Complications of arthroscopy of the hip
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Although arthroscopy of the hip is being carried out increasingly, little is known about the rate of associated complications. We describe a prospective study of 640 consecutive procedures in which a consistent technique was used. The overall complication rate was 1.6%. Complications, none of which was major or long-term, included transient palsy of the sciatic and femoral nerves, perineal injury, bleeding from the portal wounds, trochanteric bursitis and intra-articular breakage of the instrument. We believe that it is possible to undertake this operation safely using the technique described.

Received 11 May 1998; Accepted after revision 13 October 1998

Surgeons are increasingly using arthroscopy of the hip to investigate and treat disorders such as early osteoarthritis, inflammatory arthritis, labral tears, paediatric hip disease and loose bodies within the joint.

Various techniques have been described, with the patient in a lateral or supine position, with or without hip distraction, and with various portals.

Although few authors have discussed the complications, our impression is that many surgeons perceive it to be a risky procedure. This is probably because the hip is a highly constrained joint which requires distraction before its intra-articular part can be seen. Even then the restricted space makes it difficult to manipulate instruments and the arthroscope within the joint. A thick envelope of soft tissue, including neurovascular structures which may be damaged when an arthroscope or instrument is inserted, surrounds the hip. An editorial comment in 1987 described hip arthroscopy as a procedure “technically difficult, fraught with some danger, which should be attempted only by the most experienced arthroscopic surgeon”. In this study we describe the operative technique and the complications encountered in the largest single series of arthroscopies of the hip so far reported.

Patients and Methods

Between 1990 and 1997, we performed this operation on 640 patients, 253 men and 387 women. Most (72%) were between 20 and 50 years of age. Their mean age was 37 years (6 to 78). Undiagnosed hip pain, with which 49% of the patients presented, was the most common indication. Other indications were early osteoarthritis (21%), removal of loose bodies (10%), suspected labral tears (7%) and assessment of dysplasia (6%). Further conditions included avascular necrosis, synovial chondromatosis, synovitis, osteochondral defects and septic arthritis.

Information was collected prospectively for all patients including the preoperative history, the results of clinical and special investigations, intraoperative findings and procedures, perioperative complications and the outcome at intervals after surgery, for which a modified Harris hip score (HSS) was used.

Operative technique. All arthroscopies were carried out under general anaesthesia with the patients in the lateral position. Traction was applied through a boot strapped to the ipsilateral foot with a sling supporting the leg (Fig. 1). A well-padded perineal bar under the proximal thigh provided a lateral force so that the vector of the applied traction ran approximately parallel to the femoral neck. With an image intensifier providing an anteroposterior view of the hip, traction was applied until a vacuum sign was just visible. The required loading, measured by a force cell incorporated into the traction device, was between 200 N and 300 N. After this ‘trial of traction’, the force was released for up to 15 minutes while the surgeon scrubbed up and the patient was prepared and draped.

The predetermined traction force was restored and a fine spinal needle inserted into the hip under image intensification. The joint was distended with up to 20 ml of normal saline, after which the needle was replaced by a 17-gauge spinal needle inserted through the supratrochanteric portal, approximately 2 cm proximal to the tip of the greater trochanter. A flexible guidewire was inserted through the needle,
and an arthroscope cannula with cannulated sharp and then blunt trochars inserted over this. The surgeons were careful to avoid damage to the articular surface of the femoral head or acetabulum. Arthroscopy was carried out using a 70° arthroscope and, occasionally, a 30° instrument. Flow of fluid through the joint was maintained with a constant pressure of up to 150 mmHg. When necessary, a working cannula was inserted, in the same way as the arthroscope, through a portal 2 or 3 cm anterior or posterior to the initial supratrochanteric portal. At the end of the procedure the joint was thoroughly washed out and infiltrated with 0.5% bupivacaine. The wounds were covered with small adhesive dressings but not sutured. The patients were discharged home on crutches, usually within 24 hours. All patients were followed up for four to six weeks after surgery.

**Results**

We identified ten complications in 640 consecutive hip arthroscopies. Three patients developed transient palsy of the sciatic nerve. All three had the arthroscopy during the same operating session suggesting that there was a technical error, probably in the application of traction. The weakness of dorsiflexion which developed resolved completely over the next few hours. One patient developed transient palsy of the femoral nerve which recovered within six hours. Another sustained a small vaginal tear, probably the result of excessive lateral force by the perineal bar. This healed spontaneously.

Several weeks after arthroscopy one patient developed trochanteric bursitis, which responded to local injection of steroid into the bursa. Another bled from an arthroscope portal; this was controlled by superficial pressure and stopped spontaneously after two days. There was no bleeding diathesis, and we concluded that a superficial vein had been injured during the procedure. One patient had a haematoma around a portal wound, which resolved after two weeks. A fragment of the tip of the 70° arthroscope broke off within the joint of one patient during the arthroscopy, but was immediately removed with grasping forceps. In another an arthroscopy forceps broke during extraction of an osteochondral loose body. The latter was subsequently removed, but the irretrievable broken jaw of the instrument was pushed into the cotyloid fossa. Subsequent radiographs show that the metal fragment has remained in this site, and the patient has had no further problems.

There was no clear pattern in the occurrence of complications, and no evidence of a ‘learning curve’ related to their incidence. Overall, the rate of these minor complications was 1.6%. We came across no major complications; in particular, there were no infections or persistent nerve palsies.

**Discussion**

As arthroscopy of the hip becomes more common, surgeons are reporting the benefits of the procedure. It is appropriate to consider the associated risks. Complications fall broadly into two groups linked either with traction or with the arthroscope and other instruments.

Arthroscopy without traction has been limited to the evaluation of the extra-articular area of the hip.\(^9,10\) Traction
makes it possible to use the arthroscope and instruments within the joint itself. Eriksson, Arvidsson and Arvidsson described the traction forces necessary to distract the hip, while Byrd and Chern quantified the relative contributions of traction and distension by fluid in achieving sufficient space for arthroscopy.

Several authors have described complications which are probably due to traction. Glick found eight cases of neurapraxia in 60 hip arthroscopies. The pudendal nerve was affected in four and the sciatic nerve in the others, but all recovered fully. In 19 consecutive hip arthroscopies Funke and Munzinger reported one case of neurapraxia of the pudendal nerve, which recovered completely within three weeks. Byrd had two cases of palsy of the pudendal nerve in 20 consecutive hip arthroscopies. These also resolved in a week or so. In a series of 24 arthroscopies carried out in children and young adults, Schindler also resolved in a week or so. In a series of 24 arthroscopies the pudendal nerve in 20 consecutive hip arthroscopies. These probably due to traction. Glick found eight cases of complications which are probably due to traction. Glick's study of complications associated with arthroscopy of the hip showed that extravasation of fluid from the hip led to abdominal bleeding, infection or septic arthritis have been reported.

Development of the technique which we describe, including the ‘trial of traction’, took into account methods which had been described previously and their associated problems. The technique has a low rate of complications, and in our series these were both minor and transient. We believe that hip arthroscopy can be carried out safely.

The authors are grateful to Sue Harris (Clinical Audit Department, Addenbrooke’s Hospital) and Andrea Clarke (Cambridge Hip and Knee Unit) for their help in collating data, and to Emma Griffin for typing the manuscript. No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

References


