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Thigh pain, subsidence and survival using a short cementless femoral stem with pure metaphyseal fixation at minimum 9-year follow-up

G. Cinotti*, A. Della Rocca, P. Sessa, F.R. Ripani, G. Giannicola

Orthopaedic Department, La Sapienza University, Piazzale Aldo Moro, 500185 Rome, Italy

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KEYWORDS

Total hip arthroplasty; Femoral stem; Proximal fixation; Bone remodeling; Thigh pain

Summary

Background: Short femoral stems designed to spare bone stock and improve load transfer at the proximal femur level have been introduced in recent years. However, little is known on the long-term outcomes of these stems.

Hypothesis: Short cementless stems have low rate of thigh pain and subsidence as well as few revision needs at mid-term follow-up.

Materials and methods: We prospectively followed 64 patients (72 hips) undergoing total hip arthroplasty with a femoral stem designed to achieve a pure metaphyseal fixation. Patients with hip fracture, femoral neck deformity and osteoporotic bone were excluded. Clinical evaluations were performed annually until the last follow-up, a minimum of 9 years after surgery. At each follow-up, implant positioning was assessed on conventional plain films with a computer assisted radiographic evaluation.

Results: The Harris hip score improved from 43 points (range 19–50) before surgery to 88 points (range 73–100) at the final follow-up (P=0.001), and the Womac score averaged 47 points (range 35–56 points) preoperatively and 76 points (range 63–84) at the last follow-up (P=0.001). Thigh pain was reported by five patients (8%) at the 2-year follow-up, but only in two (3%) was still present, and related to the prosthesis, at last follow-up. Computer assisted radiographic analysis showed a neutral alignment of the stem in 56% of cases, a varus-valgus alignment less than 5° in 36% and equal to 5° in 8%. Stem subsidence was observed in 12 hips but was less than 4 mm in all cases (range 0–3 mm). Calcar height remained unchanged over time. Adaptive bone remodelling, including proximal bone resorption and distal cortical hypertrophy were not observed at follow-up. No patients had aseptic loosening of the stem nor were radiolucent lines detectable at the level of the porous coating. Survivorship analysis showed a 100% survival rate of the stem at nine years.

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^{*} Corresponding author. Department of Anatomy, Histology, Medico Legal and Orthopaedic Sciences, La Sapienza University, 5, Piazzale Aldo Moro, 00185 Rome, Italy. Tel.: +347 8419319; fax: +06 6896088.

E-mail address: Md3581@mclink.it (G. Cinotti).