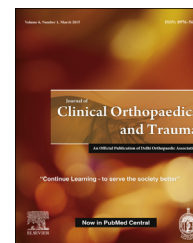


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## Original Article

# Revision knee arthroplasty with a rotating-hinge design in elderly patients with instability following total knee arthroplasty



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## ABSTRACT

**Background:** Revision knee arthroplasty with a rotating-hinge design could be an option for the treatment of instability following total knee arthroplasty (TKA) in elderly patients.

**Purpose:** To evaluate the clinical and radiographic results of revision arthroplasties in TKAs with instability using a rotating-hinge design in elderly patients.

**Methods:** We retrospectively reviewed 96 rotating-hinge arthroplasties. The average age of the patients was 79 years (range, 75–86 years); the minimum follow-up was 5 years (mean, 7.3 years; range, 5–10 years). Patients were evaluated clinically (Knee Society score) and radiographically (position of prosthetic components, signs of loosening, bone loss).

**Results:** At a minimum followup of 5 years (mean, 7.3 years; range, 5–10 years), Knee Society pain scores improved from 37 preoperatively to 79 postoperatively, and function scores improved from 34 to 53. ROM improved on average from  $-15^\circ$  of extension and  $80^\circ$  of flexion before surgery to  $-5^\circ$  of extension and  $120^\circ$  of flexion at the last followup ( $p = 0.03$ ). No loosening of implants was observed. Nonprogressive radiolucent lines were identified around the femoral and tibial components in 2 knees. One patient required reoperation because of a periprosthetic infection.

**Conclusions:** Revision arthroplasty with a rotating-hinge design provided substantial improvement in function and a reduction in pain in elderly patients with instability following TKA.

**Level of evidence:** Level IV, therapeutic study.

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## 1. Introduction

It has been reported that knee prosthesis instability is the third most frequent cause of failure of total knee arthroplasty (TKA). In fact, 10–22% of revision surgeries after TKA are due to

instability.<sup>1,2</sup> Current rotating-hinge total knee prostheses may be used for the management of instability because they provide a more congruent articulation.<sup>3–12</sup> However, the follow-up of the case series reported has usually been very short.

The purpose of this study is to report clinical, functional and radiographic outcome of 96 rotating-hinge prostheses

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performed in our center using a rotating-hinge prosthesis for elderly patients with instability following TKA, at a minimum followup of 5 years.

## 2. Materials and methods

In this retrospective study, we reviewed 96 elderly patients (72 women, 24 men), treated with revision total knee arthroplasty in cases in which the rotating-hinge prosthesis was used for gross instability following primary TKA. In all patients, the revision TKA implanted was the Waldemar-Link rotating-hinge prosthesis (Waldemar Link Spain, Barcelona, Spain).

The minimum followup was 5 years (mean, 7.3 years; range, 5–10 years). No patients were lost to followup.

The mean body mass index was 30 (range, 17–51). The average age of the patients was 79 years (range, 75–86). All procedures were performed through a medial parapatellar arthrotomy and under tourniquet control. We used tibial and femoral cementation in all knees. Antibiotic-impregnated cement containing gentamicin was used in all knees. All bone defects were filled with cement (Figs. 1 and 2).

In approaching our revision procedures, we always considered the planning of the incision over a previously operated site, the condition of the soft tissue, the functionality of the extensor mechanism, the extraction of the primary



**Fig. 1 – A–D:** AP (A) and lateral (B) radiographs show severe instability in NexGen prosthesis. AP (C) and lateral (D) radiographs show the knee 4 years after rotating-hinge arthroplasty.

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