Lateral Skeletal Traction for Central Hip Dislocation

J. R. Corea


Open surgery for central hip dislocation is a major procedure demanding expertise and resource. A useful method of lateral skeletal traction is described which can be employed when an operation is contraindicated or not feasible.

The criteria for open reduction and internal fixation of fractures of the acetabulum associated with central dislocation of the hip have been clarified. Contraindications to open surgery which we have experienced have included infected abrasions overlying the area of approach, the patient refusing consent for major surgery and an advanced pregnant uterus making operation technically hazardous. It is feasible that the technical expertise and back-up services for this major surgical procedure may not always be available. In these situations, the technique of lateral skeletal traction proves most useful and is here described with minor modifications. The method was simultaneously described in the Scandinavian literature.

Method

Two 5 mm diameter Schanz threaded pins are introduced percutaneously in the coronal plane from the lateral side of the thigh into the upper femur (Fig. 1). The superior pin is placed centrally in the neck of femur or through two cortices as in the figure. The lower pin diverges and penetrates both cortices. Since both pins are uniplanar, their divergent angle and positioning can be varied to obtain the desired resultant direction of pull. We find that a resultant pull in the axis of the neck is often the most effective. Stainless steel wire — 1.2 mm (suppliers; Synthes, Robert Mathys Co, CH 2544 Bettlach, Switzerland) is wound tightly around the external crossing of the pins. The traction cord extends from this point at the apex of the triangle to and over a pulley at the side of the bed. Loads of up to 20 kg have been well tolerated with no loosening or pulling out of the pins.

Lipscomb, in his original description, used two triangulated Steinmann pins. The upper pin being inserted just above the lesser trochanter and the lower pin diverging into the shaft of the femur. He stated that 50 lb (22.72 kg) or more could be applied to the clamped pins.

Discussion

An open operation properly executed, reduces the dislocation, gives an accurate reduction of the acetabular fragments, restores the congruence and stability of the hip joint and thereby, reduces the risk of osteoarthrosis developing in the joint. However, when open reduction is not feasible,
lateral skeletal traction is a useful alternative. Other techniques have been used such as inserting a Steinmann pin through the greater trochanter from front to back of thigh with a Bohler stirrup attachment. Nursing is difficult with this method. Broad threaded screws can be inserted in the neck of femur. They have the disadvantage of pulling out under a heavy load. Also, the traction wire emerging from the thigh ulcerates the skin with resultant pain and superficial infection.

Lipscomb's method of traction is easy to apply, effective and well-tolerated by patients. He used Steinmann pins which are available in most orthopaedic units.

Personn designed an aluminium block with holes for the crossing of the pins to overcome pin slide and loosening. We used stainless steel wire to stabilize the crossing of the pins at the apex of the triangle and have had no problem with pin slide. The threaded Schanz pins give a firmer hold in the bone than do smooth Steinmann pins. Also, the divergent angle and placement of the pins are adjusted to obtain the desired resultant direction of pull. The method is sometimes combined with longitudinal skeletal traction using a pin in the upper tibia. We have not found this necessary.

In our experience, the method of lateral traction described by Lipscomb has proved useful in treating acetabular fractures with central dislocation of the femoral head, when open operation was contraindicated.

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