

A 20-Year Follow-Up Results of Cementless Total Hip Arthroplasty using One Manufacturer's Expansion Cup

Seung-Hoon Baek¹, Bum-Jin Shim¹, Kang-san Lee, Seungbo Sim, Lee Koang-Sub, Shin-Yoon Kim¹

¹Kyungpook National University Hospital

INTRODUCTION:

The long-term outcomes of total hip arthroplasty (THA) using one manufacturer's expansion cup remain unclear. This study evaluated the long-term clinical and radiographic results after cementless THA using this expansion cup including survivorship at 29 years postoperatively.

METHODS: Sixty-three cases of cementless THA using this cup and stem with a minimum follow-up duration of 10 years were included (48 males and 8 females, average age: 49.5 years, mean follow-up duration: 20.5 years [range: 10–29]). We clinically evaluated the modified Harris Hip Score (HHS), and a radiographic analysis was performed regarding component stability and osteolysis. The complications included cup breakage, recurrent dislocation, periprosthetic femoral fracture (PFF), and periprosthetic joint infection (PJI). Survivorship was analyzed regarding the cup revision for aseptic loosening, cup revision for any reason, and any revision for any reason as the end point at 29 years postoperatively.

RESULTS: The HHS improved from 44.5 preoperatively to 87.5 postoperatively ($p < 0.001$). Fifteen hips (23.8%) were revised: cup revision in nine (14.3%), stem revision in three (4.8%), exchange limited to bearing surface in two (3.2%), and revision of all components in one (1.6%). A recurrent dislocation was observed in four hips (6.3%), cup breakage in five (7.9%), PFF in three hips (4.8%), and PJI and superficial wound infection in each hip. The estimated survivorship at 29 years postoperatively was 74.5% in the cup revision for aseptic loosening, 63.5% in the cup revision for any reason, and 52.1% in any revision for any reason as the end point.

DISCUSSION AND CONCLUSION:

THA using one manufacturer's system showed an estimated survivorship of 63.5% in cup revision for any reason at 29 years postoperatively, and the main reason for cup revision after 24 years postoperatively was occult cup fracture. Thus, if a patient who underwent THA using this expansion cup complains of persistent hip pain, we suggest suspecting a potential

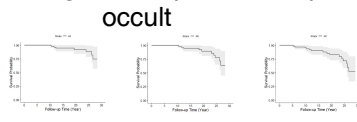
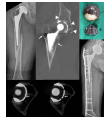
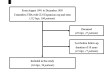


Table 1. Patient Characteristics

Sex (No./%)	Age (yr)
Male	49.5 (48/76.2)
Female	50.0 (8/12.8)
Age at surgery	49.5 (48/76.2)
Range of motion	120/130/140
HHS preop	44.5 (48/76.2)
HHS postop	87.5 (48/76.2)
Dislocation	4 (6.3)
PFF	3 (4.8)
PJI	1 (1.6)
Wound infection	1 (1.6)
Survival	52.1 (33/63)

Table 2. Revision Reasons

Revision Reason	No. (%)
Cup revision	9 (14.3)
Stem revision	3 (4.8)
Exchange limited to bearing surface	2 (3.2)
Revision of all components	1 (1.6)
Total	15 (23.8)

Table 3. Radiographic Findings

Findings	No. (%)
Cup breakage	5 (7.9)
Recurrent dislocation	4 (6.3)
PFF	3 (4.8)
PJI	1 (1.6)
Wound infection	1 (1.6)
Total	15 (23.8)

Table 4. Survivorship at 29 Years Postoperatively

Revision Endpoint	Survivorship (%)
Cup revision for aseptic loosening	74.5
Cup revision for any reason	63.5
Any revision for any reason	52.1

HHS, Harris Hip Score; PFF, periprosthetic femoral fracture; PJI, periprosthetic joint infection; Wound infection, wound infection.