KEYHOLE SURGERY FOR THE HIP

Hip arthroscopy is the term used for keyhole surgery of the hip. It is a surgical procedure that has been around over the past twenty years, but has only recently gained popularity due to advancement in surgical techniques and a wider understanding of hip pathology.

Hip arthroscopy is a minimally-invasive procedure used to evaluate and treat certain disorders of the hip. It is the alternative to open surgery where longer recovery periods are expected with an increased risk of infection and morbidity. Hip arthroscopy has also helped in offering a treatment for conditions that previously went unrecognised including labral tears, chondral injuries and ligamentum teres disruptions.

**ANATOMY OF THE HIP JOINT**

The hip is a ball (femoral head) and socket (acetabulum) joint. The socket consists of a bony part (acetabulum) which is surrounded by a thick soft tissue rim, which is known as the labrum. The femoral is connected to the acetabulum via the ligamentum teres. The acetabular labrum is horseshoe-shaped and the ends are connected by the transverse ligament. The hip joint is surrounded by the capsule, a thick soft tissue mantle.

The function of the labrum is to increase stability and to decrease the consolidation of the articular cartilage. With a deficient labrum the suction seal on the femoral head decreases and the lateral movement of the head also increases.

The hip capsule is reinforced with thick ligaments that also contribute to the stability of the hip.

**HIP ARTHROSCOPY**

In our hospital the procedure is currently performed on an in-patient basis with 1 overnight stay. Patients receive a combined general and locoregional anaesthetic. Hip arthroscopy can be done in a supine or lateral position. In order to be able to access the hip, the joint has to be distracted. Small incisions are made in the patient's hip area and a camera lens is inserted through these holes so that the surgeon may visualise the inside of the patient's hip joint. The visible area of the hip consists of two compartments: a central and a peripheral compartment. The central compartment is the area of the hip that contains cartilage and is the space between the ball and socket. Cartilage lesions and labral tears in this compartment can be visualised and treated. The peripheral compartment is the area of the femoral neck and the hip capsule.

Although hip arthroscopy is recognised as a fairly safe procedure complications can occur, but the majority of these only have a temporary effect. Complications can be divided in 3 groups.

- Complications due to positioning. Sciatic nerve or femoral nerve injuries can occur due to prolonged traction. Pressure sores and pudendal nerve problems can occur due to direct pressure in the perineal area.
- Operative complications. Portals to access the joint are made in a safe zone but even then there is a small risk to inadvertently damage the lateral femoral cutaneous nerve. There is also a risk to damage the labral and articular cartilage when entering the joint.
- Post operative complications. Infection and DVT are complications but not specific for hip arthroscopy. Avascular necrosis of the femoral head, femoral neck fracture and heterotopic osification can potentially occur. Adhesions of the capsule can occur and to prevent this an exercise programme is started immediately.

**INDICATIONS FOR HIP ARTHROSCOPY**

The number of indications for hip arthroscopy is constantly expanding. The recognition of new conditions such as femoro acetabular impingement but also improvement of surgical techniques and equipment has led to an explosion of hip arthroscopy.

The diagnosis of a hip condition can be difficult and differential diagnosis with other conditions causing hip pain is important.

**FEMOROACETABULAR IMPINGEMENT**

Femoro acetabular impingement (FAI) is a newly recognised condition and occurs from a combination of abnormalities of the femoral neck/head and/or the acetabulum. It is a common condition and its prevalence ranges between 10
and 15%. FAI is frequent in men and women under 40.

There are three types of deformity: CAM, pincer and a mixed form. The anatomical deformity seen in a hip with FAI can be a bump (known as a CAM deformity) on the femoral neck, which impinges on the acetabulum when the hip is flexed and internally rotated.

Acetabular deformity can also occur causing over-coverage of the femoral head (pincer).

---

**FIG SHOWS A SMALL CAM DEFORMITY**

Impingement can then be caused by jarring of an abnormally-shaped femoral head into the acetabulum ring in forceful flexion and internal rotation or as a result of contact between the acetabular rim and femoral head/neck junction. As a result of this delamination (separation) of the articular cartilage and a labral tear can occur. There is growing scientific evidence that FAI is a precursor of osteoarthritis. Early detection and treatment of this condition can potentially delay the need for hip replacement. In idiopathic osteoarthritis cartilage lesions are first on the femoral head whilst in FAI cartilage lesions first occur on the acetabulum. Plain radiographs of the pelvis combined with a cross table view help to diagnose this condition.

---

**ARTICULAR CARTILAGE LESIONS**

Articular cartilage lesions are usually combined with other conditions such as femoro-acetabular impingement, instability, but can be the result of trauma. Traumatic cartilage lesions are usually focal, and the flap tear can cause symptoms of locking and clicking of the hip. Cartilage lesions associated with FAI are usually in the anterosuperior aspect of the acetabulum and can be partial or full thickness. Isolated cartilage lesions can be treated with a resection of the flap tear and microfracture, which involves making small holes through the surface layer of bone (subchondral bone) to increase blood flow from deeper, vascularised bone and help stimulate cartilage growth. Following this procedure patients are advised to use crutches and to remain partial weight bearing sometimes up to 8 weeks with larger cartilage lesions. When the cartilage loss is more generalised microfracture is usually not effective.

---

**OSTEOARTHRITIS**

Arthroscopy can be used in the treatment spectrum for OA but less good results can be expected with 25-50% of the patients having no improvement or worsening of their condition.

---

**LABRAL TEARS**

Labral tears can occur acutely as a result of trauma or over a longer period of time due to naturally-occurring wear and tear (degenerative-type tears). Labral tears can be classed as post-traumatic, degenerative, or as a result of femoro-acetabular impingement, acetabular dysplasia or instability of the hip joint.

---

**INSTABILITY**

Instability of the hip can have a traumatic and a traumatic cause. Fairly classic is the dashboard injury, where the patient sits in his car with the hip flexed and the knee is jammed against the dashboard.
causing the hip to dislocate posteriorly. Atraumatic laxity can occur with collagen disorders such as Marfan disease and Ehlers Danlos and is usually not limited to the hip joint. Global ligamentous laxity can also occur with Developmental dysplasia of the hip (DDH). A newly recognised type of instability is the focal rotational type. This condition is common in sports such as golf, tennis. Instability can be associated with labral tears. Instability of the hip can be assessed clinically with specific tests but also assessing hyperlaxity of other joints to exclude a collagen disorder. The iliofemoral ligament resists extension and external rotation and is usually affected with a focal rotational instability. Treatment consists of an arthroscopic capsular plication or capsular shrinkage. Capsular shrinkage consists of heating of the hip capsule with a thermal probe.

LIGAMENTUM TERES PATHOLOGY
Ligamentum teres rupture has historically been associated with a dislocation of the hip. It has been recognised that injury can occur without dislocation. Disruption appears to be attributable to a twisting injury and can be a cause of intractable hip pain. MRI arthrogram can pick up ligamentum teres pathology. Arthroscopic treatment consists of resection the unstable flaps of the torn ligament.

SYNOVITIS
Hip arthroscopy can be used in treatment of synovial disease. Arthroscopic synovectomy can be performed in conditions such as rheumatoid arthritis, pigmented villonodular synovitis, synovial chondromatosis.

CONCLUSION
Hip arthroscopy is a technique that has evolved tremendously in the past few years, with a significant expansion of the number of conditions it can now treat. Improved techniques and equipment will further popularise hip arthroscopy and long term outcome studies will become available in next few years to show its efficacy.

REFERENCE:

