

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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لم ترد بالأصل



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CHRONIC OSTEOMYELITIS FOLLOWING OPEN TIBIAL SHAFT FRACTURES

Thesis

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To my family with love

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Arabic summary

INTRODUCTION

Introduction

We have chosen this subject as open tibial fractures are common as the tibia is subcutaneous in position .Open tibial fractures may be complicated by post-traumatic osteomyelitis with its sequele .we have study ,in this subject, causes ,pathogenesis,sequele and treatment of post-traumatic osteomyelitis.This helps us in proper management of open tibial fractures ,hence reducing the incidence of osteomyelitis .

ANATOMY

ANATOMY OF THE TIBIA

The tibia is the medial and much the stronger of the two bones of the leg and, excepting the femur, is the longest bone of the skeleton.⁽¹⁾

It's prismoid in form and possess a shaft and two ends. The shaft is triangular on section, possessing medial, lateral and posterior surfaces, separated by anterior, interosseus and medial borders. It's thinnest at the junction of its middle and lower third, but expands considerably towards its upper and lower ends.

Borders of the tibia

The **anterior border** commences at the tuberosity of the tibia and runs downwards to the anterior margin of the medial malleolus. It's subcutaneous throughout its length, and, except in its lower forth, where it's rounded and indistinct, forms a sharp crest, familiarly known as the shin.

The **interosseus border** commences below and a little in front of the fibular facet on the lateral condyle and descend to reach the anterior border of the fibular facet, which marks the lateral aspect of the lower end of the tibia.

The **medial border** commences below the anterior end of the groove on the medial condyle and runs downwards to the posterior margin of the medial malleolus.

Surfaces of the tibia

The **medial surface** is bounded in front by the anterior border, and behind by the medial border. It's broad and smooth, and it's subcutaneous throughout its whole length and not covered by deep fascia.

The lateral surface is broad and smooth, and is placed between the anterior and interosseus borders and in its upper three fourths, it's directed laterally and is slightly concave from before backwards. Its lower fourth is carried round on to the front of the bone, owing to the deviation of the anterior border to the medial side and the forward inclination of the lower part of the inter-osseous border. This part of the surface is somewhat convex forward.

The posterior surface is bounded by the interosseus and medial borders, and is widest at its upper end, where it's crossed from above downwards and medially by an oblique, roughened ridge, termed the soleal line.

The area below this line is subdivided by a faint vertical line, which begins at or just below the middle of the soleal line and soon fades away.

A prominent vascular groove marks the bone near the upper end of the vertical line and descend, to enter the large nutrient foramen, it may be situated either on the lateral or on the medial side of the vertical line. The nutrient artery of the tibia arises from the posterior tibial artery near its origin, after supplying a few minute muscular branches, run downward to enter the nutrient canal in the bone, at a point immediately below the soleal line. It's one of the largest nutrient arteries supplying bones.

The nutrient artery after reaching the medullary canal, divides into ascending and descending branches (figure:1)⁽²⁾.

The ascending branch:

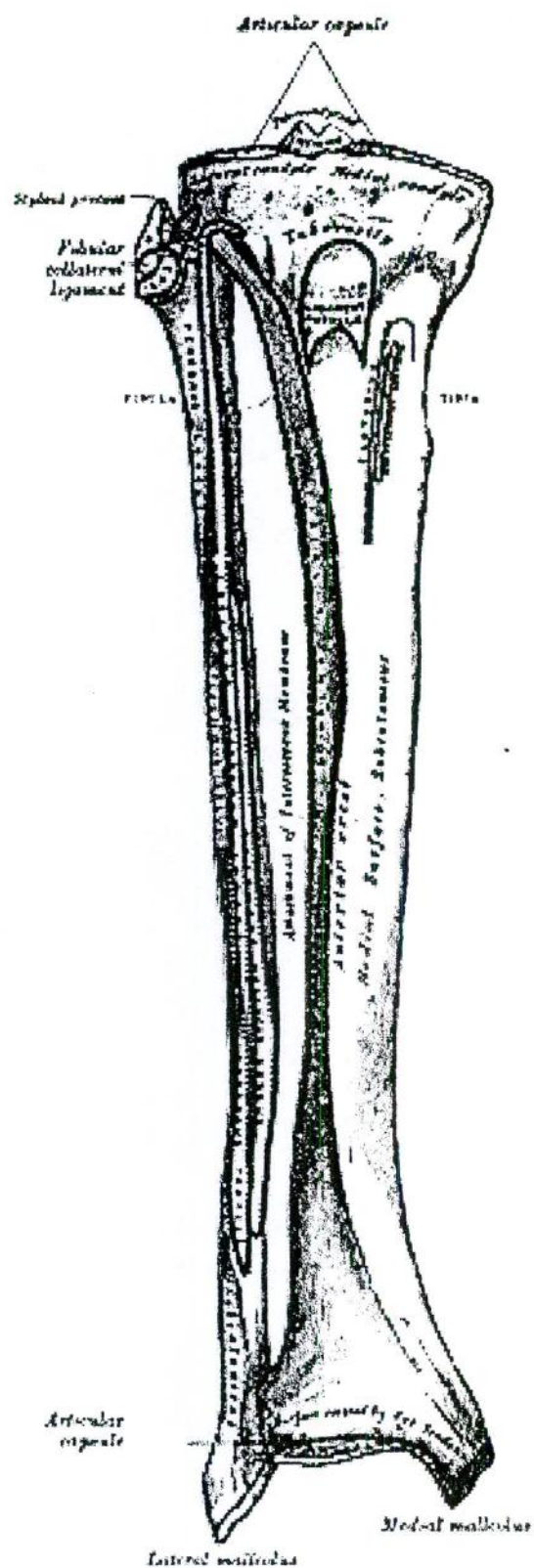
The ascending branch of the nutrient artery of the tibia, after passing downwards and medially, turns abruptly upwards forming a single or double loop. At its beginning while still pointing distally, a large number

of straight branches are given off, which cross the medullary cavity to pierce the cortex. Then the artery divides into three or more ascending branches, which pass upward toward the metaphysis, running in an almost straight line spreading gradually apart from each other. They are surrounded by the sinusoids and cells of the marrow. These arteries at first lie near the back of the medullary cavity but soon they become separated from each other breaking into fine branches which provide the blood for most of the metaphyseal side of the growth cartilage. All of the terminal straight branches, turn back as they reach the layer of degenerating cartilage cells forming the long loops which are responsible for the unrelenting bone formation that characterizes growth in length⁽³⁾.

The descending branch⁽⁴⁾:

It lies close to the posterior cortex and as it reaches the lower metaphysis, it gives off small branches which pierces the cortex.

The main trunk breaks into four or more slightly divergent branches, surrounded by a dense network of sinusoids, until they end in the same type of straight vascular loops which turn back as they reach the growth cartilage.



Anterior surface of right tibia.
Diagram no. 1