

# Minimum Two-Year Results of Total Hip Arthroplasty Using a Short Tapered-Wedge Stem

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## **Abstract**

**Background:** The short-stem design concept has several advantages, including preservation of the proximal femur, reduction of stress shielding, and less invasiveness. We evaluated the clinical and radiological outcomes of total hip arthroplasty (THA) using a short tapered-wedge stem after a follow-up period of at least 2 years.

**Methods:** We retrospectively evaluated 70 hips of 63 patients who had undergone cementless THA using the Initia stem (Kyocera, Kyoto, Japan) with a short tapered-wedge stem design from February 2017 to April 2019 and had a minimum follow-up period of 2 years. We evaluated the clinical and radiological results associated with the morphology of the proximal femur, which was classified as Dorr type A, B, or C.

**Results:** The mean Harris hip score (HHS) and Japanese Orthopaedic Association (JOA) hip score significantly improved postoperatively. No hips had a postoperative radiolucent line of  $\geq 2$  mm or stem subsidence of  $\geq 2$  mm. The survival rate was 100% for at least 2 years. Intraoperative femoral fracture occurred in two hips (2.8%). Grade 1 and 2 stress shielding was detected in 26 hips (37.1%) and 30 hips (42.9%), respectively. Spot welds were detected in Gruen zones 2 and 6 in 13 hips (18.6%) and 24 hips (34.3%), respectively. There were no significant differences in the valgus angle of the stem, intraoperative femoral fracture, or postoperative HHS and JOA hip scores among patients with Dorr type A, B, and C femurs.

**Conclusions:** The short-term results of THA using a short tapered-wedge stem were good with respect to fixation and clinical outcomes. However, long-term follow-up studies are warranted to confirm these results.

**Key words:** short tapered-wedge stem, cementless, total hip arthroplasty, Dorr classification