

B Clayton MD¹, C Gusho BS¹, N Mehta MD¹, W Hmeidani BS¹, M Colman MD¹, S Gitelis MD¹, A Blank, MD, MS¹

¹RUSH UNIVERSITY MEDICAL CENTER

Disclosures: Please see AAOS/MSTS list of disclosures.

INTRODUCTION

Proximal femoral metastases are often treated with proximal femoral replacement (PFR) or internal fixation (IF).

Previous studies have demonstrated possible benefits of PFR over IF, though the best method of reconstruction is uncertain.¹⁻⁵

This study compared surgical outcomes of PFR versus IF for treatment of metastatic disease of the proximal femur.

METHODS

Throughout a consecutive 15-year period 126 procedures (IF n=102; PFR n=24) were performed.

Primary Tumor	Frequency	Percent
Breast	34	27.0
Kidney	31	24.6
Lung	19	15.1
Myeloma	12	9.5
Metastatic Sarcoma	9	7.1
Prostate	4	3.2
Lymphoma	2	1.6
Other	15	11.9
Total	126	100.0

Table I. Tumor types treated.

	*PFR (n=24)	*IF (n=102)
Femoral head or neck [†]	7 (29.2%)	15 (14.7%)
Peri/Intertrochanteric [†]	5 (20.8%)	25 (24.5%)
Subtrochanteric [†]	7 (29.2%)	15 (14.7%)
Diaphyseal [†]	4 (16.7%)	40 (39.2%)
Impending Fracture [†]	10 (41.7%)	75 (73.5%)
Actual Fracture [†]	14 (58.3%)	26 (25.5%)
No Radiation	10 (41.7%)	18 (17.6%)
Neoadjuvant Radiation	4 (16.7%)	25 (24.5%)
Adjuvant Radiation	9 (37.5%)	45 (44.1%)

Table II. Lesion characteristics and therapies. *missing data omitted. PFR, proximal femoral replacement. IF, internal fixation. [†] p < 0.05 on Chi Square Test.

RESULTS

- Preoperative risk (ASA score), age, and follow-up were no different (p>0.05).
- PFR had higher blood loss and longer operative duration (p<0.001).
- Mean PFR survival was 77 months with a 5-year survival probability of 94%.
- Mean IF survival was 90 months with a 5-year survival probability of 59%.



Figure 1. Uncomplicated (A) and dislocated (B) proximal femoral endoprosthetic replacement, as well as an uncomplicated (C) and failed (D) intramedullary femoral nail.

RESULTS (continued)

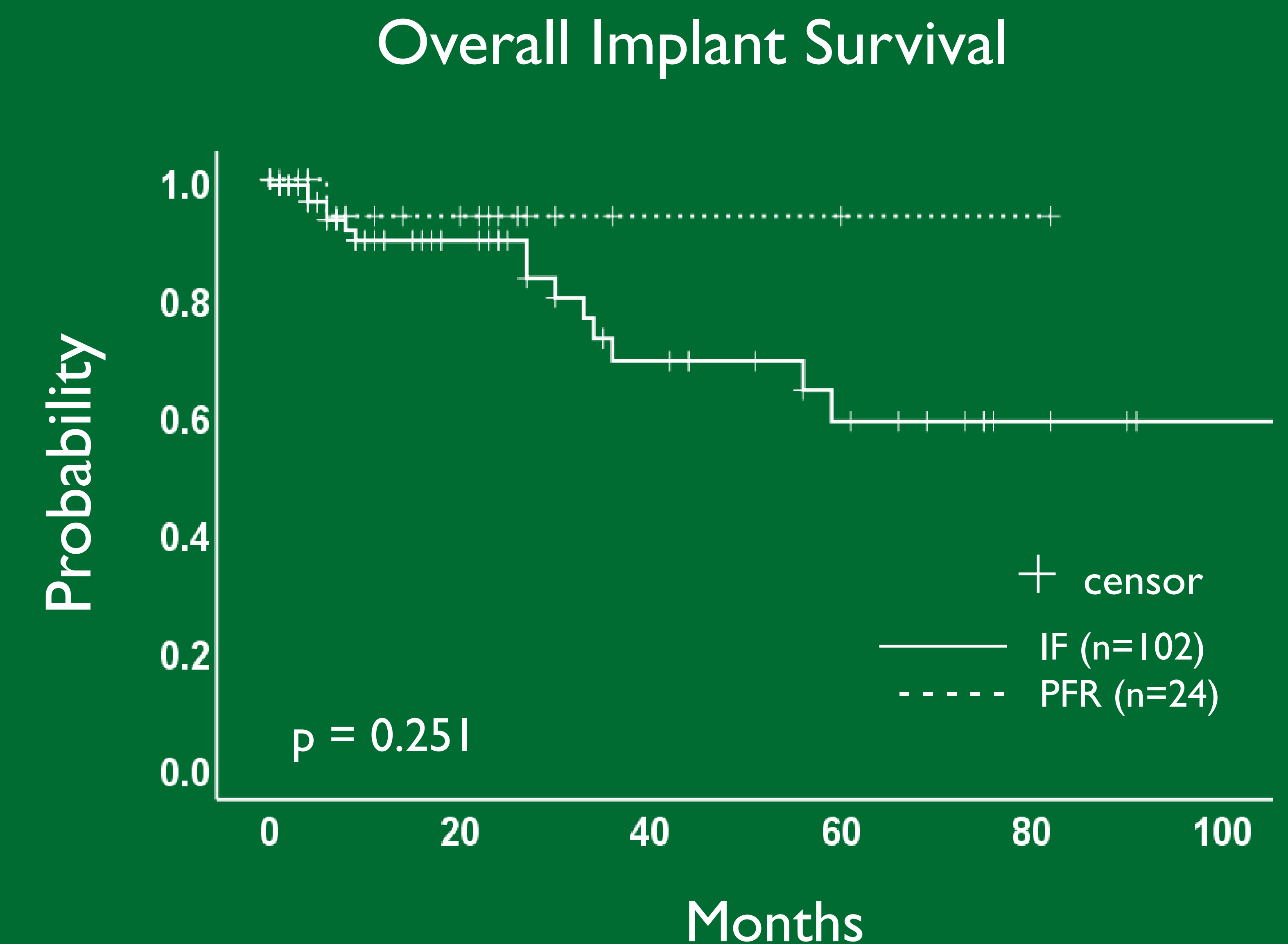


Figure 2. Implant survival. IF, internal fixation. PFR, proximal femoral replacement (n=126).

CONCLUSIONS

Metastases to the proximal femur are a challenging issue, and the advantages of IF or PFR are unclear.

For an age-matched group with similar preoperative risk there is no survival difference between IF and PFR, though PFR require longer operative times and increase blood loss.

REFERENCES

1. Khattak MJ, Ashraf U, Nawaz Z, Noordin S, Umer M. Surgical management of metastatic lesions of proximal femur and the hip. *Annals of medicine and surgery*. 2018;36:90-95.
2. Guzik G. Oncological and functional results after surgical treatment of bone metastases at the proximal femur. *BMC surgery*. 2018;18(1):1-8.
3. Di Martino A, Martinelli N, Loppini M, Piccioli A, Denaro V. Is endoprosthesis safer than internal fixation for metastatic disease of the proximal femur? A systematic review. *Injury*. 2017;48:S48-S54.
4. Tanaka T, Imanishi J, Charoenlap C, Choong PFM. Intramedullary nailing has sufficient durability for metastatic femoral fractures. *World J Surg Oncol*. 2016;14. doi:10.1186/s12957-016-0836-2
5. Harvey N, Ahlmann ER, Allison DC, Wang L, Menendez LR. Endoprostheses Last Longer Than Intramedullary Devices in Proximal Femur Metastases. *Clin Orthop Relat Res*. 2012;470(3):684-691. doi:10.1007/s11999-011-2038-0