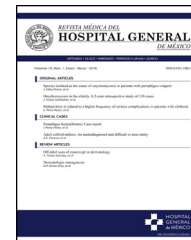




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CLINICAL CASE

## Diaphyseal pseudarthrosis of the femur in a patient with poliomyelitis. A special case study

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### KEYWORDS

Poliomyelitis;  
Pseudarthrosis;  
Luque rod;  
Graft;  
Intramedullary  
nailing

### Abstract

**Introduction:** The incidence of long bone pseudarthrosis ranges from 2% to 10%, with the femur being the second most commonly affected bone. There are local and systemic factors that influence the development of this condition. Various implants such as plates, nails, external fixators and combinations of the foregoing, plus grafts and materials to facilitate consolidation are reported in the literature to treat pseudarthrosis.

**Objective:** To present the special case study of a patient diagnosed with pseudarthrosis of the femur who presented with poliomyelitis sequelae.

**Case report:** A 40-year-old man with a history of poliomyelitis previously treated with osteosynthesis on 2 occasions due a fracture of the left femur. He was assessed and diagnosed with pseudarthrosis of the left femur with poliomyelitis sequelae. He underwent surgery with Luque rod fixation, frozen fibular graft and bone graft chips. His bones consolidated 12 months after the operation and he was able to resume normal activities at 16 months.

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## PALABRAS CLAVE

Poliomielitis;  
Pseudoartrosis;  
Varilla de Luque;  
Injerto;  
Enclavado  
centromedular

## Pseudoartrosis diafisaria de fémur en paciente con poliomieltis. Presentación de un caso especial

### Resumen

**Introducción:** La pseudoartrosis en los huesos largos tiene una incidencia del 2 al 10%; el fémur ocupa el segundo lugar en frecuencia. Existen factores locales y sistémicos en el desarrollo de esta patología. Para su tratamiento está descrito el uso de diversos implantes, placas, clavos, fijadores externos y combinaciones entre los mismos, más aplicación de injerto y materiales que coadyuven en la consolidación.

**Objetivo:** Presentación de un caso especial con diagnóstico de pseudoartrosis en fémur que presenta secuelas de poliomieltis.

**Caso clínico:** Hombre de 40 años con antecedente de poliomieltis, inicialmente tratado con osteosíntesis en 2 ocasiones por fractura de fémur izquierdo. Es valorado y se hace diagnóstico de pseudoartrosis de fémur izquierdo y secuelas de poliomieltis. Tratamiento enclavado con una barra de Luque, injerto de peroné congelado y chips. Tuvo una consolidación a los 12 meses postcirugía y su reincorporación a sus actividades fue a los 16 meses.

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## Introduction

No single definition of pseudarthrosis has been universally accepted, but it tends to be recognised as a lack of bone consolidation characterised radiographically by rounded and sclerotic ends and obliteration of the medullary canal.<sup>1-5</sup>

The incidence of pseudarthrosis in the shafts of long bones ranges from 2% to 10%, with the femur being the second most commonly affected bone after the tibia.<sup>1-4,6</sup> Its treatment represents a challenge for orthopaedic surgeons and many different methods to achieve consolidation have been reported, including plates, nails, external fixators and a range of implants, in combination with autologous and heterologous bone grafts and materials to facilitate bone consolidation.<sup>1-8</sup>

## Objective

To present a special case study of a patient with poliomyelitis sequelae diagnosed with diaphyseal pseudarthrosis of the femur and polio.

## Case study

A 40-year-old male patient with poliomyelitis sequelae in the lower left limb who suffered a fall to the ground in August 2012. The patient was admitted to hospital where he was diagnosed with a fracture of the left femoral shaft and underwent DCP plate fixation with a poor outcome and rupture of osteosynthesis material. A narrow DCP plate with 12 holes and 9 screws was subsequently applied in September 2012, with an unsatisfactory outcome, persistent pain, deformity and walking disability. He was assessed again in August 2013 and clinically and radiologically diagnosed with uninfected atrophic pseudarthrosis of the femoral shaft with

wear of osteosynthesis material and lateral reabsorption below the plate (Figs. 1 and 2).

The patient underwent an intramedullary nailing procedure on 08/08/2013 with a 4.5-mm diameter Luque rod (as the femoral canal measured 5 mm in diameter), semi-tubular frozen fibular xenograft, one lateral rod and one anterior rod fixed with 3.5-mm cortical screws and bone graft chips.

The patient progressed favourably, commencing partial-weight-bearing walking 4 months after surgery and complete weight-bearing at 7 months. Complete consolidation was radiographically confirmed at 12 months and the patient resumed the activities performed prior to the fracture



**Figure 1** AP X-ray of the left femur with pseudarthrosis data and worn osteosynthesis material.

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