

The Status of Acetabulum in Bipolar Hip Endoprosthesis Replacements in Orthopaedics Oncology Cases

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INTRODUCTION:

Bipolar hip endoprosthesis replacement (BHER) is commonly used in orthopaedics oncology cases requiring proximal femoral resection and reconstruction. With the improvement of survivorship of patients with musculoskeletal malignancies, implant survivorship and acetabular wear became the rising concerns. Hitherto, the option to replace the acetabulum in BHER remains controversial.

METHODS:

All the patients with orthopaedics oncology cases who underwent bipolar hip endoprosthesis replacement from 2006-October 2021 with a minimum of 6 months post operation were recruited into the study and were assessed clinically and radiologically. Functional status of the patients was assessed clinically with MSTS, TESS and mHHS scoring system. Radiological assessment was done to identify the presence of acetabular erosion.

RESULTS:

From the radiological assessments, there were 21 patients (52.5%) with grade 0, 17 patients (42.5%) with grade 1 and 2 patients (5.0%) with grade 2 acetabular erosion. There was no patient with grade 3 acetabular erosion. In this study, there was one patient (2.5%) needed revision surgery from proximal femoral bipolar replacement to total hip replacement due to recurrent hip dislocation post-operatively. With regards to the relationship of functional scores to different grade of acetabular erosion, the functional scores: MSTS and mHHS were not statistically significant (p value=0.272 and 0.379). However, it was statistically significant for the functional outcome between the two groups for the TESS score (p value=0.045). The survival rates of

implants at ten-year was 77.8% while the overall patient survivorship at ten-year was 72.1%.

Table 1: Radiological assessment of the acetabular erosion grading and the presence of hip osteoarthritis pre-operatively

Variables	Hip Osteoarthritis Pre-Operatively	
	No	Yes
Acetabular erosion X-ray grading		
Normal (Grade 0)	21 (53.9%)	0 (0.0%)
Narrowing of Articular Cartilage (Grade 1)	11 (28.2%)	5 (12.8%)
Acetabular Bone Erosion (Grade 2)	0 (0.0%)	2 (5.1%)

*One patient with no pre-operative pelvis x-ray available in the system

Table 2: The median MSTS and TESS score for each acetabular erosion grading.

Variable	Acetabular Erosion X-ray Grading	N	Median (Mode)	p-value
MSTS score (%)	Normal (Grade 0)	17	92.1(10.4)	0.272
	Narrowing of articular cartilage (Grade 1)	15	84.0 (20.0)	
TESS score (%)	Normal (Grade 0)	17	89.83 (8.99)	0.045*
	Narrowing of articular cartilage (Grade 1)	15	81.41(15.49)	

Significant: *p<0.05

CONCLUSION:

BHER is a durable limb salvaging reconstruction that can outlive patients' life and is well tolerated by oncology patients. The incidence of acetabular erosion and acetabular revision surgery are low. Besides, despite the presence of hip degenerative changes from radiological assessment, it does not significantly affect the functional status of the patients.

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