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قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بالرسالة صفحات
لم ترد بالأصل

Management of dislocated Total hip Replacement

An Essay

Submitted for Partial Fulfillment
of Master Degree in

Orthopedic Surgery

By

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On these papers I am going to discuss the problem of dislocation of the prosthetic hip after the operation of total hip replacement (THR), how and why it happens and the ways to treat it and prevent it form happening. Depending on the some field the new papers published on the international net work, also the recorded results, collected from the work of other orthopedic surgeons.

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Introduction

INTRODUCTION

Total hip arthroplasty is one of the most successful orthopedic procedures performed today for patients with hip pain due to variety of conditions; total hip arthroplasty can relieve pain, restore function and improve quality of life ***(Shalte and Callahan 1998).***

The normal hip functions as a "ball and socket" joint. The femoral head (ball) articulates with the acetabulum (socket), allowing smooth range of motion in multiple planes. Any condition affects either of these structures can lead to deterioration of the joint. This in turn, can lead to deformity, pain and loss of function ***(Shalte and Callahan 1998).***

The most common condition affecting the hip in this way is osteoarthritis. Other conditions include; inflammatory arthritis (rheumatoid arthritis, psoriatic arthritis, spondyloarthropathies, etc.), developmental displasia, childhood hip disorders (Leg-Calve-Perthes disease, slipped capital femoral epiphysis, etc.), trauma, neoplasms and osteonecrosis ***(Berry 1999).***

Total hip replacement evolved as a result of the many improvements in the femoral head prosthesis design, the availability of suitable materials and manufacturing techniques for the component, and a better understanding of the hip mechanics ***(Seth S. Leopold 2005).***

The first serious and systemic attempt to design a prosthetic femoral head initiated by the **Judet** brothers in 1946. They used head-cured acrylic femoral head prosthesis. The main problems were fracture of the stem and fragmentation of the acrylic with wear resulting in severe tissue reaction, including bone destruction (Seth S. Leopold, M.D 2005).

In 1950, **Moore** and **Thompson** independently produced their straight and curved metallic prosthesis.

They depended on press-fit and produced varying degrees of absorption of the femur. However, it was the erosion of bone on the pelvic side that brought attention to the need for resurfacing the acetabulum (Seth S. Leopold, M.D 2005).

Mckee in 1956 introduced the metal-on-metal prosthesis for clinical use, with a large head diameter (40 millimeters). From 1956 to 1960 he reported 54% success rate, and revision was required mainly because of loss of fixation. In 1958, Sir **John Charnley** (a British orthopedic surgeon, is credited as the father of total hip arthroplasty, as he developed the fundamental principles of artificial hip) used a steel femoral component with a polytetra-fluorethylene (Teflon), and in 1960, he described fixation of the component with acrylic cement, and in 1962, he replaced the acetabular component by a high density polyethylene. The diameter of the head of femoral component was reduced from 40 millimeters or more of the **Moore**

type femoral head prosthesis to 22 millimeters, to decrease the friction between the components. Although decreasing the head diameter increases the wear, but Sir **John Charnley** considered it more important to reduce the frictional torque (Seth S. Leopold 2005).

Muller in 1965, developed a prosthesis with 32 millimeters femoral head diameter articulating with a plastic acetabular cup. This increased the range of motion. However, the curved stem made it difficult to insert the stem in a neutral or slightly valgus position. This stem has also a thin medial edge, which increases stresses within the cement, and a small diameter which in many patients fills less than half of the medullary canal (Seth S. Leopold 2005).

The **Exeter** prosthesis was first introduced in 1970, as a result of a combined effort of Mr. **Robin Ling** in Princess Elizabeth Orthopedic Hospital and Dr. **AJ Lee** in the department of engineering science at the University of Exter. It was unique in two design configurations; the complete absence of any sort of collar and the double tapered straight stem (Seth S. Leopold 2005).

Total hip arthroplasty is an elective procedure and should be considered as an option among other alternatives. The decision to proceed with total hip arthroplasty is made with an understanding of the potential risks and benefits. A thorough understanding of both the procedure and anticipated outcome is an important part of the decision-

making process. For the appropriate candidate, total hip arthroplasty can be a life-altering procedure that relieves pain, improves function and enhances quality of life (Grey 2006).

Published results of total hip arthroplasty demonstrate excellent clinical, functional and radiographic results. These results vary depending upon the implant used, surgical technique, type of fixation, biomaterials, patient age, and a myriad of other factors. Total hip arthroplasty may be performed successfully in patients ranging from the very young to the elderly (over 80 years of age). However, young and active patients must be made aware that premature failure of the replaced joint may occur if activity levels are not reduced. Impact activities, manual labor, heavy lifting, and high intensity sport should be avoided (Grey 2006).

The procedure is considered a very specialized art of surgery, otherwise many complications may rise. Early complications as:

- Vascular neuralgic and thromboembolic complications.
- Wound infection.
- Fractures complicating the replacement.
- Dislocation.

Or late complications as:

- Infection.
- Heteropic ossification.
- Loosening.
- Stem failure.
- Dislocation.

Dislocation after Total Hip Arthroplasty is a relatively infrequent, yet frustrating complication of this operative procedure. Following aseptic loosening, it is the second most common major complication of THA. The reported incidence of postoperative dislocation varies widely from less than 1% to nearly 10%, with most studies of primary THA reporting an incidence of 2% to 5%. The incidence of dislocation following revision THA is substantially greater with a rate as high as 26.6% reported after multiple procedures. (Orthopedic Practice 2009).

The problem of dislocation following THA has become less frequent nowadays as a greater number of orthopedic surgeons have become familiar with many technical details related to the procedure. (Orthopedic Practice 2009).

FUNCTIONAL ANATOMY OF THE HIP JOINT

Hip Joint (Springer Paris 2006).

Type

A multiaxial ball and socket synovial joint between the *head of the femur* and the *acetabulum* of the coxal (pelvic) bone.

Fibrous Capsule

1. Proximal attachment - encircles rim of acetabulum
2. Distal Attachment
    a. anterior - greater trochanter, intertrochanteric line
    b. posterior-neck of femur capsule is incomplete posteriorly

Ligaments

A. Extra capsular:

1. Iliofemoral
    a. Covers hip joint anteriorly
    b. Arises from anterior inferior iliac spine
    c. Inserts into intertrochanteric line
2. Pubofemoral
    a. Covers hip joint anteriorly
    b. Arises from pubic bone and margin of obturator foramen
    c. Inserts into femoral neck deep to iliofemoral ligament
3. Ischiofemoral
    a. Covers hip joint posteriorly
    b. Arises from ischium
    c. Inserts into greater trochanter of femur

· **Functions**

1- Limit Motion

- Pubofemoral ligament limits abduction
- Lateral band of iliofemoral ligament limits adduction
- Medial band of iliofemoral ligament limits lateral rotation
- Ischiofemoral ligament limits medial rotation

2- Stability

- Iliofemoral Ligament becomes taut in extension preventing the femur from moving past vertical position (resists hyperextension)
- Maintains hip in locked or stable configuration

B. Intracapsular

· **Ligament of the head of the femur**

- Very Weak.
- Conveys branches of obturator artery to head of femur.