11240 - Does extended curettage for the treatment of Giant cell tumor offer adequate therapeutic profile in the era of latest adjuvant options, and what are the possible risk factors for local recurrence ?

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Purpose: Giant cell tumor of bone (GCT) remains notorious for its stubborn tendency for local recurrence (LR) and unpredictable clinical course. The mainstay of primary treatment for this condition in the last decades is extended curettage. Recurrence risk ranges in literature from low as 5% to as high as 50% and more. Different adjuvant therapeutic methods have been described in the past, with effectiveness estimated usually as moderate at best. The aim of this study is to evaluate the effectiveness of extended curettage as the sole primary treatment for GCT, and to assess possible risk factors for LR.

Methods: Data was collected from our institutes prospectively collected registry. 400 patients were operated for the treatment of GCT between the years 1989 and 2014. Parameters that were evaluated are: anatomical site of the lesion, presenting status regarding metastasis, pathological fractures and LR prior to presenting to our institute, surgical treatment method – resection or curettage, surgical reconstruction method, time to LR and time to metastasis. Evaluated outcomes were LR free survival and metastasis free survival.

Results: Satisfactory updated data analysis was completed for 389 patients. 199 (51.2%) were female. Mean age was 34. The most common site was around the knee, with 55% of the cases occurring at the distal femur, proximal tibia or proximal fibula, followed in descending frequency rate, by the wrist with 14% of cases and the ankle 12%. Other sites occurred at lower frequencies. 75.8% of patients were treated with curettage, and 24.2% with resection. In most of the cases no adjuvant treatment was used (87.9%). Adjuvants were mainly used for the treatment of recurrences. Hydrogen peroxide was used in 10.5% of cases, cryotherapy in 1.3% and phenol in 0.3%. LR rate was 14.9% at a mean time of 30.5 month. Metastasis rate was 2.1% at a mean time of 50.6 month.

Comparison of the curettage and resection groups showed a difference with regards to the anatomical site. Most (60%) of the lesions that were treated with curettage were in the proximal tibia and distal femur. Only minority of lesions in this group involved the proximal fibula (1%) and distal radius (6.1%). In contrast, a vast majority of lesions in the resection group involved the proximal fibula (20.2%) and distal radius (24.5%). Only 11.7% of lesions in this group involved the proximal tibia and distal femur. LR rate in the curettage group was 17.6% compared to 6.4% in the resection group. Metastasis and complications rate were not significantly different between the groups. Recurrence risk reduction after adjuvant treatment did not reach statistical significance.

Evaluation of the data raised the possibility that pathologic fracture, age, gender and lesion site at the distal radius, are possible risk factors for LR, hence a statistical analysis of these parameters was done. Age of 30 years or less reached a statistical significance as a risk factor,

and maintained the significance on a multivariate analysis. Distal radius lesions showed a tendency toward being a risk factor but did not reach statistical significance. Pathologic fracture and gender did not prove to be risk factors.

Conclusion: GCT remains a challenging diagnosis with regards to LR risk. There is no accepted consensus regarding the risk factors for LR. According to this study, age of 30 or younger is an independent risk factor for LR. Distal radial lesions showed an independent risk factor tendency but not statistically significant. General LR risk is 15% in our experience. Extended curettage generally offers a reasonable option as a sole treatment in most cases. In cases with higher risk for LR, e.g. young patients with high grade lesions involving the distal radius, it might be a sub optimal method, and a decision regarding resection should be made on case by case basis. Further research into identification of independent LR risk factors and for novel adjuvant treatment options is needed.