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INTRODUCTION & OBJECTIVES The long-term survival of hip prostheses has become crucial with the growing number of patients requiring total hip arthroplasty (THA). We aimed to assess the long-term outcomes of an HA ceramic (HAC) coated stem with ceramic in ceramic bearings in primary THA, assess the stem survival at 14 years, and clinically evaluate the patients using patient-reported outcome measures (PROMs) and radiological evaluation of stem osteointegration.

PATIENTS & METHODS Prospective evaluation of a retrospective cohort of 382 patients (442 hips) who underwent primary THA between June 2008 and December 2018. During the follow-up duration, 23 patients died, and 36 patients (38 hips) were lost to follow-up. Prospective data collected for 326 patients (381 hips) was used to evaluate stem survival with the Kaplan–Meier method using aseptic loosening or any revision as the endpoint. Clinical evaluation was done using the Euro-Qol five-dimension (EQ-5D) scoring system and PROMs using the Oxford Hip Score (OHS) and Merle D’Aubigne Postel (MDP) score. Radiological assessments were performed using the Engh radiological criteria for stem osteointegration.

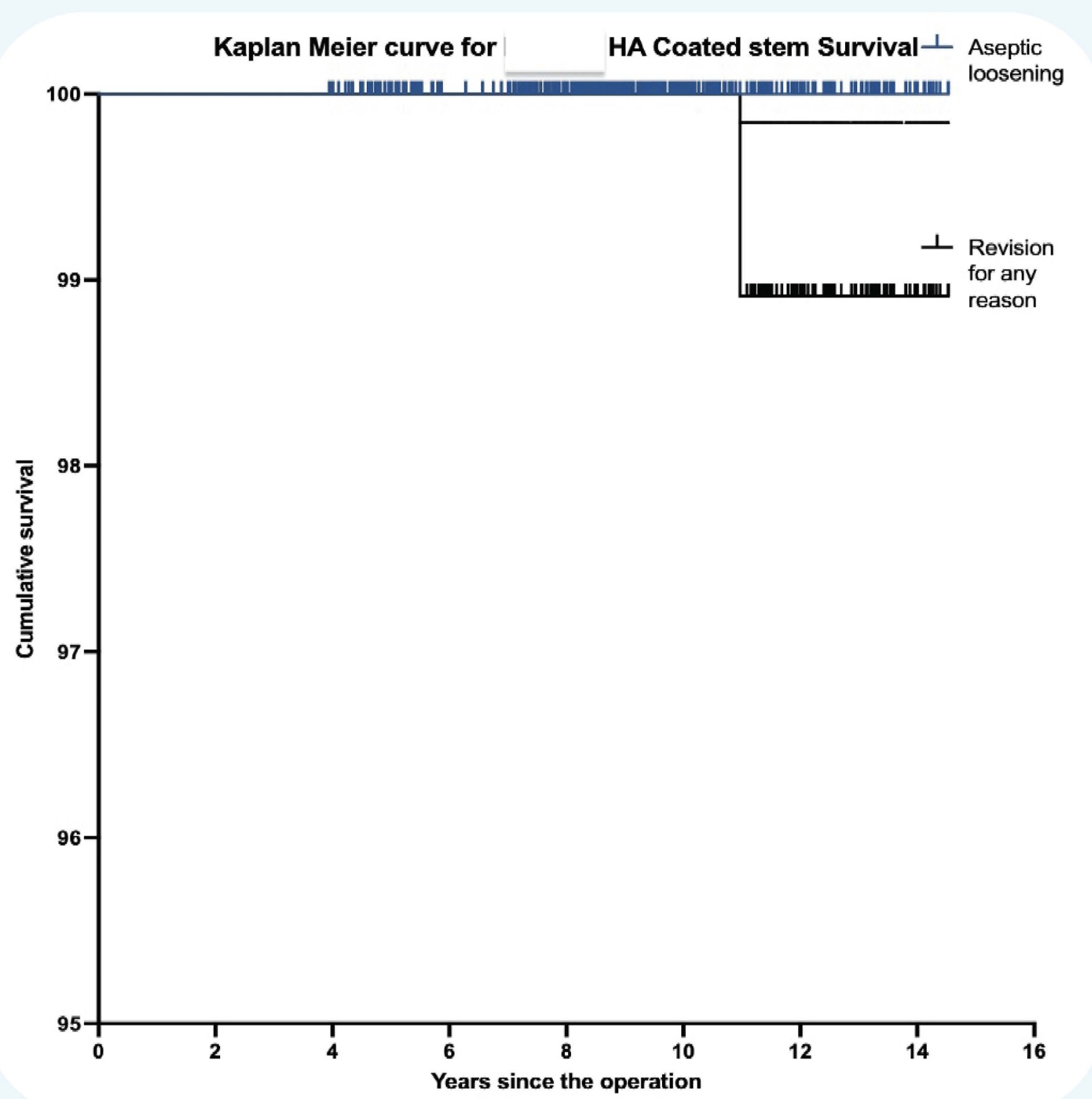


Figure 1
Kaplan–Meier survival analysis of the HAC femoral stem



Figure 2
Pelvis AP radiographs 12 years postoperatively with evidence of full osteointegration of the stems with spot welds

RESULTS The mean follow-up duration was 9.39 years (range, 4 to 14.5 years). The mean age was 63.83 years (range, 30 to 82). The survival of the HAC-coated femoral stem was 100% (95% confidence interval [CI], 96.7 to 100%) at 14 years with aseptic loosening as the endpoint, and 98.9% (CI, 96.7 to 100%) at 14 years with stem revision for any reason as the endpoint (Fig. 1). The survival for the whole THA was 97.6% (95% CI 95.2 to 100%) at 14 years using any revision as an endpoint (Fig. 2). The mean OHS was 44.5 (range, 30 to 48), and the mean MDP score was 15.87 (range, 10 to 18). Radiological evaluations showed full osteointegration of all stems (Fig. 3). The complications were recorded and listed in (Table 1).

There were no cases of ceramic fractures, 28 cases (7.3%) reported intermittent sounds of squeaking during their mobility; however, none of these patients reported any pain or required any revision surgery because of the squeaking.

Complication	Number	%
Revision arthroplasty	7	1.8
Infection	3	0.8
Fracture (intra-operative/periprosthetic)	12	3.1
Dislocation	2	0.5
Subsidence	2	0.5
Heterotopic ossification	10	2.6
DVT/PE	9	2.3
Iliopsoas impingement	4	1
Lateral hip pain (trochanteric bursitis)	13	3.4
Thigh pain	2	0.5
Squeaking	28	7.3

Table 1
Incidence of complications.

CONCLUSION The HAC-coated femoral stem has shown excellent survivorship, functional outcomes, and full osteointegration at 14 years of follow-up. The use of 36mm BIOLOX delta head has shown significant reduction in the dislocation rates.

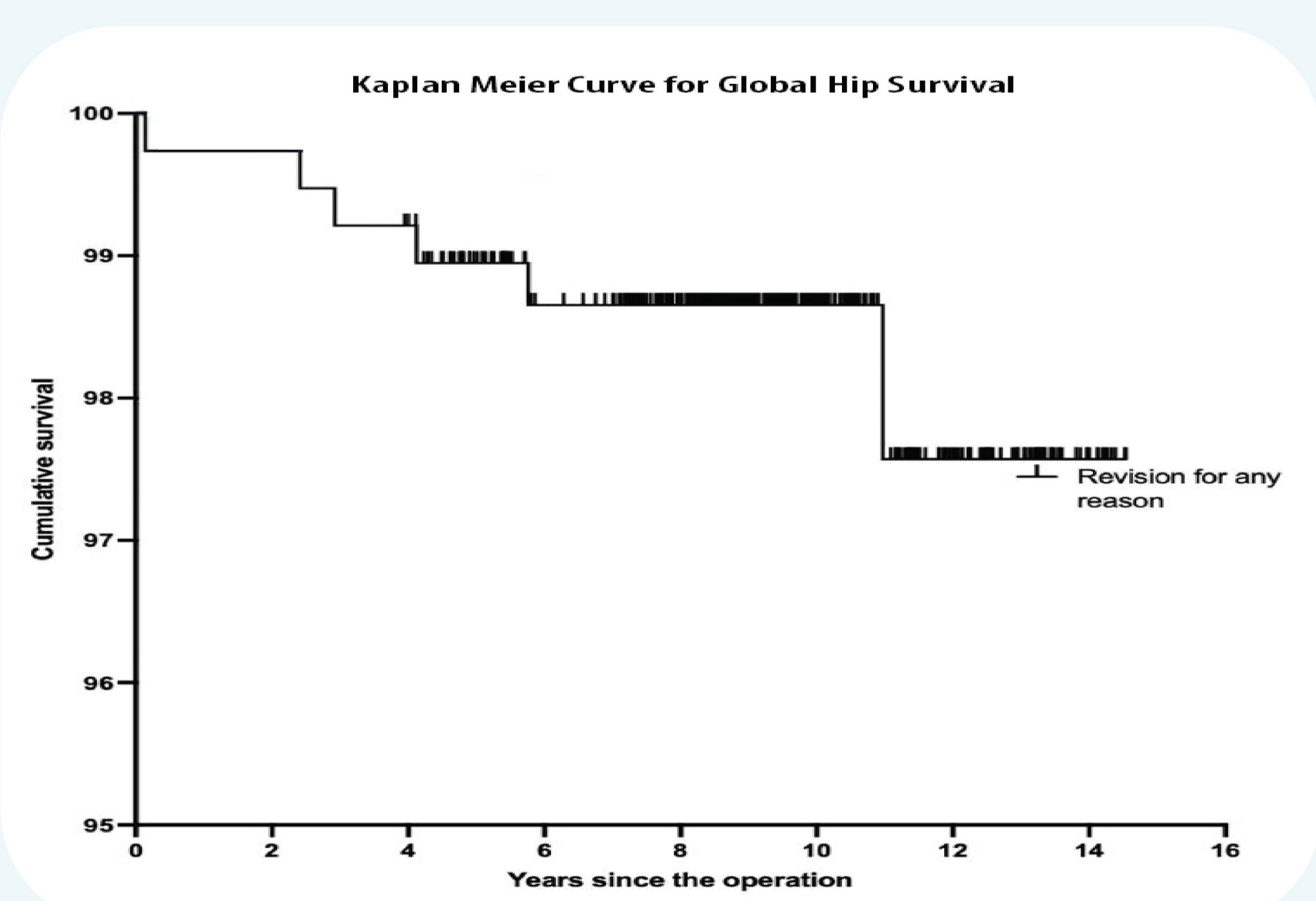


Figure 3
Kaplan–Meier curve for whole THA survival.

REFERENCES

- Wyatt, Steven, et al. "Equity of access to NHS-funded hip replacements in England and Wales: Trends from 2006 to 2016." *The Lancet Regional Health–Europe* 21 (2022).
- Kim, Young-Hoo, et al. "A randomised prospective evaluation of ceramic-on-ceramic and ceramic-on-highly cross-linked polyethylene bearings in the same patients with primary cementless total hip arthroplasty." *International orthopaedics* 37 (2013): 2131–2137.
- Hamilton WG, McAuley JP, Blumenfeld TJ, Lesko JP, Himden SE, Dennis DA. Midterm results of delta ceramic-on-ceramic total hip arthroplasty. *The Journal of Arthroplasty*. 2015 Sep 1;30(9):110–5
- Reikerås, Olav. "Total hip arthroplasty with a fully hydroxyapatite-coated stem: a cohort study during 23–28 years." *The Journal of Arthroplasty* 32.5 (2017): 1543–1546.
- Coulomb, Remy, et al. "Clinical results at 10 years of minimum follow-up with the ABG 2 hip arthroplasty, matched with ceramic-on-ceramic bearings." *SICOT–J* 8 (2022).
- Sandiford, N., et al. "Primary total hip replacement with a Furlong fully hydroxyapatite-coated titanium alloy femoral component: Results at a minimum follow-up of 20 years." *The Bone & Joint Journal* 95.4 (2013): 467–471.