

Femoroacetabular Stabilization Using a Suspensory Fixation Device in Posttraumatic Hip Instability

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Purpose: Hip dislocations and femoral head fractures are well-described, devastating injuries following high-energy trauma. Despite appropriate initial surgical fixation, subsequent native hip instability due to surrounding soft-tissue incompetence is a known complication with significant morbidity and few treatment options. We describe a novel technique to stabilize the hip following traumatic instability.

Methods: The patient is placed supine on a radiolucent table. Using a modified Stoppa approach, the anastomosis between the external iliac and obturator artery is identified and clipped; periosteum is cleared off the quadrilateral surface, protecting the obturator neurovascular bundle. A lateral approach is made to the proximal femur; the guidewire is directed up the femoral neck, exiting the femoral head centrally in the fovea. Prior to exiting the femoral head, the hip is positioned into 40° of abduction, 0° of flexion, and 15° of internal rotation. Using fluoroscopy, the guidewire is directed into the cotyloid fossa, and the guidewire is advanced into the pelvis, in the inferior portion of the quadrilateral plate under direct visualization. A suspensory fixation device with suture button can be used alone or with tendon allograft. The tendon allograft is prepared on the back table with the suspensory fixation device. The guidewire is reamed, and the graft/suture construct is passed. The construct is secured medially with washers and a suture button, and tensioned laterally with a suture button over a one-third tubular plate. The hip is placed in 10° of adduction, 0° of hip flexion, and neutral rotation during tensioning. Postoperatively, the patient is allowed toe-touch weight bearing for the first 6 weeks with progression to weight bearing as tolerated. Early range of motion is encouraged.

Results: A total of 4 patients had posttraumatic hip instability. 2 patients were treated with a suspensory fixation device without allograft and 2 with suspensory fixation device/allograft. At 3-month follow-up interval radiographs and clinical examinations demonstrate congruent femoroacetabular joints with intact hardware. One patient with allograft developed a deep infection, requiring revision surgery. The remaining 3 had no complaints of persistent instability and were ambulating with no assistive device.

Conclusion: We present a novel technique with promising short-term results. Our construct utilizes a suspensory fixation device to reconstruct the ligamentum teres of the hip, thus acting as a soft-tissue restraint. Stabilization of the femoroacetabular joint allows early range of motion, obviates the need for posterior hip precautions, and prevents further cartilage damage from repeat dislocations.