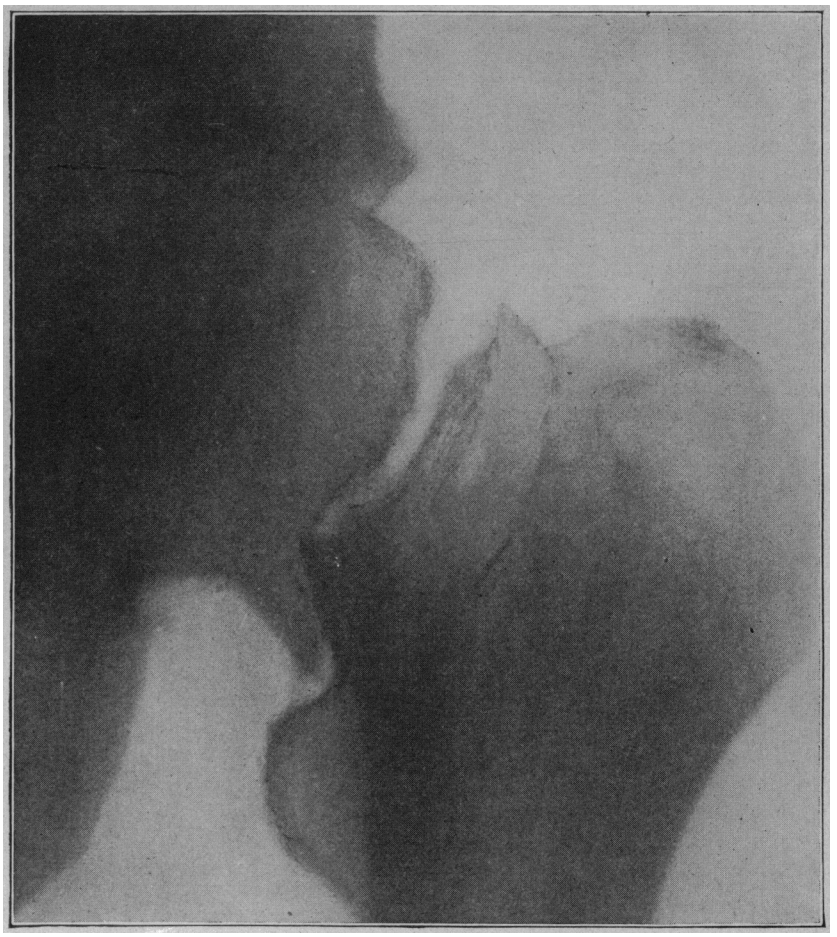

Fig. 3.—Fracture of neck of right femur, with impaction.

It would seem from these cases, then, that we may conclude:

1. It is not always safe to pass lightly on what appears to be a minor injury of the hip joint, especially when found in middle life and after.

2. An examination under anesthesia can not always be depended on. Here, if anywhere, the integrity of the joint is maintained by the impaction, and if sufficient force is used to elicit crepitus, the result may be disastrous to the patient.

3. The easiest way to determine the extent of the injury, and to remove all questionable doubts in such cases, is to make a Roentgen diagnosis. There is no longer any reason for denying the patient this means of verification, for competent radiographers may now be found everywhere.

MUSCULOCUTANEOUS NEURITIS FOLLOWING RUPTURE OF BICEPS.

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The following case illustrates a rather unusual injury, and also a definite cause of a neuritis, the etiology of which was purely traumatic. The history of the injury, the development of the neuritis, its progress and cure, after the repair of the ruptured muscle, tend to prove the correctness of the above assertion.

Patient.—P. L., of German extraction, aged 55, a building contractor, came to me four months ago.

History.—The patient, a man of excellent habits, and having always enjoyed good health, complained of great pain in upper right arm. In July, 1907, while on a ladder, some twenty feet from the ground, he fell, and in falling, grasped with the right hand a projecting beam. This broke his fall, but immediately after a sharp pain was felt in right shoulder and arm. There was no evidence of other injury. The arm became swollen at and about the shoulder, the swelling extending to the elbow, with some pain and loss of function in the arm. Little or no attention was given to the injury until after the tenth day, when an intense pain started in the arm, which grew progressively worse. This pain was so intense as to cause him to lose sleep at night, but was less during the occupations of the day. At no time was he compelled to use his arm in manual labor, but with some difficulty he found he could sign checks, letters, etc. At this time he consulted a physician, who for one month used the electric current on his arm, shoulder and back. This treatment was given to relieve the pain, which was continuous and most severe. At the end of one month the condition was much worse, and it was at this time that he came to my attention.

Examination.—He was emaciated, had a pinched expression and was extremely neurotic. Physicial examination was negative save for the right upper arm. Just above the bend of the elbow on the inner aspect of the arm was found a firm mass, globular in shape and about 5 cm. in diameter, movable in all directions to a moderate degree, but less so downward. This mass (Fig. 1) was thought to be muscular tissue, and a part, if not all, of the biceps. The mass itself was not tender, but immediately above it and to its outer lower aspect there was marked tenderness to pressure. There was some anesthesia along the outer aspect of the forearm extending to the wrist. Extension and resisting flexion of the forearm caused great pain. There was little or no strength in his grip, and he could not abduct his arm beyond 45 degrees. Rotation at the shoulder and elbow joints was normal when performed slowly. There was a marked depression in the fleshy part of the arm just above this mass, and a slight backward displacement of the head of the humerus was detected.

Diagnosis.—Because of the absence of pain along the median nerve, it was determined that this must be a case of neuritis of the musculocutaneous, secondary to a rupture of the biceps at one or both of its upper attachments, and following the contraction of the ruptured muscle. It must be borne in mind that the musculocutaneous nerve arises from the outer cord of the brachial plexus opposite the lower margin of the pectoralis minor muscle. It at once enters the coracobrachialis, through which it passes downward and outward, into or between the biceps to the outer side of the arm, where it divides into an anterior and posterior branch. It supplies these muscles, and of course throws off filaments into the body of the muscle.