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Background: Traditional treatments for pathological fractures of the proximal femur due to metastatic bone disease include fixation with intramedullary nailing (IMN) supplemented with bone cement (PMMA), osteosynthesis with a plate-screw construct and PMMA or a long stem cemented hemiarthroplasty. It has been the senior author's preference to utilize a long stem cemented hemiarthroplasty whenever feasible for impending or actual pathological fractures of the proximal femur (subtrochanteric, intertrochanteric, femoral neck and head). The procedure enables the surgeon to remove all gross disease, minimize recurrence and hardware failure and protect almost the entire femur. It may also provide better functional results with a low incidence of postoperative hip pain.

Question/ Purpose: The purpose of this study was to examine the functional outcomes and complications associated with long stem hemiarthroplasty in the treatment of impending/actual pathological fractures of the proximal femur due to metastatic bone disease.

Patients and Methods: Between 2012 to 2015, twenty-one patients (22 limbs)(11 males; 10 females) were treated with long stem cemented hemiarthroplasty (bipolar n=22; Unipolar n=1) following removal of all gross disease. Femoral stem length ranged from 200-350 mm (mean: 270 mm) with 64% percent of patients treated with a 300 or 350 mm length stem. The most common cancer etiology was metastatic carcinoma (n=15) followed by myeloma (n=6) and chronic lymphocytic leukemia (n=1). All patients were followed up for a minimum of 3 months to assess palliation, pain, and function. Patients were evaluated according to the MSTS system.

Results: Follow-up ranged from 3 to 34 months (mean: 6.9 mos). Five patients died of disease (four patients within 3 months of surgery). Average MSTS score for patients currently alive was 22 (73%)(range: 7-30). Seventy-three percent of patients scored good to excellent. Patients who scored below a 15 (fair/poor) either died of disease, only been followed for 3 months, or had disease related comorbidities, which interfered with recuperation. Average MSTS score for patients who are deceased was 11 (37%)(range: 5-17). No patients complained of persistent chronic hip pain postoperatively. Patients MSTS pain scores ranged from 3-5 (average: 4.3). Seventy-two percent of patients currently alive are able to ambulate independently. Complications included one patient with chronic edema (secondary to radiation), one with radiation-induced myositis, and a perioperative fracture 3 months postoperatively due to a collision. There were no pulmonary complications, DVTs, pulmonary emboli, infections, hip dislocations, revisions, loosening. There were no cases of hardware failure nor tumor recurrence/progression.

Conclusions: Long stem-cemented hemiarthroplasty provides a safe and reliable means for treating impending and actual pathological fractures of the proximal femur. Patients can be adequately palliated with good to excellent pain relief, prompt return to function, and a good quality of life provided there are no compounding variables related to their underlying disease negatively impacting recuperation. Major complications are minimized when special care is taken to clean the canal of debris and tumor and during the cementing process. Persistent postoperative hip pain and bursitis did not occur in our population nor did complications related to tumor recurrence and hardware failure. Although these results are promising, longer follow-up and randomized controlled trials with a larger population comparing various forms of fixation is needed to make more definitive conclusions.