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Radiofrequency ablation of atypical cartilaginous tumors in the long bones: an update of our current experience

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Introduction: Atypical cartilaginous tumours (ACT) are nowadays considered as tumours with intermediate malignant potential. Treatment of these lesions tended to be less aggressive in the last decade. More recently, we proposed to treat these tumours by radiofrequency ablation (RFA) in a proof-of-principle study, with promising results. Aim of the current study is to evaluate our consecutive experience with treatment of ACT in the long bones, by RFA.

Methods: A second prospective study was undertaken, in which patients with ACT in the long bones with a maximum diameter of 35mm were included. CT-guided biopsy was taken, subsequently followed by RFA in the same session. Three months later, usual care by curettage and phenolisation was performed and retrieved material send for histological analysis. Prior to ablation, a Gadolinium enhanced MRI was made to check for residual tumour, which was our primary endpoint. Secondary endpoints were the percentage of necrosis of the tumor tissue retrieved during curettage, occurrence of fractures and disease free survival after curettage.

Results: In total, 23 patients were included, with a 1:5 male to female ratio. Mean age was 50.1 (range 31 - 75). In 16 patients (74%) there was a complete response on G-MRI three months after ablation. On a histological level, In 16 patients (74%) total ablation was reached. In five patients some viable cells were still present after ablation and in two patients substantial residual tumor was seen. In four patients (17%) a fracture happened after curettage and one (4%) after RFA, all in femoral lesions. Disease free survival was 95.8% at a mean of 28.6 months (range 15-43 months) after curettage.

Conclusion: In conclusion, we have demonstrated that an increase in experience of using RFA in treatment of ACT in the long bones improves efficacy rates. Results are still promising, moreover since G-MRI seems reliable in monitoring the event of residual tumour. Currently, studies are conducted to treat even larger lesions by multiple needle positions. In our opinion, minimal invasive treatment could become the gold standard if surgical treatment is needed in ACT.