DISCLAIMER

This movie is an educational resource only and should not be used to make a decision on Periacetabular Osteotomy. All decisions about surgery must be made in conjunction with your surgeon or a licensed healthcare provider.
### MULTIMEDIA HEALTH EDUCATION MANUAL

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INTRODUCTION

The hip joint is a ball and a socket joint where the ball shaped head of the femur articulates with the acetabulum of the pelvic bone. The edge of the socket is lined with cartilage to form a rim around it called the labrum. The labrum deepens the socket providing more stability to the joint.

The articulating surfaces of both the head of the femur and the acetabulum are covered with cartilage. Cartilage is a tough but flexible tissue that allows two bones to move over each other smoothly without friction. (Refer fig. 1)

Hip dysplasia is a congenital hip condition where patients have either a shallow acetabulum (Acetabular dysplasia) or an abnormality in the shape of the upper portion of the femur. This causes symptoms of limping, waddling or walking on their toe. (Refer fig. 2)

Hip Dysplasia progressively leads to premature degeneration of the cartilage of the hip joint and may cause a rim fracture or labral tear. Patients usually start experiencing pain in the groin region at 20 to 30 years of age. (Refer fig.3)

DIAGNOSIS

Based on the patient’s medical history, symptoms and physical examination, the doctor may suspect hip dysplasia. The diagnosis is confirmed by an X-ray of the hip joint. An MRI scan may be ordered to check the condition of the labrum. (Refer fig. 4)
Initial treatment is aimed at managing the symptoms of pain and inflammation. Hip Dysplasia can only be treated surgically by either periacetabular osteotomy or total hip replacement. If left untreated it leads to progressive arthritis with increasing pain and progressive loss of hip function. **(Refer fig. 5)**

The procedure is performed under general anesthesia with the patient lying on their back. An incision is made over the hip joint. The acetabulum is cut completely from the rest of pelvis using a surgical saw. The fragment of the bone containing the acetabulum is then rotated to a new position so that it covers the head of the femur more naturally. It is then fixed in the new position by inserting screws into the bone. The incision is closed with sutures and surgical staples. **(Refer fig. 7)**

**SURGICAL PROCEDURE**

Periacetabular osteotomy is a technically challenging surgery and is therefore done under Fluoroscopy to provide the surgeon with continuous live X-ray guidance. **(Refer fig. 6)**

Sometimes cutting and repositioning of the femoral head may be needed but is not known until during the operation. If necessary, this procedure, called a femoral osteotomy, will be done at the same time but does require another separate incision. **(Refer fig. 8)**
RISKS AND COMPLICATIONS

Periacetabular osteotomy is a relatively safe surgery however complications can occur and may include lack of healing of the involved bones, wound infection, deep vein thrombosis (blood clots in large veins mainly of leg), nerve damage and pulmonary embolus (blood clots traveling to the lungs).  (Refer fig. 9)

ADVANTAGES

Periacetabular Osteotomysurgery has several advantages for young patients with dysplastic hip over a total hip replacement (THR) surgery.

- Patients who undergo total hip replacement have hip restrictions to follow to avoid dislocation of the artificial joint. Patients who undergo periacetabular osteotomy have no such restrictions and can have an active life as much as their joint allows without fear of dislocation.  (Refer fig. 11)

POST OPERATIVE CARE

After surgery, pain and anticoagulant medications are given. Crutches are to be used for the first 6 weeks to prevent full weight bearing on the operated hip until it has healed. X-rays are taken 2 to 3 days after the surgery to confirm the new position of the acetabulum. Physical therapy is started as soon as possible after the surgery to strengthen the hip muscles and improve hip function. Full recovery after the surgery takes around 4 months.  (Refer fig. 10)
• A natural joint is better than an artificial joint as the natural bone is preserved. Artificial implants can wear out with use and time. Moreover there is a small risk of release of metal ions from the artificial hip joint which could pose a risk to the fetus of women in child bearing age.  

(Fig. 12)

• Periacetabular osteotomy is done in young patients who would likely outlive the life of an artificial implant. As a result, revision surgery would be needed at a later date which has a higher complication rate. However, THR can be done after periacetabular osteotomy if the need arises.  

(Fig. 13)

• Full sensations of the hip joint are retained in periacetabular osteotomy as compared to THR where the natural bone is lost to artificial material implant.  

(Fig. 14)
Summary

Periacetabular osteotomy is a joint preserving hip surgery to treat hip dysplasia, a condition of abnormal hip development that can lead to pain and arthritis in young adults. It is the treatment of choice over total hip replacement for the young adult patient and has good outcomes in the majority of cases.