Recent Trends in Treatment of Non Union of Fracture Neck of Femur In Adults

Essay

Submitted for Fulfillment of Master Degree
In Orthopaedic Surgery

By

Mohammad Ahmad Alattar
M.B.B.Ch

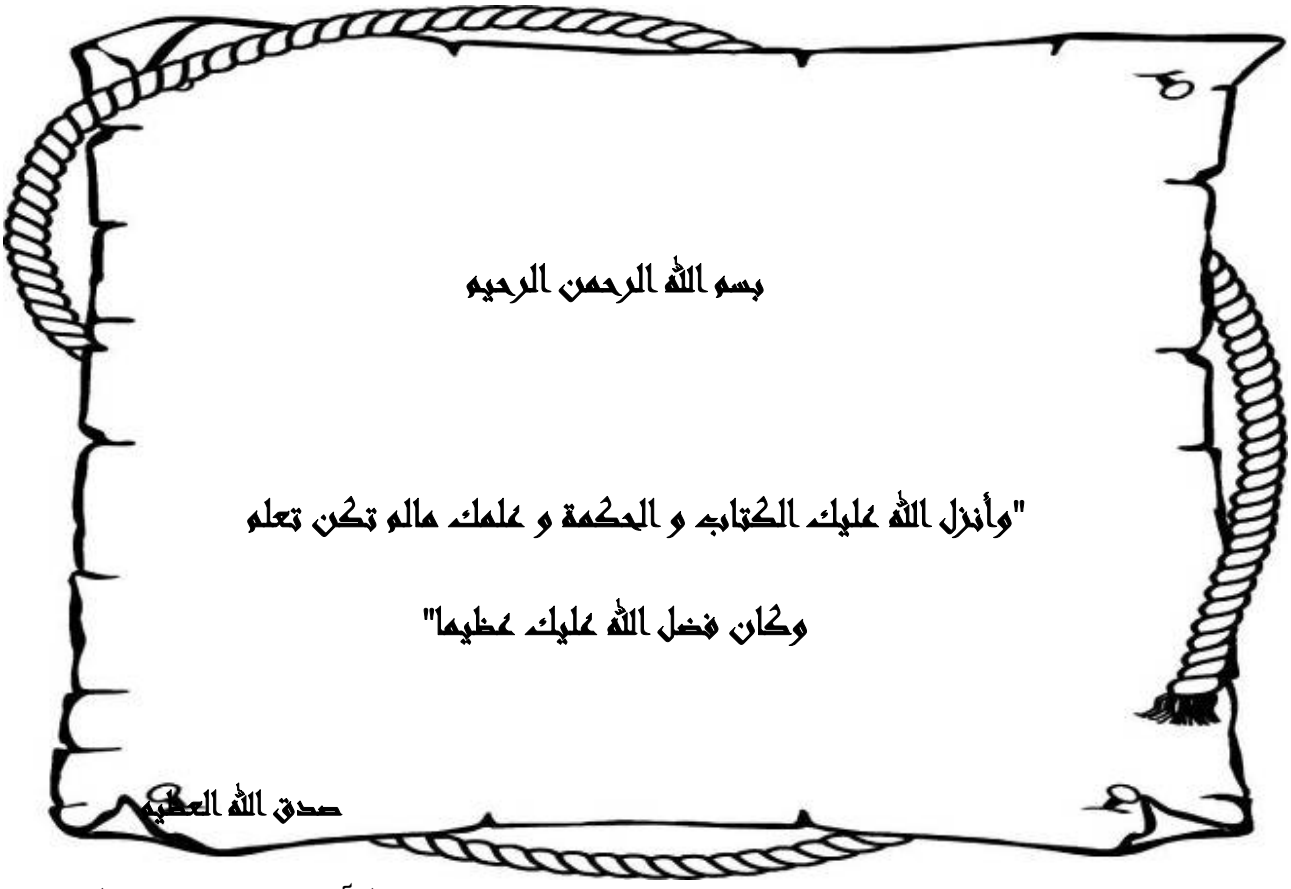
Under supervision of

Prof. Dr. Hazem A.El Azeem
Professor of Orthopaedic Surgery
Faculty of Medicine,
Cairo University

Prof. Dr. Ahmed Morrah
Professor of Orthopaedic Surgery
Faculty of Medicine,
Cairo University

Prof. Dr. Hesham Mesbah
Assistant Professor of Orthopaedic Surgery
Faculty of Medicine,
Cairo University

Cairo University
2009



بسم الله الرحمن الرحيم

"وأنزل الله عليك الكتاب و الحكمة و علمك مالم تكن تعلم

وكان فضل الله عليك عظيما"

صدق الله العظيم

(الآية: ١١٣، سورة النساء)

Abstract

When Femoral neck fractures occur,the limited and unprotected blood supply to the femoral head, the intracapsular location, and severe trabecular atrophy of the femoral neck are factors that very frequently inhibit fracture healing

Fixation of femoral neck fractures is associated with a higher incidence of complications than any other fracture. The rates of nonunion and avascular necrosis with open reduction and internal fixation continue to be unacceptably high

As with fixation failure, the decision regarding how to proceed is based on consideration of the patient's age, function, medical history, and bone density. In a younger patient, if adequate bone remains in the femoral head, refixation with cancellous or muscle pedicle bone grafting is indicated. Many have advocated valgus osteotomy to improve the mechanical loading of the nonunion, with good result. If the physiologic neck-shaft axis remains intact, however, refixation with bone grafting but without osteotomy has similarly produced good radiographic and clinical results. When a short limb is involved, valgus osteotomy is the procedure of choice

Key Word: recent advances in management of nonunion of fracture neck femur in adults.

Acknowledgment

I thank Allah who gave me the ability to carry out this work.

It is pleasure to thank

Prof.Dr.Hazem A.El Azeem

who gave me a great support not only to complete this work but also to grow my experience in the field of fractures of proximal femur.

I wish to express my deepest thanks to

***Prof.Dr.*Ahmed Morrah**

who gave me a lot of his time and effort throughout this work.

Finally I am so grateful to

***Prof. Dr.*Hesham Mesbah**

who gave me support in the field of Orthopaedic Surgery, and I wish this work will be helpful to those searching for this subject.

List of Contents

List of Figures

Introduction and Aim of the Work

Introduction

Intracapsular fractures of the hip do occur in younger patients, usually as a result of high-energy trauma [1].

When Femoral neck fractures occur,the limited and unprotected blood supply to the femoral head, the intracapsular location, and severe trabecular atrophy of the femoral neck are factors that very frequently inhibit fracture healing or lead to avascular necrosis and late segmental collapse of the head [2].

Fixation of femoral neck fractures is associated with a higher incidence of complications than any other fracture. The rates of nonunion and avascular necrosis with open reduction and internal fixation continue to be unacceptably high [3].

The problem of nonunion is rare after a nondisplaced or impacted fracture. The incidence of nonunion after a displaced fracture is in the range of 50% to 60% with traction or cast treatment and 4% to 33% after internal fixation. Several studies have shown that nonunion is a rare problem in patients with normal bone density and in who stable fixation is achieved and that it is most closely associated with increasing age and fracture displacement. In the vast majority of cases, femoral neck nonunion is associated with moderate to severe groin or proximal thigh pain and related limping, typically a Trendelenburg gait. Because of these symptoms, most patients will require a reconstructive procedure [4].

The diagnosis of nonunion is initially suspected on a clinical basis. The symptoms of groin or buttock pain, pain on hip extension, and pain with weight bearing all suggest this complication. In comparison to avascular necrosis, the symptoms of nonunion occur earlier and are more severe [5].

Femoral neck fractures should unite by 6 months. If there is no evidence of healing, or the patient continued to have pain at 3 to 6 months after surgery, then a delayed (3 months) or nonunion (6 months) should be contemplated. When trying to differentiate a nonunion versus avascular necrosis in a patient, the source of the pain must be determined. The diagnostic procedure of choice would be MRI; however, it can be difficult to get a reliable picture with stainless steel or even titanium present in the femoral head. Some newer CT scans and MRI scan dampen the effect of the screws; however, even with titanium screws, it can be difficult to get a sufficiently clear picture of the femoral head to make a firm diagnosis of avascular necrosis. A bone scan has an 85% to 90% sensitivity for avascular necrosis, so it is a good investigation to distinguish avascular necrosis from nonunion. A CT scan is extremely helpful to diagnose a femoral neck nonunion. It is important to note that avascular necrosis and nonunion are independent events, because avascular necrosis is based on the vascular supply within the femoral head, whereas nonunion is based on the healing process [6].

As with fixation failure, the decision regarding how to proceed is based on consideration of the patient's age, function, medical history, and bone density. In a younger patient, if adequate bone remains in the

femoral head, refixation with cancellous or muscle pedicle bone grafting is indicated. Many have advocated valgus osteotomy to improve the mechanical loading of the nonunion, with good result. If the physiologic neck-shaft axis remains intact, however, refixation with bone grafting but without osteotomy has similarly produced good radiographic and clinical results. When a short limb is involved, valgus osteotomy is the procedure of choice [(7)].

In the case of an older, osteoporotic patient or in a situation in which instability has produced loss of bone in the femoral head, hip arthroplasty is the procedure of choice. Good to excellent functional results in this setting have been reported. Again, prevention is the best method of treatment. Conservative treatment of undisplaced fractures should be avoided [(8)].

Aim of the Work

The aim of this essay is to know recent advances in management of nonunion of fracture neck femur in adults.

Applied Surgical Anatomy