USE OF ANCHOR SUTURES TO REPAIR LABRAL AVULSIONS OF THE HIP: A BRIEF REPORT

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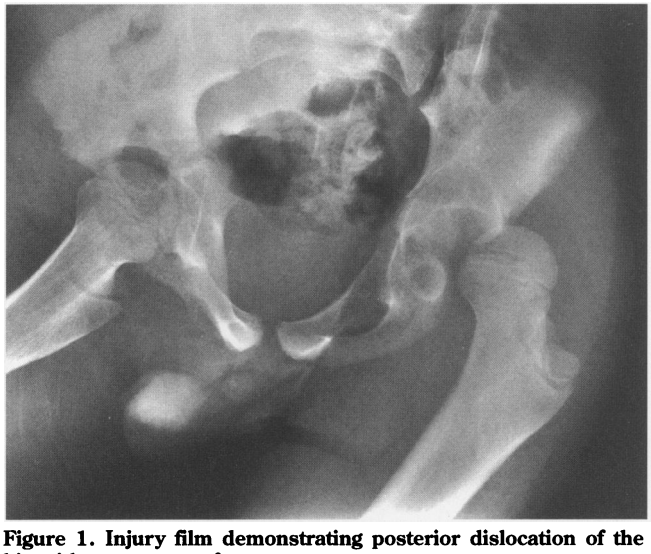

Figure 1. Injury film demonstrating posterior dislocation of the hip with no apparent fractures.

INTRODUCTION

Traumatic dislocation of the hip is uncommon in the pediatric population[4]. Although the association of labral pathology with hip dislocations in both the pediatric and adult population is well documented, the treatment of the labral pathology has received little documentation. We report a case of posterior dislocation of the hip in a child with intra-articular obstruction to reduction caused by labral interposition. The labral pathology was treated using the principles and surgical techniques utilized in the treatment of labral pathology in the shoulder.

CASE REPORT

A nine year old boy suffered a twenty foot fall from a tree landing on his left hip. The patient was initially seen at a local emergency room and was transferred to our hospital later that evening for further evaluation. On exam, the left leg was shortened and internally rotated. Palpation of the left groin was painful. Pedal pulses were normal and lower extremity strength was full for all muscle groups except for quadriceps strength which was decreased because of pain. No other injuries were noted on physical examination. Radiographs revealed a posterior dislocation of the left hip without any apparent bony injury (Figure 1). Closed reduction was performed with two mg of IV morphine for pain control. Post-reduction, the hip was stable to ninety degrees of flexion and painful with internal and external rotation.

Radiographs revealed a non-concentric reduction of the hip with medial joint space widening. CT scan demonstrated an intra-articular osseous fragment with a bony defect in the posteroinferior aspect of the acetabulum (Figure 2).

The patient was taken to surgery. A posterolateral approach to the hip was performed by incising the piriformis and conjoint tendons and preserving the medial femoral circumflex vessel. A large defect in the inferior, posterior, medial margin of the joint capsule was identified with the femoral head button-holed through the defect. A horizontal incision was made in the capsule to re-dislocate the hip. On exploration of the joint, a labral avulsion with a small bony fragment attachment

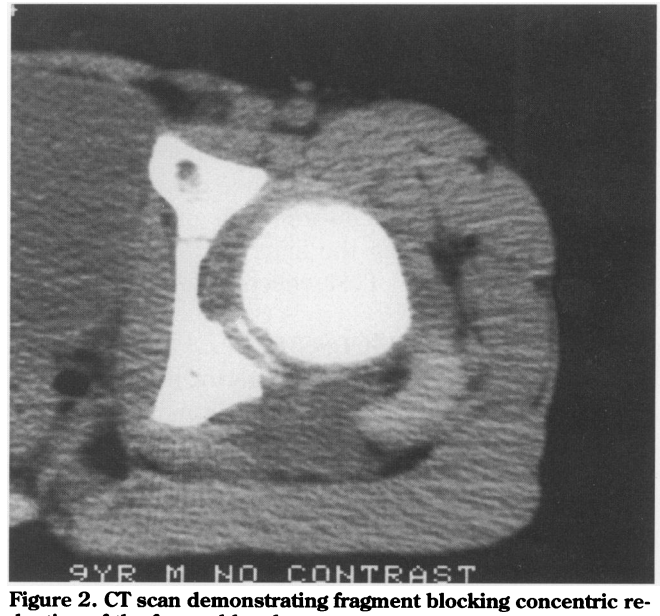

Figure 2. CT scan demonstrating fragment blocking concentric reduction of the femoral head.

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Figure 3. Five month postoperative radiograph demonstrating concentric hip reduction and anchor sutures.

was identified. A bony defect in the posteroinferior acetabulum was visualized. The avulsed labrum with its associated bony fragment was reattached at its anatomic location using suture anchors (Mitek Systems, Norwood, Massachusetts) placed in the ischium and posterior column (Figures 3 and 4). The femoral head was reduced. The longitudinal capsular rent and the horizontal capsulotomy were reapproximated with nonabsorbable suture. The hip was stable throughout a full range of motion without crepitus. Postoperative radiographs showed a concentric reduction.

That patient ambulated with crutches and touch weight bearing for two months. At two month follow-up, gait was normal and without discomfort. Range of motion was symmetric with the opposite hip and pain-free. The patient continued to be asymptomatic at the five month follow-up with normal gait and range of motion. Radiographs at that time did not show migration of the bone sutures or evidence of osteonecrosis. The patient continues to do well with a normal activity level one year following the injury with no hip symptoms and no evidence of osteonecrosis on radiographs.

DISCUSSION

Reasons for an irreducible posterior hip dislocation include: entrapment of the piriformis muscle, buttonhole lesions of the capsule, intra-articular fragments and an inverted labrum[1]. Dislocations with associated labral avulsions are rare, but have been reported in the literature[5].

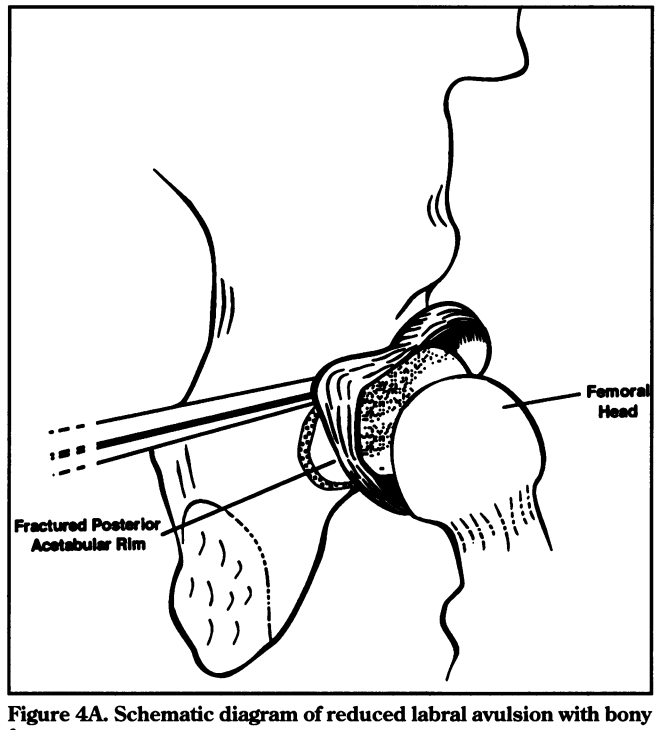

Figure 4A. Schematic diagram of reduced labral avulsion with bony fragment.

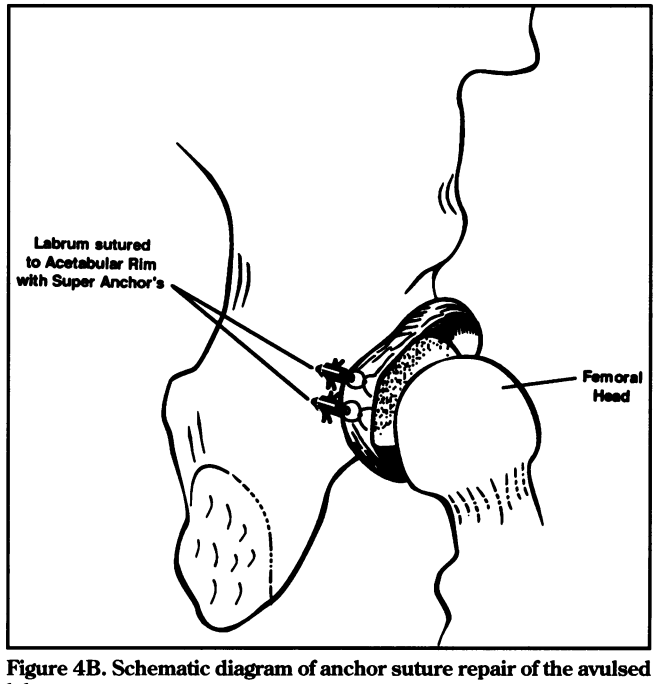

Figure 4B. Schematic diagram of anchor suture repair of the avulsed labrum.

The labrum contributes to hip stability by increasing femoral head coverage and regulating hip joint pressure[6]. Defects in the labrum can predispose to chronic hip instability. Recurrent dislocations in patients who have labral defects associated with a previous traumatic dislocation have been reported[2,5].

Previous repairs of labral injuries have involved the use of bone grafts to reinforce the acetabulum in the area of the defect[5]. The repair we report more closely approximates normal hip anatomy than does the use of bone grafts, and it re-establishes hip joint stability with minimal alteration in hip biomechanical loading patterns. This is analogous to the repair of bony labral avulsions in the shoulder[4].

Suture anchors simplify this potentially difficult procedure. The need for drilling holes into the bone and articular cartilage and the passing of sutures into the deficient acetabular rim is eliminated; thereby reducing the amount of surgical exposure needed as well as any potential for sutures to pull out through the thin bony bridge. Local tissue irritation is also minimized as the suture anchors are buried in the bone[3].

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