**Results of distal femur Endoprosthetic reconstruction after primary bone tumors resection with a 5-year-minimum follow-up: A national multicentric study about 154 patients.**

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**INTRODUCTION**

The reconstruction of distal femur after bone tumor resection requires massive prostheses. Modularity has allowed much more reactivity in the process and the major part of available large studies refers to prostheses no longer produced. Others are heterogeneous, mixing distal femur with proximal tibia, primary with secondary bone tumors, first resection with revision, tumor with non-tumoral etiologies and different brand of prostheses. The aim of this retrospective study was to establish a basis of survival and complication rates with functional results of a homogeneous series of one brand of prosthesis, still produced and only used for the first surgery of distal femur primary bone tumors.

**MATERIAL AND METHODS**

All the patients from the 4 French reference centers, treated with a massive modular prosthesis Stanmore Mets® for distal femoral reconstruction were included from 2004 to 2010, to allow a minimum significant 5 year follow up. The analysis included a functional TESS score evaluation form, physical and radiological examination, classical epidemiological data recording, complications analysis, survival curves with failure risk factors tests and evaluation of the 5 possible failure modes according to the Henderson classification.

**RESULTS**

154 patients (80 men and 74 women) of 40.8 year old were included. Chondrosarcoma and Osteosarcoma accounted for 77% of all cases. On latest follow up, 104 were disease free, one alive with metastasis, 40 were deceased of disease and 6 were deceased because of other pathologies, 3 were lost of sight. Major part of complications was infectious (44 reoperations, versus 24 for mechanical reasons and 10 because of tumoral progression). Overall failure rate was 18%. Survival rates were of 82% and 76% at 5 and 10 years. Type 2 failure was recorded in 8 cases (5%), Type 3 in 6 cases (4%), Type 4 in 9 cases (6%) and Type 5 in 5 cases (3%). There was no Type1 failure. Over 28 revisions, 5 ended up with amputation or total femur prosthesis (18% failure rate). Mean TESS functional score was of 82%.

**DISCUSSION**

These results are consistent with the few large series of the literature. However modular, the prosthetic fracture rate is very low (1 case) and aseptic loosening remains a rare complication, maybe thanks to hydroxyapatite collar or long stems with large endosteal support. As scheduled, infection rate is high (29%). Focus on this issue is permanent in bone tumor societies and one effective solution could be the use of silver-coated prostheses. The retrospective design and population heterogeneity, classical issues in bone tumor surgery literature, are the main limits of this study, which however remains one of the most homogeneous to date.

**CONCLUSION**

The 5-year-minimum results with this modular prosthesis are satisfying regarding survival and revision rates. There are still progresses to perform, essentially through large international cooperation in oncologic orthopaedics to gather information consistent enough to gain statistical power, which this study lacked at some points to evaluate some variables implication. The follow up of this cohort will continue to determine a 10-year follow up.

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Keywords : Survival, Results, Endoprosthetic, Primary bone tumor, Distal femur  
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