Modified Unipolar Hemiarthroplasty For The Treatment Of Metastatic Bone Disease: Case Series Of 6 Patients

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INTRODUCTION:

Proximal femur is commonly affected by metastatic bone disease (1). In patient with favourable prognosis, proximal femur resection and endoprosthetic reconstruction is the preferred option (1). However, due to the high cost of endoprosthesis, we devised a much cheaper reconstruction method which we named "modified unipolar hemiarthroplasty" when the treatment was solely for palliation in patients with very unfavourable prognosis.

MATERIALS & METHODS:

This is a retrospective case series. From 2013 to 2017, six patients who had bone and multi-organs metastases with pathological fracture of proximal femur underwent modified unipolar hemiarthroplasty surgery in our hospital. Following proximal femur resection, modified unipolar hemiarthroplasty was then used for reconstruction. The modified unipolar hemiarthroplasty was constructed by using Austin-Moore hip prosthesis which was secured to the Küntscher nail using 1.2mm cerclage wire. The Küntscher nail with the diameter 2mm smaller than the last reamer size used to widen the femoral canal would be chosen. The strength of the construct is further augmented by slotting in a smaller size K-nail into the larger nail; or by adding a large Rush rod to the construct. The modified unipolar hemiarthroplasty was secured to the femoral canal by cementing technique. The remaining cement was the molded circumferentially to coat the whole length of the prosthesis which was remained outside of the canal. The capsule and hip abductors would then be repaired accordingly.

RESULTS:

The patients aged range from 56 to 73 years old. Four patients had pathological subtrochanteric fractures, and 2 patients sustained pathological neck of femur fractures. All patients underwent modified unipolar hemiarthroplasty palliative surgery. The average surgery duration was 204.5 minutes. The total cost of each construct was below RM2,000 only. Two patients managed to ambulate with walking frame while 4 patients were on wheel chair ambulation almost immediately post-surgery. Two patients are currently still alive with disease, while four patients had passed away within 36 days to 3 months after operation. The histopathological examination of the resected specimens revealed metastatic lesions with primaries from the lung, thyroid, renal and rectum.

DISCUSSIONS:

The mode of treatment for all 6 patients were palliative intent due to multiple metastases. The surgeries were aimed to alleviate pain, facilitate rehabilitation, ease the nursing care and improve quality of life for these patients until the end of life. We devised modified unipolar hemiarthroplasty to reconstruct the proximal femur post resection due to financial consideration and the construct would last throughout patients' lifetime.

CONCLUSION:

Modified unipolar hemiarthroplasty for the treatment of pathological fracture in proximal femoral metastases is a feasible palliative surgical treatment modality.

REFERENCES:

1. Janssen SJ, Kortlever JTP, Ready JE, Raskin KA, Ferrone ML, Hornicek FJ, et al. Complications after surgical management of proximal femoral metastasis: A retrospective study of 417 patients. J Am Acad Orthop Surg. 2016;24(7):483–94.