

ORIGINAL ARTICLE

**Peri-prosthetic femoral fractures of hip or knee
arthroplasty. Analysis of 34 cases and a review of
Spanish series in the last 20 years[☆]**



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KEYWORDS

Peri-prosthetic
fracture;
Femur;
Knee arthroplasty;
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Abstract

Purpose: To evaluate peri-prosthetic femoral fractures by analysing type of patient, treatment and outcomes, and to compare them with Spanish series published in the last 20 years.

Material and methods: A retrospective review of the medical records of patients with peri-prosthetic femoral fractures treated in our hospital from 2010 to 2014, and telephone survey on the current status.

Results: A total of 34 peri-prosthetic femoral fractures were analysed, 20 in hip arthroplasty and 14 in knee arthroplasty. The mean age of the patients was 79.9 years, and 91% had previous comorbidity, with up to 36% having at least 3 prior systemic diseases. Mean hospital stay was 8.7 days, and was higher in surgically-treated than in conservative-treated patients. The majority (60.6%) of patients had complications, and mortality was 18%. Functional status was not regained in 61.5% of patients, and pain was higher in hip than in knee arthroplasty.

Discussion: Peri-prosthetic femoral fractures are increasing in frequency. This is due to the increasing number of arthroplasties performed and also to the increasing age of these patients. Treatment of these fractures is complex because of the presence of an arthroplasty component, low bone quality, and comorbidity of the patients.

Conclusion: Peri-prosthetic femoral fractures impair quality of life. They need individualised treatment, and have frequent complications and mortality.

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PALABRAS CLAVE

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Fracturas periprotésicas de fémur sobre prótesis de cadera y rodilla. Análisis de una serie de 34 casos y revisión de las series españolas en los últimos 20 años

Resumen

Objetivo: Evaluar las fracturas periprotésicas de fémur analizando las características de los pacientes, el tipo de tratamiento y los resultados, y compararlas con las series españolas publicadas en los últimos 20 años.

Material y método: Evaluación retrospectiva de las fracturas periprotésicas de fémur atendidas en nuestro centro entre 2010 y 2014. Revisión de las historias clínicas y encuesta telefónica sobre la situación actual.

Resultados: Hemos analizado 34 fracturas periprotésicas de fémur, 20 sobre prótesis de cadera y 14 sobre prótesis de rodilla. La edad media fue 79,9 años. El 91% tenían comorbilidad previa y hasta un 36% tenían al menos 3 enfermedades sistémicas previas. La estancia hospitalaria media fue 8,7 días, mayor en los casos tratados quirúrgicamente. Hasta el 60,6% de los pacientes presentaron complicaciones y la tasa de mortalidad ha sido del 18%. El 61,5% de los pacientes no recuperaron el estado funcional previo a la fractura, con mayor dolor en los pacientes con artroplastia de cadera.

Discusión: Las fracturas periprotésicas de fémur son cada vez más frecuentes, porque cada vez se realizan más artroplastias y en pacientes más mayores. El tratamiento es complejo, porque a la propia dificultad de la fractura se añade la presencia de un implante previo, la baja calidad ósea y la comorbilidad.

Conclusiones: Las fracturas periprotésicas de fémur suponen una merma en la calidad de vida de los pacientes. Requieren un tratamiento individualizado. La tasa de complicaciones y de mortalidad es muy elevada.

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Introduction

Peri-prosthetic femoral fractures are increasingly common due to the increasing number of arthroplasties being performed in older patients, which also results in a greater number of revision arthroscopies that in turn carry a greater risk of peri-prosthetic fracture.^{1,2} Depending on the series, the incidence of peri-prosthetic femoral fracture around total hip arthroplasty or revision arthroplasties varies between 0.3% and 18%.²⁻⁴ An incidence has been described of supracondylar femoral fractures varying between 0.3% and 2.5%, increasing to 1.6–38% in revision arthroplasties.³⁻¹⁰

Treatment of these fractures is complex and highly challenging because, in addition to the difficulty of the fracture itself, there are the disadvantages of a prior implant which affects the treatment, the poor bone quality of these patients and frequent comorbidity.^{1,5} In some cases, depending on the patient's general condition and the type of fracture, the treatment of choice is conservative, although most cases require surgical treatment. In peri-prosthetic hip fractures various elements can be used for osteosynthesis (plates, screws, cerclages) and/or a revision stem (short or long), with the use or otherwise of different types of graft. The decision regarding treatment for hip fractures is usually based on the Vancouver classification system.¹¹⁻¹³ Supracondylar femoral fractures around a total knee

prosthesis can be osteosynthesised by intramedullary nailing or osteosynthesis with a plate. Depending on the type of fracture and the condition of the prosthesis, the prosthesis could be changed for a tumoral prosthesis or a revision prosthesis, and the use of various types of bone graft could be considered.^{1,5,14}

Peri-prosthetic fractures are a serious complication and generally have poor outcomes, a reoperation rate of 7–23%, a complication rate that in some series exceeds 50%, and a very high mortality rate.^{5,15} Peri-prosthetic femoral fractures have a devastating effect on the patient's quality of life, they pose a therapeutic challenge and also have an extremely high financial cost.^{5,16}

The objective of this study was to assess the cases of peri-prosthetic femoral fractures treated in our centre and to analyse the type of patients that suffer these fractures, the treatment given and the outcomes achieved and compare them with Spanish series published over the last 20 years.

Methods

A retrospective, observational and longitudinal study of the 34 peri-prosthetic femoral fractures (in 33 patients) attended in our centre between 2010 and 2014. Fractures produced intraoperatively were rejected.

The data analysed were taken from the patients' clinical history. The epidemiological characteristics, previous

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