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A Rare Case Report of the Fibula in Patient with the Treatment for Chronic Osteomyelitis of the Right Tibia

Bushra Fahmy Sadek[1*], Khulood Maymona[2] and Ibrahim Hassan Algawah[2]

[1]Department of Orthopaedic Surgery, Khobar Care Hospital, Al Khobar, Saudi Arabia

[2]Department of Orthopaedic Surgery and Medicine, Andalusia Hospital, Al Khobar, Saudi Arabia

[*]**Corresponding author:** Bushra Fahmy Sadek, Department of Orthopaedic Surgery, Khobar Care Hospital, Street No. 20222 A, Al Khobar, Saudi Arabia.

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Abstract

A rare case of treatment for chronic osteomyelitis of the right tibia in a patient is presented. Amputation was deemed too radical a procedure in a young patient especially now that the infection was cured. Segment transport would have been difficult considering that the bone defect involved almost 70% to 75% of bone length. Additionally, we were doubtful how compliant the patient would have been with distraction of the callus by fixator once discharged. We therefore employed tibialization of the fibula to treat this patient. This case discusses tibialization of the fibula as a viable option for management of large bone defects of the tibia.

Introduction

Management of chronic osteomyelitis remains a challenge to the orthopaedic surgeon particularly in the third world. Most cases of chronic osteomyelitis can be treated by surgical debridement and a prolonged course of antibiotics. Occasionally though, these cases result in large bone defects that threaten loss of limb in the patient; hence the need to look for alternatives that would cause lesser morbidity to the patient. Different surgical approaches have been published detailing how these bone defects can be bridged effectively [1-3].

Tibialization of the fibula has been successfully employed in the treatment of congenital dysplasia of the tibia [4]. Shiha et al [5] medially transported the fibula using the Ilizarov device to manage two children with massive defects of the tibia and an associated active infection. A pedicled fibular flap has also been used in tibial reconstruction after resection of Ewing's sarcoma [6]. A case report from Congo detailed how a 10-centimeter tibial bone loss was treated by intertibiofibula bone grafting, resulting in tibialization of the fibula.

Case Report

A ten-year-old boy admitted with a complaint of pain and presence of a wound in the right leg persistent for two months prior to admission. He gave a history of trivial trauma to his right leg while at play. At that time, he suffered pain and developed a wound that later started discharging pus. About a month later his right tibia became exposed through the wound.

On examination he was afebrile and was not pale. Examination of the musculoskeletal system revealed a mild varus deformity of the right leg. The right tibia was exposed through an infected wound in the leg. This bone was fractured at that point of exposure. Distal neurovascular examination of his right leg was normal. Examination of his other systems was un-remarkable. An impression of chronic osteomyelitis of the right tibia secondary to trauma was made. X-rays done confirmed this diagnosis with the presence of sequestra in the right tibia as illustrated.

The patient was started on intravenous antibiotics (flucloxacillin 500mg QID) and sequestrectomy was done on two separate occasions resulting in a severe tibial bone loss. Culture specimens were negative for any bacterial growth. He subsequently had a fracture of his right fibula which was managed in a cast but still healed with a malunion (re-cavatum deformity) as illustrated in Figure 1.

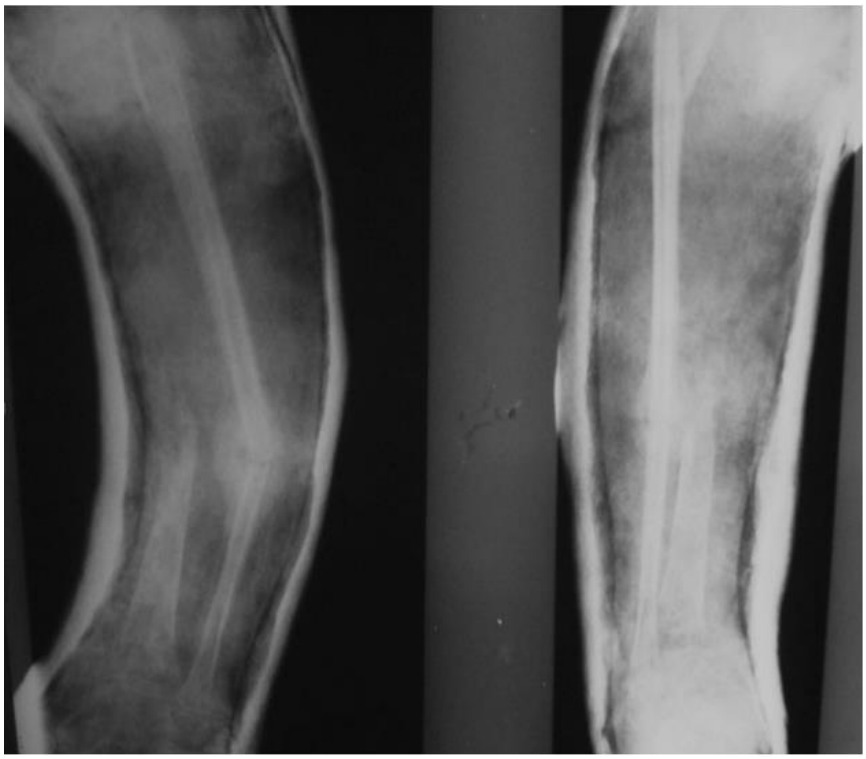

Figure 1: X-ray right tibia AP and lateral after elimination of infection.

Discussion

The management of chronic osteomyelitis is lengthy, very costly and may have a lasting impact on the independence and life quality of those affected [7-9]. Clinicians should always aim at limiting the morbidity load of the patient in whatever course of management undertaken. Limb salvage surgery when employed correctly, has shown to offer better functional outcome than amputation [10].

Owing to its rich soft tissue coverage, the fibula can be used in limb salvage operations where defects of the tibia exist. Large defects of an infectious aetiology constitute a particularly challenging subgroup, and their management in adults appears to result in a less favorable outcome compared with that of management of uninfected defects [11]. The operating team must therefore ensure complete elimination of infection in the tibia, before embarking on any reconstructive procedure.

Tibialization of the fibula was first described by Albert in 1877. He obtained fusion between the fibula and femur in a patient with congenital absence of the proximal tibia. Since then, the procedure has been employed successfully in many limb-salvaging operations [5]. This case illustrates its use in a severe case of tibia bone loss secondary to osteomyelitis. It is a cost-effective technique that does not require any sophisticated instruments and can be successfully performed in moderately equipped hospitals within Saudi.

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