Management Of Complications Of Calcaneal Fractures

Essay
Submitted for partial fulfillment of master degree
In
Orthopedic surgery

By

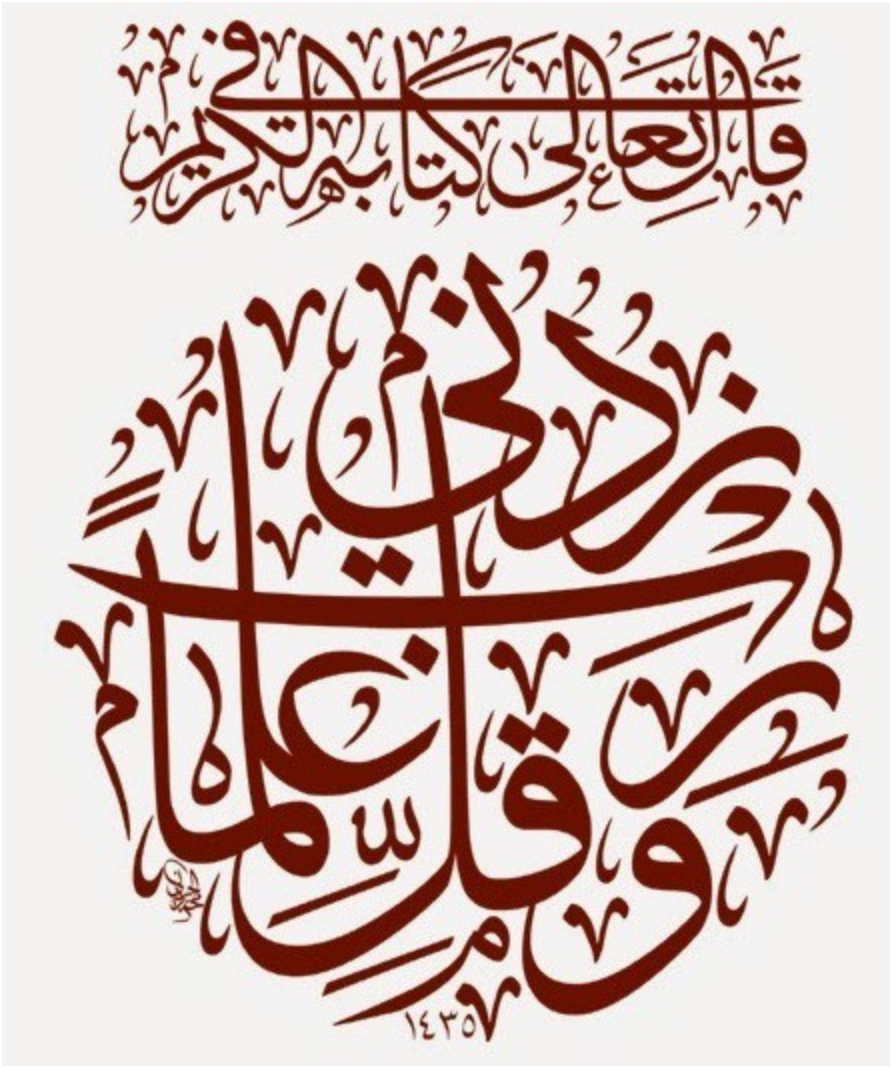
Mahmoud Mohamed Mohamed EL-Bakry
(M.B.B.Ch)

Under the supervision of

Prof. Dr. Atef Mohamed El-Beltagy
Professor of Orthopedic surgery
Faculty of Medicine
Ain shams University

Dr. Abd El-Rady Mahmoud
Lecturer of Orthopedic surgery
Faculty of Medicine
Ain shams University

Faculty of Medicine
Ain Shams University
2015


قال تعالى في كتابه الكريم
وقل رب زدني علما
١٤٣٥

Acknowledgment

First of all, I wish to offer my deepest gratitude to ALLAH for enabling me to achieve this work.

I would like to express my deepest gratitude to **Dr. Atef El Beltagy,** ***Professor of Orthopedic Surgery, Faculty of Medicine, Ain Shams University***, for his keen supervision and guidance in this work to be completed.

I am very much grateful to **Dr. Abd El Rady Mahmoud, Lecturer** ***of Orthopedic Surgery, Faculty of Medicine, Ain Shams University,*** for his suggestion, valuable help and continuous advice to bring this work to its form.

Also, I am much grateful to Orthopedic Surgery Department of Faculty of Medicine, Ain Shams University for their support and educate.

Last but not least, I would like to express my endless gratitude to my family, and my friends for their everlasting love, care and support.

I am also grateful to every person who helped me to complete this work

Mahmoud El Bakry

2015

Contents

List of figures

INTRODUCTION

The calcaneus is the largest tarsal bone. It is Cuboidal in shape, its long axis is directed forward, upwards and laterally. It has four facets that contribute to anterior, middle, calcaneocuboid, and posterior facet joints. All of the facet joints as well as the height, width, and length of the calcaneus are important in normal hindfoot and ankle mechanics[(1)].

Calcaneal fractures are the most common tarsal fractures, constituting 2% of all fractures and 65% of all tarsal fractures, and 70% of these fractures are intra-articular fractures. Calcaneal fractures are usually caused by high-energy trauma. The configuration of the fracture is determined by the position of the foot when the fracture occurs, the bone quality, and the strength and direction of the angular and shear forces involved[(2)].

Swelling and deformity are the main diagnostic symptoms and signs. Soft-tissue situation must be examined thoroughly to avoid skin complications if surgical treatment is expected to be applied, as skin necrosis has been published to occur in up to 43% of patients. Blisters commonly developed in displaced fractures[(3)].

Radiological studies are the basis for a proper diagnosis, and therefore a guide for treatment. There are two main radiological projections: lateral and axial views Lateral projection. There are also two important radiographic landmarks on the lateral X-ray Bo¨hler's angle assesses calcaneal height and joint depression And Gissane's angle is indicative of anterior, middle and posterior facets' relationship alteration. Axial projection. This projection is useful for evaluating varus deformity of the calcaneus, widening of the heel, step-off in the posterior facet and its relation with the sustentaculum tali. However, a CT scan for this purpose is more reliable[(4)].

🕮 *Introduction*

Essentially calcaneal fractures can be intra- or extraarticular. Extra-articular fractures affect either the anterior process – very rarely – or, most commonly, the tuberosity. The original easy classification by Essex-Lopresti into tongue-type and joint depression has persisted over the years. other classifications such as Sanders' CT coronal slice-based prognostic classification, it is limited to the posterior facet. According to this classification, the more comminution in the posterior facet, the worse the prognosis is[(5)].

Goals of orthopedic treatment are to prevent chronic pain and arthritis by restoring calcaneal shape and joint congruency. Despite the fact that the calcaneus is the commonest tarsal bone fractured, many controversies exist in the literature regarding the management options. This stems from the fact that the understanding of the fracture pattern has evolved only recently, surgical approaches have lately been standardized, surgical timing has become more clear, and newer implants are regularly being introduced. Despite the significant advances, complications and controversies related to this common fracture abound. The present paper looks at all aspects of modern management options of calcaneus fractures and tries to review the literature with regard to the controversial issues that still persist[(6)].

Delayed or missed diagnosis of complications of calcaneus fracture may cause malfunction of the foot and lead to a life-altering event for some patients[(7)]. Injury to the sural nerve may occur using the lateral approach, while injury to the calcaneal branch of the posterior tibial nerve may occur using medial approach. The damage can cause neuroma or loss of sensation in the affected region. Nerve entrapment of the posterior tibial nerve can occur secondary to fracture mal-union. The incidence of wound dehiscence and apical necrosis is 10 –13% and osteomyelitis is 1.3–2.5% in patients who undergo surgery. Other complications include arthritis of the sub-talar and the calcaneo-cuboid joints, mal-position due to varus deformation of

the tuberosity, tendinitis or dislocation of the peroneal tendon caused by lateral impingement ,heel pain due to the crush injury to the soft tissue. , mal-union of fractures that cause pain and disability and are treated by osteotomies , heel exostosis at the plantar aspect of the heel and complex regional pain syndrome[8].

AIM OF THE WORK

The aim of the work is to review the problems that may follow calcaneal fractures which either treated conservatively or surgically and its sequence of complications, and to review different methods of treatment of these complications.