Traumatic and Atraumatic Hip Instability

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Introduction

The hip is an inherently stable joint as a result of its characteristic osseous topology that allows the femoral head to sit deeply within the highly congruent acetabular fossa. However, despite its bony architecture, recent evidence suggests that maintenance of hip stability throughout the various planes of motion requires intact surrounding capsuloligamentous structures [1–3].

The hip capsule is composed of several ligamentous structures that resist abnormal femoral head translation throughout the entire range of motion. The iliofemoral ligament, the strongest of the capsular ligaments, spans an area covering the anterior aspect of the femoral head and prevents anterior translation during motions that involve hip extension and external rotation. The pubofemoral ligament travels from the pubis to the femoral neck and prevents excessive abduction and extension of the hip. The ischiofemoral ligament comprises a portion of the posterior capsule and resists posterior translation during adduction and internal rotation of the hip (Fig. 31.1). The deep arcuate ligament is another component of the posterior capsule that prevents abnormal translation with extension and deep flexion. The zona orbicularis makes up the inferior portion of the hip capsule and has been found to primarily resist inferior femoral head translation [3]. The ligamentum teres, an intra-articular and extracapsular ligament which is taught in adduction, flexion, and external rotation, has also been suggested as a potential contributor to hip stability [4–7]. Evidence suggests that the acetabular labrum may also be involved in maintaining stability of the hip by both increasing acetabular depth and generating a negative intra-articular pressure that each help to prevent abnormal femoral head translation [8, 9] (Fig. 31.2). Disruption of any of these soft tissue structures, including the surrounding musculature, can result in extraphysiologic hip motion ranging from transient subluxation to frank dislocation.

The etiologies of hip instability are most often conceptually divided into traumatic and atraumatic causes.

Most cases of acute traumatic dislocation occur when a sudden, excessive axial load is applied to the femur with the hip in a flexed position—this type of injury may or may not result in fracture of the posterior wall of the acetabulum [10, 11]. Some athletes may be predisposed to have an acute dislocation as a manifestation of chronic overuse [12, 13]. Although specific injury patterns following acute dislocations have not been well described, concomitant injuries to the articular surface, ligamentum teres, acetabular labrum, and capsuloligamentous structures may result in symptoms of recurrent, painful microinstability [11].

Atraumatic hip instability has numerous potential etiologies. Congenital defects involving bone or soft tissues, multiligamentous laxity, certain systemic diseases, or any one of several acquired causes such as previous open or arthroscopic hip surgery may predispose an individual to develop chronic, atraumatic hip instability which can be debilitating [14]. In most adults, true hip dislocations are uncommon without significant trauma or previous surgery. On the other hand, dislocations in children are more often associated with congenital malformations, such as torticollis and talipes equinovarus [15], that may lead to developmental abnormalities of the hip with a high potential for long-term sequelae including degenerative osteoarthritis and/or femoroacetabular impingement.

Developmental dysplasia of the hip (DDH) is a frequently cited entity associated with atraumatic hip instability that has

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Fig. 31.1 Illustration depicting *anterior* and *posterior* views of the ligamentous constraints of the hip. The iliofemoral and pubofemoral ligaments can be seen anteriorly, and the ischiofemoral ligament can be seen posteriorly

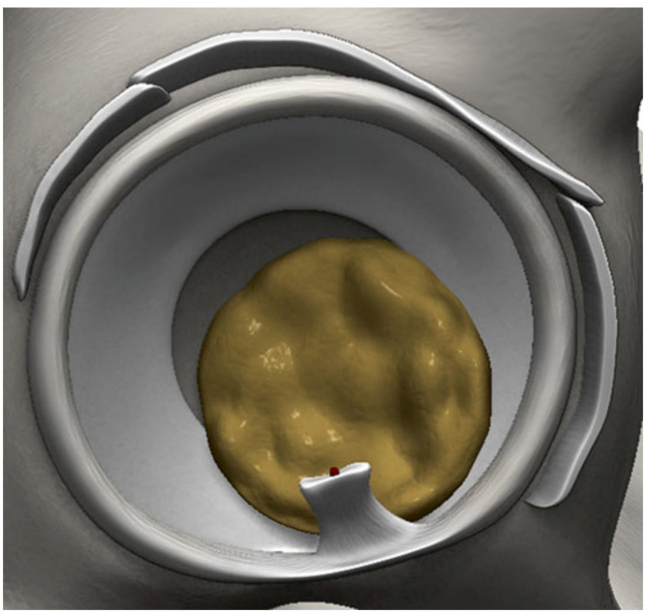

Fig. 31.2 Illustration showing the orientation of the ligamentum teres relative to the acetabular labrum. Note the significant increase in acetabular depth produced by the labrum

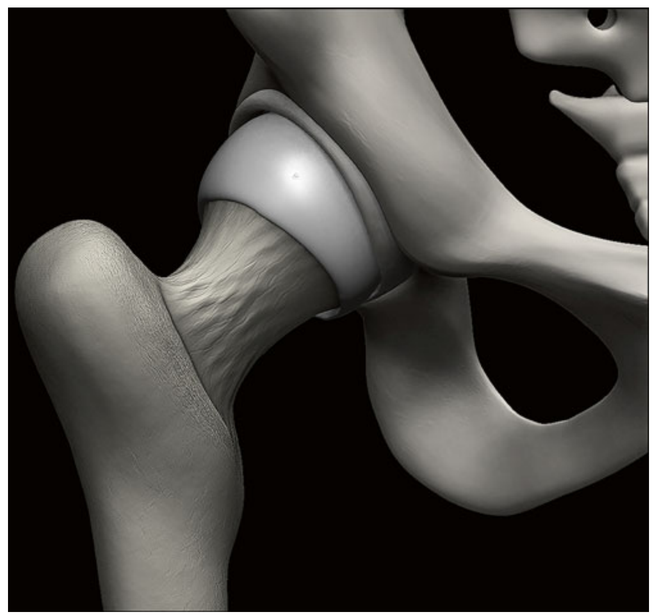

Fig. 31.3 Illustration depicting a dysplastic hip with a decreased head–neck offset and shallow acetabulum

yet to be clearly defined in the literature. As a result, published research related to DDH can be confusing and often conflicting. Nevertheless, DDH is generally considered to be a continuum of pathologies with various morphologic features ranging from normal hip development to gross abnormalities that can result in significant instability. Some of these features may include a shallow or underdeveloped acetabular fossa (a cause and effect of recurrent hip dislocations in children), an abnormally small head–neck offset, and an excessive chondral wear as a result of altered biomechanical shear forces across the articular surfaces (Fig. 31.3). The development of ultrasonographic screening programs for the detection of hip subluxations and dislocations in young children has provided a cost-effective avenue for early recognition and treatment of DDH, thus significantly reducing the morbidity and cost associated with known long-term sequelae.

In all patients, a thorough history is necessary to determine the circumstances associated with their reasons for seeking medical treatment and to develop a succinct, yet thoughtful, differential diagnosis that can be used to guide

Table 31.1 Radiographic signs of dysplasia

Signs of dysplasia	Measurement	Definition
Tonnis angle >10° (Tonnis 1999)	Acetabular inclination	Angle of the horizontal line of the pelvis and the line connecting the most lateral and most medial parts of the acetabular weight-bearing sourcil
<25° (Wiberg 1939)	CE angle	Angle of a vertical line (in relation to the pelvis) and a line connecting the femoral head center
>42° (Sharp 1961)	Sharp's acetabular angle	Angle of a horizontal line of the pelvis connecting both teardrop signs and the line of the teardrop to the most lateral point of the acetabular articular surface
<20° (Lequesne 1961)	Anterior center-edge angle (VCA)	Angle of a line connecting the center of both femoral heads and the one between the center of the femoral head and the anteriormost edge of the acetabulum articular surface

further management decisions. During the patient encounter, it is also important to obtain information regarding hip pathologies throughout the family history, especially inquiring about those pathologies that may be involved with the development of hip instability such as Ehlers–Danlos syndrome and Marfan syndrome. A documented history of instability involving other appendicular joints, such as the shoulder, may also be important in the diagnosis of multiligamentous laxity.

A complete assessment of gait, posture, and neurovascular function should be performed in all patients presenting with signs and/or symptoms of hip instability. In addition, palpation of relevant landmarks should also be undertaken to identify potential sources of pain. Range of motion should always be tested bilaterally to assess capsular laxity and to potentially reproduce the patient's symptoms. Mechanical crepitation, snapping, or popping with range-of-motion testing may suggest the presence of a labral tear or flap, a chondral defect with or without an intra-articular loose body or snapping hip, especially when these sounds are associated with pain and apprehension.

There are numerous provocative maneuvers that can be performed to help solidify the differential diagnosis. For capsular laxity, the posterior impingement test and dial test are particularly useful. The posterior impingement test is performed by gently extending and externally rotating the hip with the patient supine. Reproduction of pain or apprehension with this maneuver suggests that posterosuperior osseous impingement may be the result of anterior capsular laxity [16]. Safran et al. demonstrated that the posterior impingement test may also be helpful in identifying abnormal stresses across the anterolateral labrum [17]. A positive test can also occur in patients with normal joint laxity; however, these patients often have abnormal skeletal morphology (e.g., coxa profunda). The dial test is performed by first passively internally rotating the affected hip. The limb is then released which allows the hip to externally rotate back toward the neutral position. Capsular laxity may be suspected when the extremity passively externally rotates >45° from the midline in the axial plane and/or lacks a definitive end point [7]. Pain or apprehension with gentle limb traction and/or hyperexternal rotation may also be suggestive of capsular laxity.

Standard radiographic analysis includes an anteroposterior (AP) view of the pelvis and a lateral view of the affected hip. An additional Judet view and/or a false-profile view may be helpful to assess acetabular coverage in cases where clinical instability is suspected. The center-edge angle is used to objectively measure femoral head coverage by the acetabulum. Additional measurement can be made to assess the presence of dysplasia (Table 31.1). In some cases, a traction view may be necessary to identify a "vacuum sign" which is often indicative of increased inferior capsular distraction.

Magnetic resonance imaging (MRI) is used to evaluate the patency of surrounding soft tissue structures such as the acetabular labrum, joint capsule, and associated ligaments in cases of either traumatic or atraumatic hip instability. MRI with or without arthrography also plays an important role in locating chondral defects and labral tears that may require surgical treatment. In addition, the alpha angle is measured on MRI to assess abnormal bony growth on the femoral head–neck junction. Femoroacetabular impingement related to capsular laxity can lead to secondary chondral injury [18].

Computed tomography (CT) is routinely performed after reduction of traumatic hip dislocations (1) to assess the adequacy of reduction, (2) to identify acetabular fractures that may not have been visible on initial radiographs, (3) to identify intra-articular loose bodies, and (4) to plan the subsequent surgical approach (if indicated). CT scanning is not often indicated in patients with atraumatic instability due to the lack of significant clinical benefit coupled with the risks associated with exposure to excessive radiation.

Case 1: Traumatic Hip Instability

History/Exam

A 16-year-old high school student with no previous surgical history was playing football after school when he was tackled from behind and suffered an acute posterior dislocation of his left hip. The patient was taken to the emergency room

Fig. 31.4 AP radiograph following left hip dislocation showing posterior wall fracture on the left hip and an avulsion fracture of the right ischial tuberosity

where the hip was immediately reduced approximately 1 h after the initial incident. After being sent home on crutches, the patient presented to our clinic several days later for further evaluation of the injury. On physical examination of his left hip, there were no signs of abrasions, open wounds, ecchymoses, or neurovascular injuries. Only limited range-of-motion testing was performed given the nature of the injury and his level of pain at the time of examination.

Imaging

Following reduction in the emergency room, standard AP and lateral radiographs of the left hip revealed intra-articular loose bodies and fractures of both the posterior wall of the acetabulum and the right ischial tuberosity (Fig. 31.4). CT scanning was then performed which confirmed the diagnosis of a posterior wall fracture with lateral displacement (size, 2.2 cm anteroposteriorly × 0.6 cm mediolaterally × 2.6 cm superoinferiorly). An osseous fragment of approximately 1.5 cm in diameter was also noted adjacent to the anterior aspect of the femoral head. An MRI scan was also obtained (Fig. 31.5a–d) in which an avulsion fracture of the right ischial tuberosity was discovered with 3.0 cm of inferior displacement. Additionally, posterior labral tear, large joint effusion, and extensive soft tissue edema were identified (Fig. 31.5a, b). Given the findings on history, physical examination, and diagnostic imaging, left hip arthroscopy with possible open reduction and internal fixation was performed the following day.

Arthroscopy

The patient was positioned in the modified supine position on a traction table with a well-padded perineal post. Three loose bodies were discovered within the joint and were subsequently removed with an arthroscopic grasper and pituitary rongeur (Fig. 31.6a). Diagnostic arthroscopy revealed a posterior acetabular fracture between the 2 o'clock and 5 o'clock positions which involved approximately 10 % of the acetabulum (Fig. 31.6b). Tearing of the posterior labrum was found; however, the labrum was still firmly attached to the fracture fragment. Bruising of the anterosuperior labrum suggestive of CAM-type femoroacetabular impingement was found (Fig. 31.6c). The ligamentum teres was also completely torn (Fig. 31.6d).

Fragment fixation was undertaken given the increased risk of postoperative instability when a fracture fragment of this size is removed. Two 2.3 mm suture anchors were placed into the fracture site and the suture limbs were passed around the fracture fragment and firmly attached labrum. This method sufficiently reduced the fracture and restored the anatomy of the posterior acetabulum (Fig. 31.6e). The area of grade 4 chondromalacia was sufficiently debrided with a motorized arthroscopic shaver. Debridement of the labrum was then performed using a combination of radiofrequency ablation and arthroscopic shaving between the 2 o'clock and 5 o'clock positions. Debridement of the inflamed synovium and the completely torn ligamentum teres was also performed using the same instrumentation.

Traction was then removed and osteoplasty of the femoral head and neck was performed. After dynamic examination confirmed the site of the CAM lesion and labral impingement, an arthroscopic bur was used to resect excess bone from the 12 o'clock to the 6 o'clock position, thus reestablishing a normal femoral head–neck offset. The lateral epiphyseal vessels were identified and protected throughout the procedure. Dynamic examination was performed once again to confirm adequate osteoplasty, acetabuloplasty, and fracture fixation. The central and peripheral compartments were copiously lavaged with arthroscopic fluid. The capsulotomy was closed using two #2 sutures in a double-limb fashion and secured with a racking half-hitch knot. The arthroscopic instruments were removed and the portal sites were closed using 3-0 nylon sutures in a vertical mattress configuration.

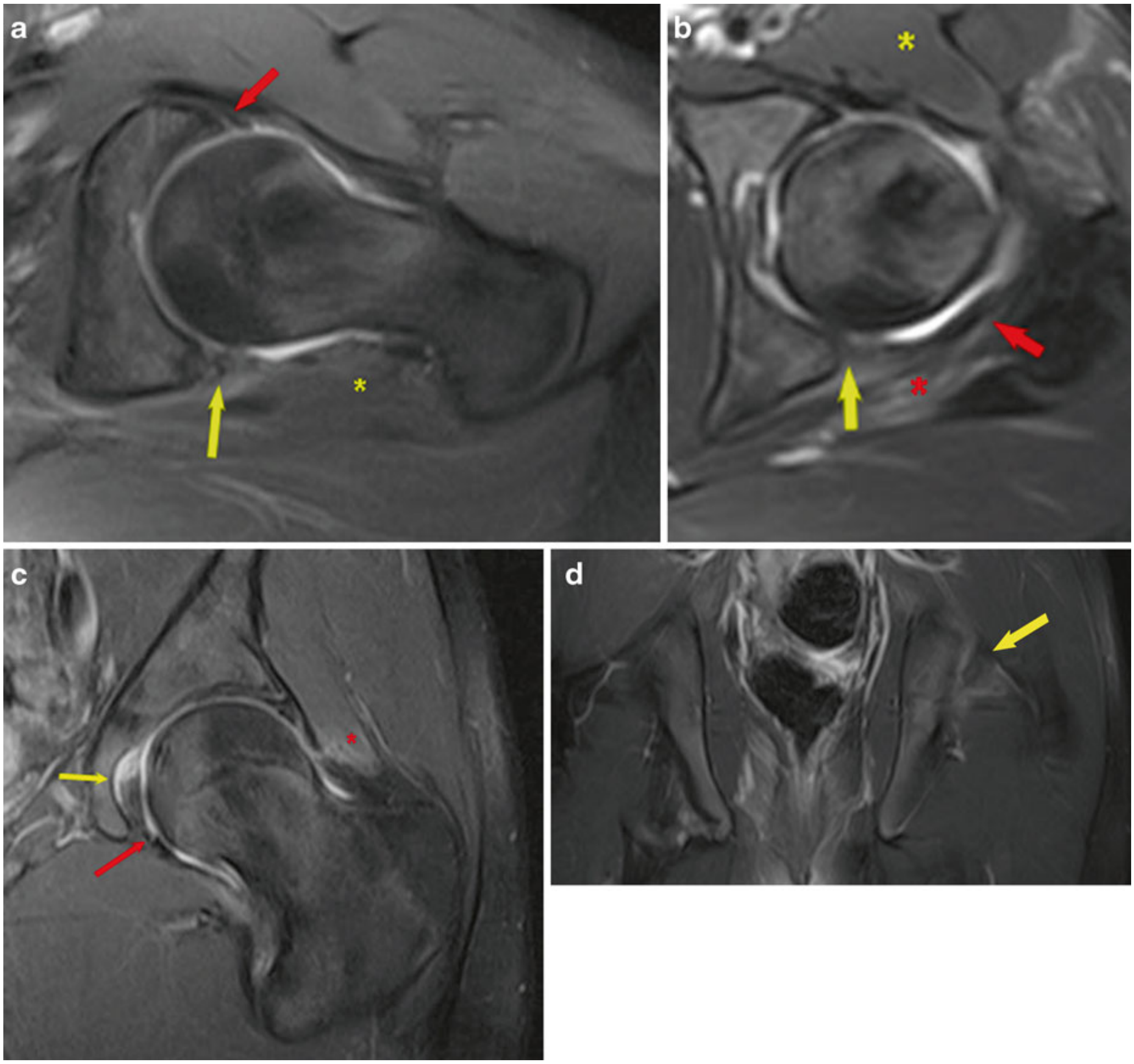

Fig. 31.5 (**a**–**d**) 3T MRI scan following left hip dislocation. (**a**) This image demonstrates a posterior labral tear with possible avulsion of the posterior acetabular wall (*yellow arrow*) along with increased soft tissue edema posteriorly (*yellow asterisk*). Partial detachment of the anterior labrum can also be seen (*red arrow*). (**b**) In this image, truncation of the posterior labrum can be seen along with irregularity or strain of the posterior capsule. Increased soft tissue edema can also be seen anteriorly and posteriorly (*red* and *yellow asterisks*) with the addition of a muscle strain (*red asterisk*). (**c**) This image demonstrates a high-grade partial tear or full-thickness tear of the ligamentum teres (*yellow arrow*). Strain of the gluteus minimus (*red asterisk*) and a mild joint effusion (*red arrow*) can also be seen. (**d**) Avulsion fracture involving the posterior acetabular wall of the left hip (*yellow arrow*)

Discussion

The femoral head should be immediately reduced in all cases of acute traumatic hip dislocations to prevent the development of avascular necrosis (AVN) [19]. Following reduction, stability should be assessed through an evaluation of passive range of motion. Stress radiography and/or fluoroscopic examination under anesthesia may be necessary in cases where physical examination reveals residual instability despite adequate closed reduction. In all patients, a postreduction CT scan of the pelvis is necessary to rule out the presence of an acetabular wall fracture, intra-articular loose bodies, and other injuries to the femoral head and/or neck. Aspiration of the joint may be necessary when significant hemarthrosis is visible on imaging studies to prevent femoral head osteonecrosis and to provide symptomatic relief [20, 21].

Following closed reduction of an acute hip dislocation, early arthroscopic intervention may also be indicated in select patients to remove intra-articular loose bodies and address other hip pathologies. However, caution should be exercised in patients with acetabular wall fractures due to the potential for leakage of arthroscopic fluid through the fracture crevasse

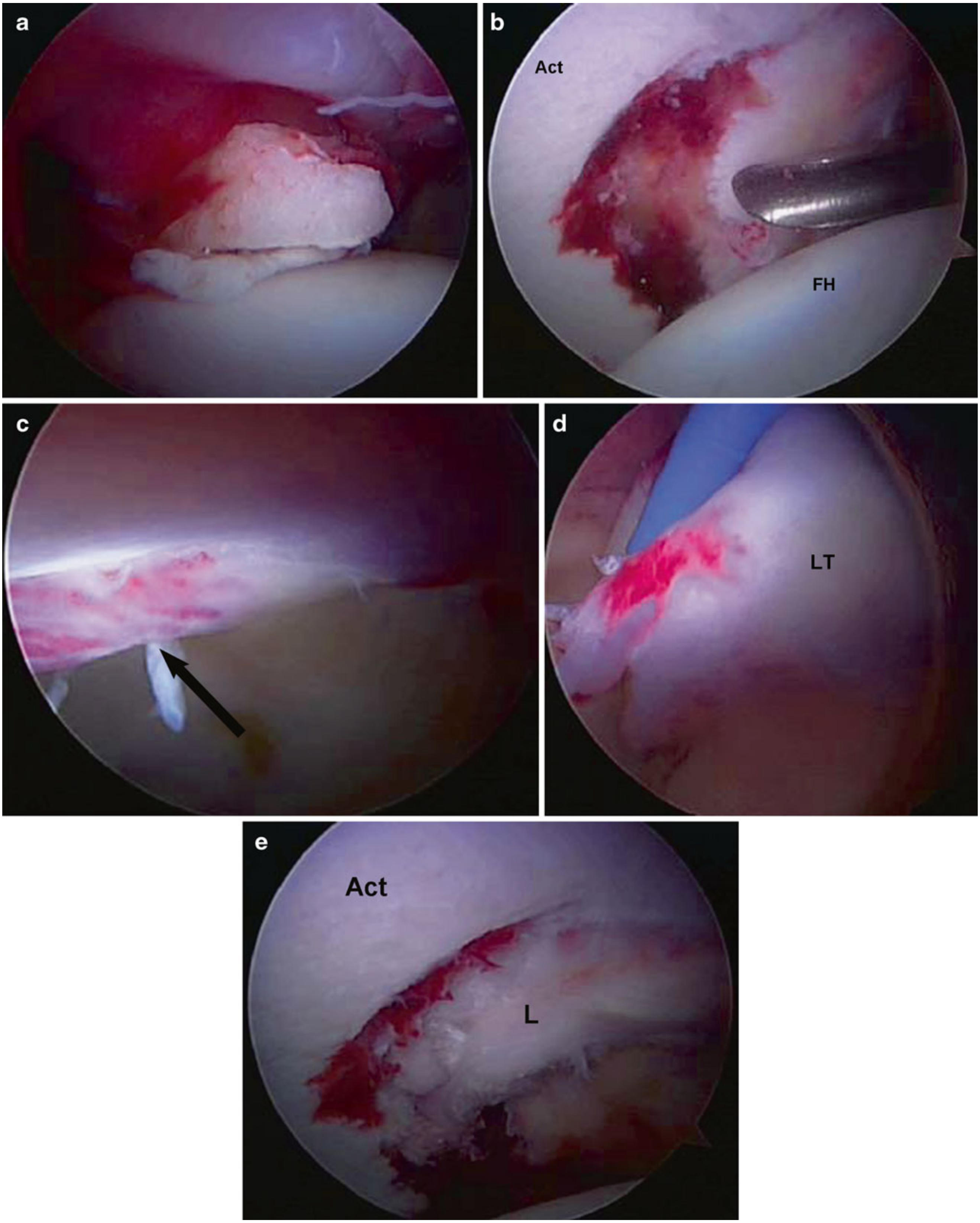

Fig. 31.6 (**a**–**e**) Arthroscopic images. (**a**) Loose bodies in the joint at the time of arthroscopy. (**b**) Cartilage damage associated with posterior acetabular rim fracture (*Act* acetabulum, *FH* femoral head). (**c**) Bruising of the anterosuperior labrum suggestive of CAM-type femoroacetabular impingement. (**d**) Torn ligamentum teres (LT). (**e**) View of acetabular rim fracture following fixation (*Act* acetabulum, *L* labrum)

and into the abdomen, especially after release of the iliopsoas tendon [22].

Open or arthroscopic suture plication techniques have been described as viable methods for the treatment of acute traumatic hip instability [23, 24]. Arthroscopic thermal capsulorrhaphy is thought to stimulate the inflammatory cascade which may enhance the volume and quality of newly formed collagen within the hip capsule, potentially improving clinical outcomes [23, 25, 26]. However, care must be taken to avoid thermal injury to articular cartilage when using this technique. In addition, acute injuries to the acetabular labrum or the ligamentum teres may also require early arthroscopic management (repair or reconstruction) to prevent painful microinstability which can lead to increased labral stress and chondral defects of the femoral head and/or acetabulum.

Cases 2 and 3: Atraumatic Hip Instability

Case 2: History/Exam

A 21-year-old female elite-level skier presented with complaints of gradually intensifying right hip pain which had begun approximately 1.5 years prior. As a result, she was forced to modify her training program in an effort to alleviate her discomfort. She eventually sought treatment by an orthopedic surgeon in her hometown who initially suggested the possibility of periacetabular osteotomy at the end of the competitive ski season. She was able to control her symptoms well enough to complete the ski season and was subsequently evaluated at our clinic. Upon physical examination, her hip was not tender to palpation and range of motion was adequate; however, flexion and adduction of the hip produced mild pain with an audible click. In addition, there was no firm end point to external rotation of her affected hip (positive dial test).

Case 2: Imaging

Standard radiographs demonstrated a center-edge angle of approximately 23° with normal joint space (Fig. 31.7). An MRI obtained 1 year prior to presentation revealed a bone marrow edema, subchondral cystic changes along the roof of the acetabulum, a mild joint effusion, and a possible labral tear, all of which appeared to be related to concomitant femoroacetabular impingement and mild acetabular dysplasia. Upon presentation to our clinic, we obtained an MR arthrogram which revealed scarring of the iliofemoral ligament, synovitis, mild trochanteric bursitis, and subcortical bone marrow edema along the anterolateral femoral head suggestive of femoroacetabular impingement (Fig. 31.8a, b). We could not definitively rule out the presence of a concomitant labral tear. The relevant findings on history, physical examination, and diagnostic imaging suggest the presence of acetabular dysplasia, capsular laxity with associated femoroacetabular impingement, and possible labral tear within the right hip.

Case 2: Arthroscopy

After the induction of general anesthesia, the right lower extremity was gently distracted to approximately 10 mm. The extremity was prepared and draped using a standard technique. Anterior and lateral viewing portals were established,

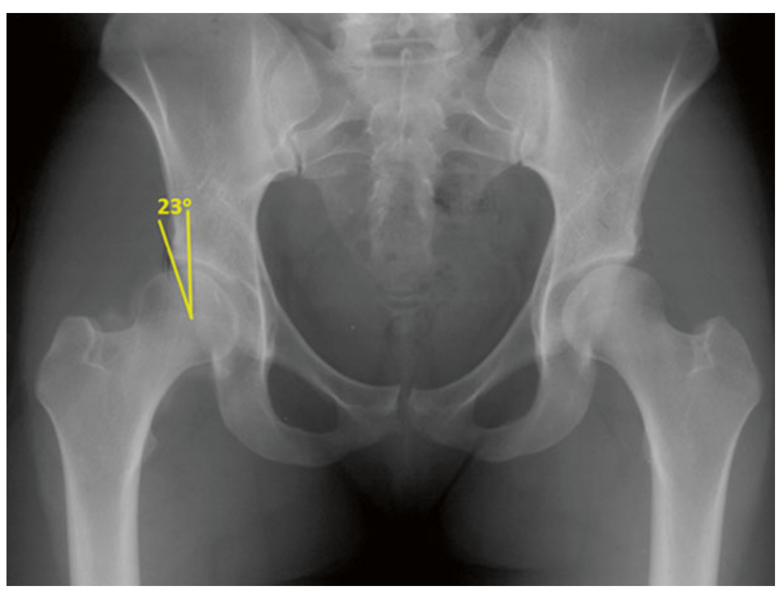

Fig. 31.7 AP radiograph showing center-edge angle of 23° and normal joint space

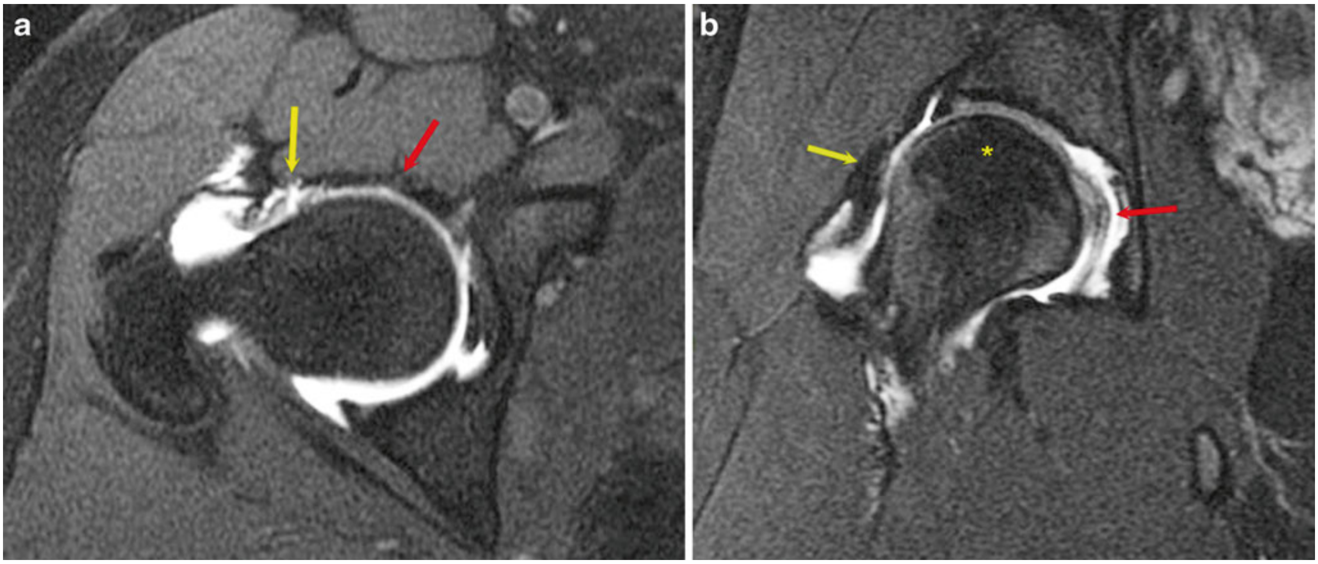

Fig. 31.8 (**a**, **b**) MRI arthrogram. (**a**) This image demonstrates irregular synovial margins consistent with synovitis (*yellow arrow*). Thickening or scarring of the anterior capsule is also visible (*red arrow*). (**b**) In this image, thickening or scarring of the iliofemoral ligament (*yellow arrow*), thickening and irregularity of synovial tissue (*red arrow*), and subchondral bone edema (*yellow asterisk*) are present

a 70° arthroscope was inserted into the joint, and diagnostic arthroscopy was performed. The anterosuperior labrum was found to be patulous with an intra-substance degenerative tear and associated synovitis. Early delamination of articular cartilage was also found near the anterior chondrolabral junction. Consistent with preoperative MRI scans, the anterior wall of the acetabulum appeared to be slightly hypoplastic with labral tearing and bruising (Fig. 31.9a, b) between the 11 o'clock and 2 o'clock positions. An additional partial-thickness tear of the ligamentum teres was found (Fig. 31.9c).

Using the combination of an arthroscopic bur and an osteotome, minimal resection of the anterosuperior acetabular rim was performed to alleviate the previously identified pincer-type impingement resulting in labral delamination and intra-substance tearing. Reattachment of the anterosuperior labrum was performed using three suture anchors. The partial-thickness tear of the ligamentum teres was debrided back to healthy, stable ligament tissue.

Attention was then turned to the peripheral compartment where an obvious bump was identified at the head–neck junction (Fig. 31.9d). After identification and protection of the lateral vessels, an osteoplasty was performed using an arthroscopic bur between the 8 o'clock and 12 o'clock positions at the location of the pincer lesion. Additional bruising and early chondral changes were noted on the femoral head at the site of impingement, and debridement was performed when possible.

At this point, dynamic examination was performed under direct visualization which revealed excellent seal in flexion, extension, abduction, adduction, and internal and external rotation. However, there was some joint laxity with deep flexion. Due to this finding, subsequent suture plication with two #2 high-strength sutures was performed. Dynamic examination was again performed which demonstrated a good end point to external rotation at 45° and excellent labral fixation both before and after the release of traction. Despite the presence of a hypoplastic anterior acetabulum, the femoral head was found to be well contained within the acetabulum after labral repair. The arthroscopic instruments were removed and the portal sites were closed using a standard technique.

Case 3: History/Exam

A 20-year-old female with a history of multiple previous surgeries related to ligamentous laxity presented with a continuation of her right hip pain and loss of motion. She had been diagnosed with Ehlers–Danlos syndrome type III. During the previous year, she underwent arthroscopic debridement of the anterosuperior labrum and an open iliopsoas tendon lengthening procedure on her affected hip at another institution. None of these interventions had provided symptomatic relief, and therefore, the patient sought further treatment at our clinic. On physical examination, passive flexion of her unaffected left hip was approximately 140°, abduction was 70°, adduction was 30°, internal rotation was 20°, and external rotation was 50°. Her right hip had decreased range of motion when compared to the unaffected side. Specifically, passive flexion was 105°, abduction was 45°, adduction was 30°, internal rotation was 20°, and external rotation was 40°. She has pain with flexion, abduction, and adduction. The dial test was negative; however, she had positive impingement signs.

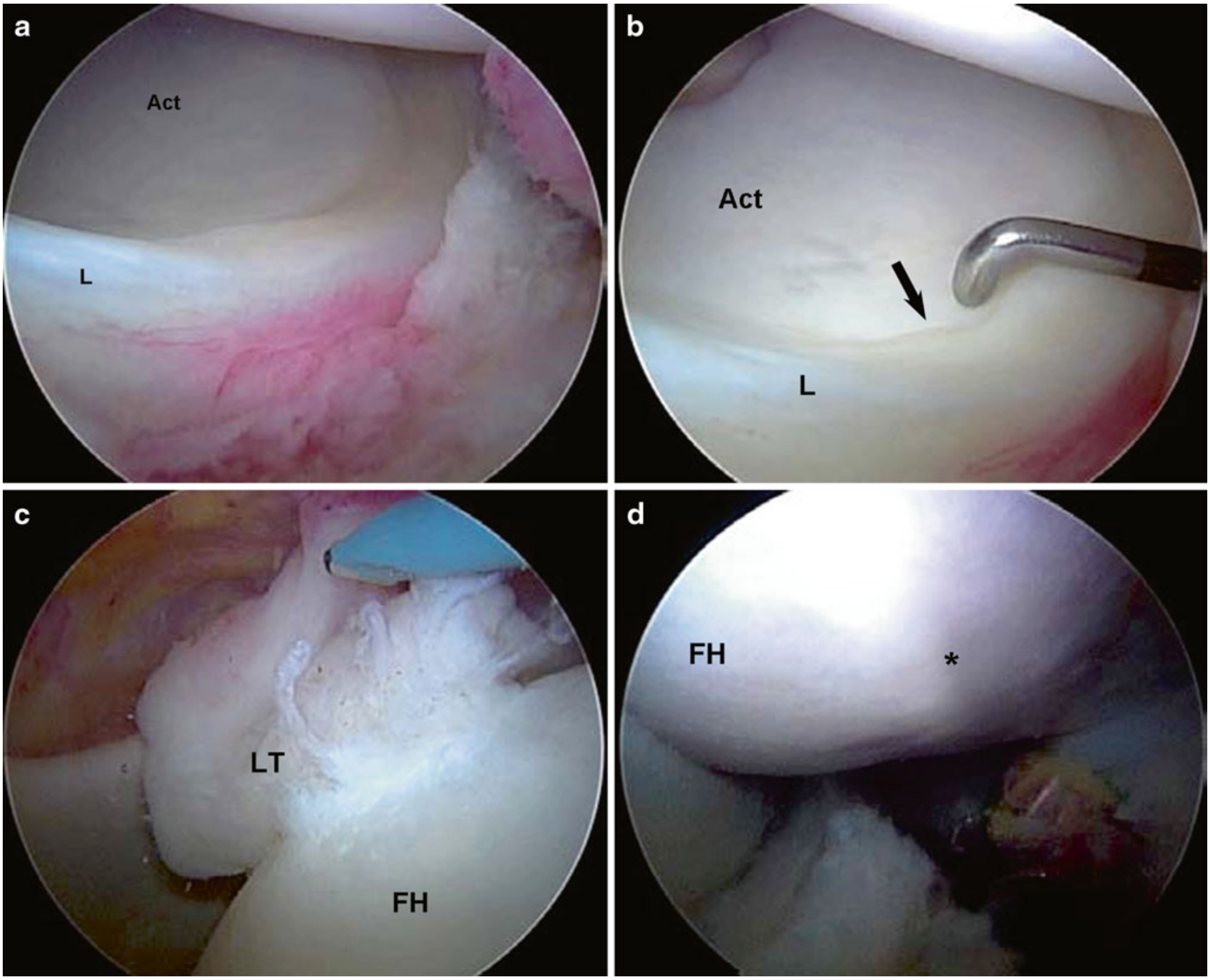

Fig. 31.9 (**a**–**d**) Arthroscopic images. (**a**) Labral bruising associated with FAI (*L* labrum, *Act* acetabulum). (**b**) Labral tear (*arrow*) at the chondrolabral junction (*Act* acetabulum, *L* labrum). (**c**) Torn ligamentum teres (LT) (*FH* femoral head). (**d**) "Bump" (*asterisk*) on femoral head (FH)–neck junction causing cam impingement

Case 3: Imaging

AP and lateral radiographs of the pelvis and right hip, respectively, demonstrated joint space preservation, a center-edge angle of 31° and an alpha angle of 54° (Fig. 31.10a, b). Subsequent MR arthrogram revealed partial detachment of the lateral and posterolateral chondrolabral junction and mild trochanteric bursitis (Fig. 31.11a–c).

The relevant findings on history, physical examination, and diagnostic imaging suggested the presence of a clinically significant posterolateral labral tear and femoroacetabular impingement in the setting of multiligamentous laxity.

Case 3: Arthroscopy

Following the induction of general anesthesia, the patient was placed supine on the operating table, the operative extremity was prepared and draped using standard technique, and the hip was distracted to approximately 10 mm. Anterior and lateral portals were established, and a 70° arthroscope was introduced into the joint. Diagnostic arthroscopy revealed evidence of capsular adhesions (Fig. 31.12a), severe posterosuperior labral deficiency (Fig. 31.12b), and a partial-thickness tear of the ligamentum teres (Fig. 31.12c). Following debridement of the capsular adhesions, it was

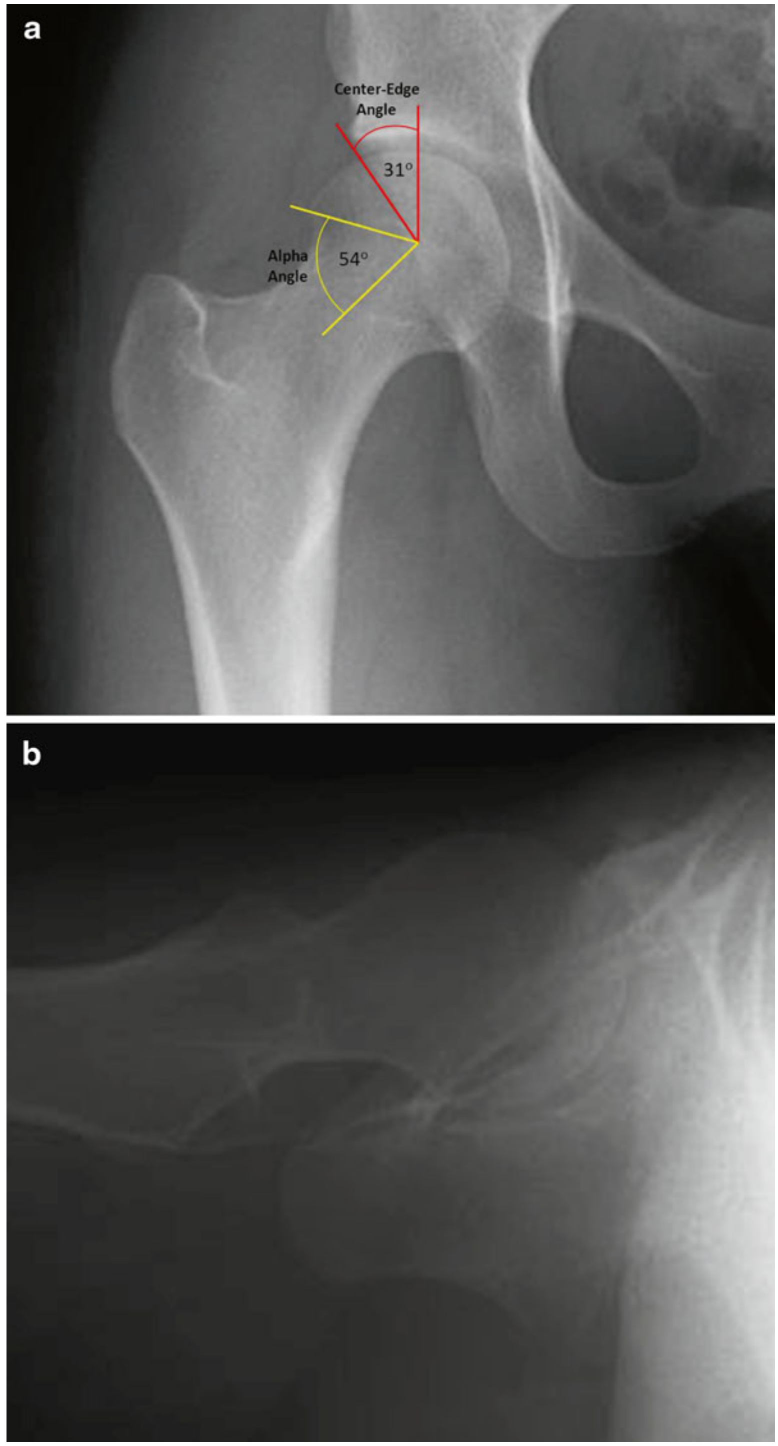

Fig. 31.10 (**a**) AP radiograph of the right hip demonstrates a center-edge angle of 31° and an alpha angle of 54°. (**b**) Cross-table lateral radiograph of the right hip shows maintenance of adequate joint space

decided that labral reconstruction with autograft was necessary. The ITB graft was prepared and was approximately 4 cm in length and 8 mm in width. An osteochondroplasty was performed at the site of cam impingement, and resection of a pincer lesion was performed using a motorized bur.

The autograft was then inserted, positioned, and secured within the joint using six suture anchors (Fig. 31.12d). A single 2-0 suture was additionally placed at each graft–labrum junction. This recreated an excellent seal between the femoral head and acetabulum (Fig. 31.12e). Using a motorized shaver and gliding probe, chondroplasty was performed at the location of a grade 3 chondral lesion. Synovectomy was also performed anteriorly, centrally, and peripherally while protecting the lateral vessels.

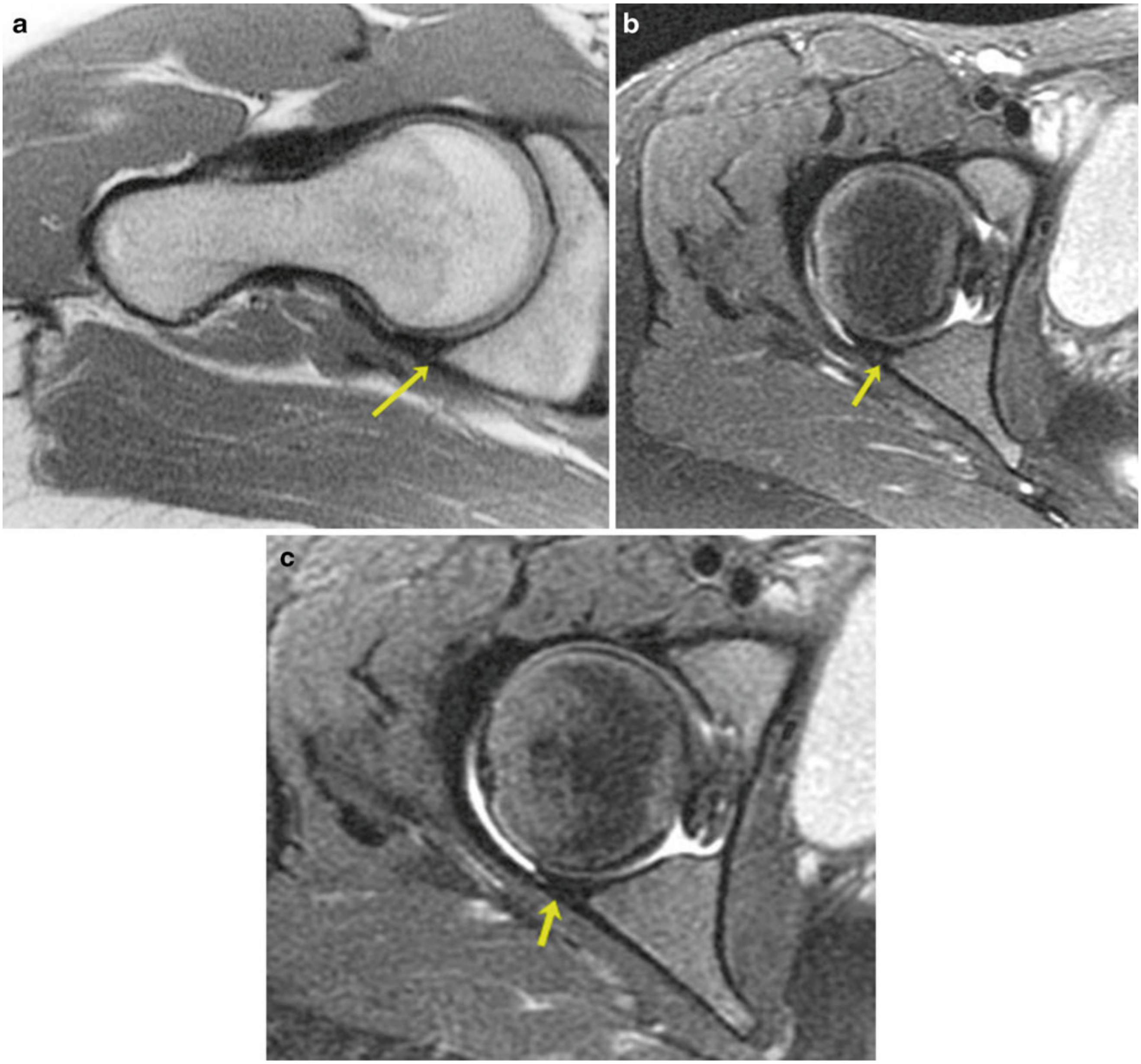

Fig. 31.11 (**a**) This *image* shows mild irregularity of the posterior labrum suggesting a possible tear (*yellow arrow*). (**b**) This axial image demonstrates detachment of the posterior labrum near the chondrolabral junction (*yellow arrow*). (**c**) Subsequent axial image also shows posterior chondrolabral detachment (*yellow arrow*)

Dynamic examination was then performed under direct visualization which demonstrated relief of impingement with adequate range of motion; however, there was still evidence of significant capsular laxity. Due to this, thermal capsulorrhaphy was performed medially followed by anterior capsular plication with interrupted 2-0 sutures. The arthroscopic instruments were then removed and the portal sites were closed using a standard technique.

Cases 2 and 3: Discussion

In most patients with atraumatic instability, initial nonoperative treatment is typically undertaken which includes activity modification and a course of supervised physical therapy to strengthen surrounding musculature. An intra-articular injection of local anesthetic using fluoroscopic or ultrasonographic guidance may also provide some symptomatic relief [27, 28].

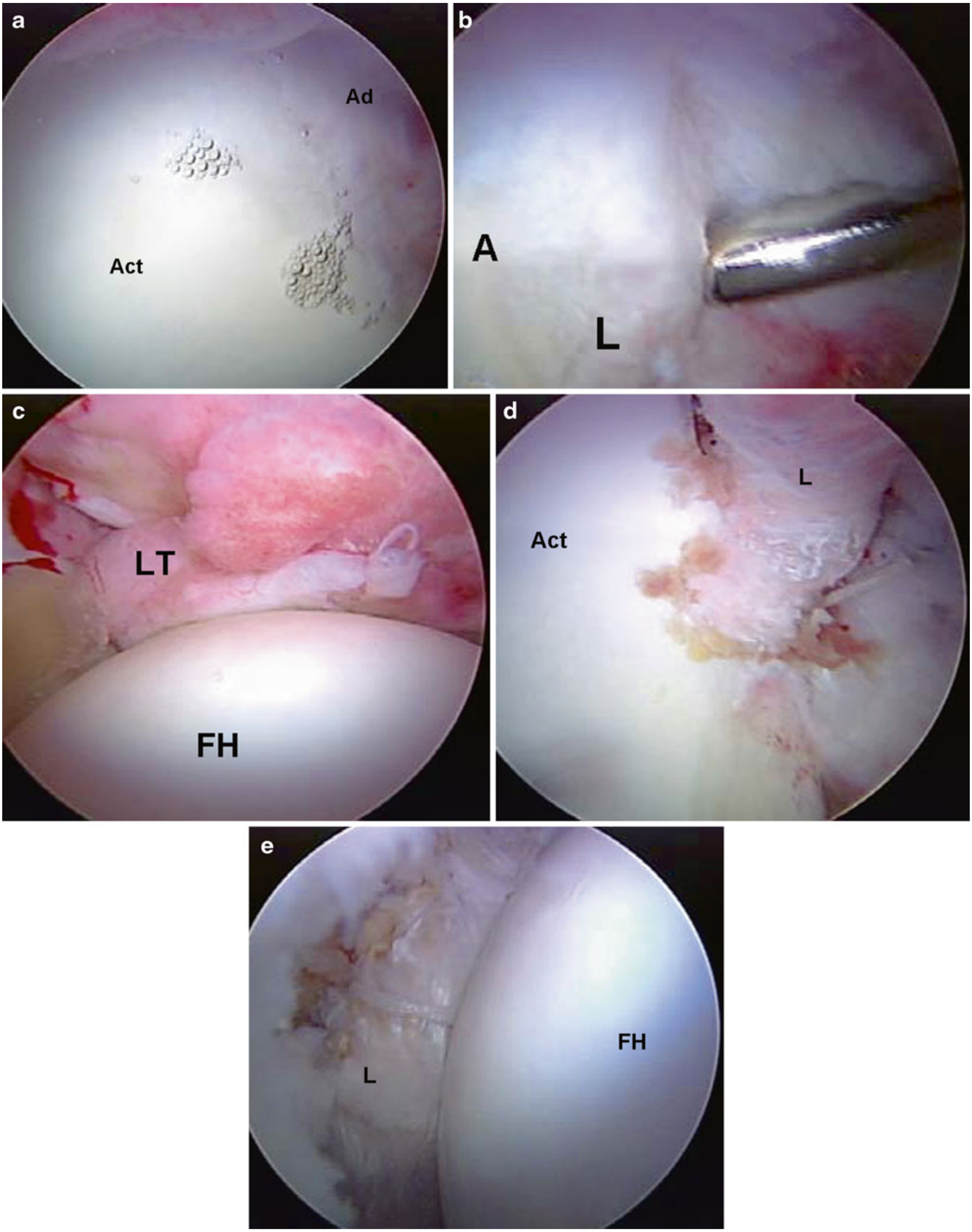

Fig. 31.12 (**a**–**e**) Arthroscopic images. (**a**) Capsulolabral adhesions (Ad) (*Act* acetabulum). (**b**) Small labrum (L) with capsulolabral adhesions (*A* acetabulum). (**c**) Torn ligamentum teres (LT) (*FH* femoral head). (**d**) Labral ITB graft inserted into a joint and attached to the acetabular rim. (**e**) On dynamic exam, the seal is recreated between the labrum (L) and the femoral head (FH)

Surgical intervention may be performed when conservative measures fail to provide symptomatic relief, especially in cases where genetic predisposition for capsular laxity is present or in cases where clinical evidence of joint hypermobility exists. Additionally, relief of symptoms following intra-articular injection of local anesthetic may also be an indication for surgical treatment [22]. Patients with labral pathology are also likely to benefit from arthroscopic debridement, repair or reconstruction with or without suture plication, or thermal capsulorrhaphy [22, 29].

The role of arthroscopic management in patients with evidence of acetabular dysplasia is currently under debate. Current evidence suggests that arthroscopy may be preferable in cases of borderline dysplasia owing to satisfactory clinical outcomes [30–32], whereas open periacetabular osteotomy or proximal femoral osteotomy may be preferable in cases of severe dysplasia with a low center-edge angle [33–35].

Conclusion

Despite its osseous congruity and inherently stable architecture, the hip joint can become unstable as a result of numerous potential etiologies, most of which are categorized as either traumatic or atraumatic. Early arthroscopic management is often indicated in cases of traumatic instability where intra-articular loose bodies, fractures of the acetabulum, and/or labral tears are visible on initial diagnostic imaging studies. In contrast, arthroscopy in patients with atraumatic instability is most often indicated after an appropriate course of nonoperative therapy fails to result in symptomatic improvement. Regardless of the etiology, preliminary clinical outcomes following hip arthroscopy have been favorable and its role in the management of patients with instability is becoming more clearly defined.

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