LOCAL ANALGESIA FOR SURGICAL TREATMENT OF FRACTURED NECK OF FEMUR

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Fractures of the proximal end of the femur occur for the most part in the aged. According to Sven Johansson and Putti (1942) they amount to about 10 per cent of all fractures. Fractures of the neck of the femur and intertrochanteric fractures occur with about equal frequency in the elderly, and operative treatment by internal fixation is necessary not only for functional reasons but also to preserve life since the elderly patient must move and leave his bed at the earliest possible moment.

O'Brien, Sky and Bublis (1946) have shown in a recent publication that general anaesthesia for this procedure is not without danger in the aged, and the same may be said for spinal analgesia. If, therefore, an anaesthetist wishes in such cases to administer local analgesia, the following technique may prove helpful:

Premedication must be given three-quarters of an hour before the patient is moved to the theatre.
A distinction must be made between the local analgesia of the point of fracture and that of the operation field.

Local Analgesia of the Point of Fracture:
Before the operation the fracture must be reduced, and because of the pain of movement it is necessary to produce local analgesia of the point of fracture before the patient is laid on the table. The best place for this is his bed. During this stage
the strictest sterility should be observed, and the needles should be picked up and attached to the syringe only with the sterile forceps and not with the fingers, even though the anaesthetist is wearing sterile gloves. It is obvious that the inguinal region and the front side of the thigh must first be shaved and prepared with spirit, etc. It may, however, be noted that on such occasions it is inadvisable to use iodine lest any deleterious reaction take place as a result of the penetration to the fracture of any iodine with the insertion of the needle. Iodine reacts upon the steel of the nails, even upon 18/8 stainless steel or vitallium. The slightest damage to the substance of the nail produces a destructive effect on the bone. For the local analgesia 30–40 cc. of 2 per cent Procaine-solution will be required. The needle for injection should be 10–12 cm. in length.

It is necessary to distinguish between local analgesia for a fracture of the neck of the femur and for a fracture of the trochanteric region, because the former is intracapsular and the latter is extracapsular.

The point of injection for local analgesia of a fracture of the neck of the femur is at the outer side of the common femoral artery two inches below the centre of the inguinal ligament. This point is adjacent to the lateral side of the artery, which in every case should be identified. It is essential that the needle should be inserted vertically until the bone is felt and then 30 cc. of 2 per cent solution may be injected without great pressure. After about five minutes the patient feels no pain and the effect lasts about one hour.

The point of injection for local analgesia of an intertrochanteric fracture may be found in the following manner. An imaginary horizontal line should be drawn laterally from the symphysis pubis and a perpendicular one downwards from the anterior superior iliac spine. The point of injection lies at the intersection of the two lines. This point is situated in a triangle between the tensor fasciae latae and the sartorius muscle, both of which originate from the anterior superior iliac spine. This triangle (Moser) may easily be felt, particularly when the
patient is thin. The floor of the triangle thus formed consists of the rectus femoris muscle, immediately beneath which lies the centre of the trochanteric region, so that from this point every intertrochanteric fracture can be reached with the analgesic solution. Care should be taken that the needle is inserted vertically until bone is felt, for there is then no danger of meeting the ascending branch of the circumflex femoral artery. At this point 40 cc. of the 2 per cent solution may be injected with very light pressure to produce analgesia of the intertrochanteric fracture itself and also at the same time to block the sensitive fibres of the femoral nerve which radiate here.

Local Analgesia of the Field of Operation:

After the fracture has been reduced and the X-ray control taken, analgesia of the field of operation is induced with the patient lying on the operating table. For this 70–90 cc. of \(\frac{3}{4}\) per cent Procaine-solution with adrenalin is used. Since the incision will be made on the lateral side of the thigh from the trochanter downwards towards the knee, for 10–12 cm., this region must be affected by the analgesia. It has proved a useful method not to infiltrate the skin along the line of the incision first, but in the reverse manner, from the depth to the surface. At the spot where the trochanter can be felt, on the lateral side of the thigh, the needle is inserted until the bone is met. This point lies a little below the centre-line of the lateral side of the thigh. Infiltration is then started and the injection continued all the time as the needle is slowly drawn back until the skin is reached. In the same way the next point one-and-a-half inches distant is infiltrated, but here bone is felt about one inch deeper. In a similar fashion the injections are made at each puncture point from the depth to the surface along the whole line of the incision. With such a method all layers are equally infiltrated, whereas, otherwise, the anaesthetist must pay attention as to whether the injection is being given under the fascia lata or the deeper fascia of the vastus externus muscle. Again, it should
be noted that it is inadvisable to use iodine on the skin, either before or after the infiltration.

This method has been evolved as a result of the writer's experience based on 104 cases. The age of the oldest patient was ninety-one years.

REFERENCES


Sven Johansson, cited by Putti.