

# **Incidence of Ceramic-on-Ceramic Bearing Fractures in Total Hip Arthroplasty: A 26-Year Single Tertiary Referral Center Study**

HONG SEOK KIM<sup>1</sup>, Youngseung Ko, Jeong Joon Yoo<sup>2</sup>

<sup>1</sup>Orthopedic Surgery, Seoul National University Hospital, <sup>2</sup>Seoul National Univ Hospital, Dept of Ortho Surgery

## **INTRODUCTION:**

Ceramic-on-ceramic (CoC) bearings have been widely used in total hip arthroplasty (THA) due to their excellent wear properties. However, ceramic component fractures remain a concern. This study aimed to report the incidence of modern ceramic component fracture and identify factors that might influence this risk.

## **METHODS:**

We conducted a retrospective review of 4,719 hips that underwent THA with modern CoC bearings at a single institution between 1997 and 2023. We determined the incidence and the associated risk factors of CoC bearing fracture.

## **RESULTS:**

Out of the 4,719 THA procedures, there were 24 revisions (0.51%) for CoC bearing fracture. Specifically, revisions for fracture were zero out of 2,254 (0.0%) Biolox Delta heads, 17 of 2,465 (0.690%) Biolox Forte heads, 2 of 2,254 (0.089%) Biolox Delta liners, and 5 of 2,465 (0.203%) Biolox Forte liners. All ceramic head fractures occurred in 28mm-size short neck head.

## **DISCUSSION AND CONCLUSION:**

We report the largest single-center study of CoC bearing fractures to date, without using registry data. Although the risk of revision for fracture of CoC bearings is low, previous research has not accurately estimated this risk. Our data was comparable with recent evidence suggesting that the latest generation of ceramic components has significantly decreased the incidence of head fracture, but not liner fracture.