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Post radiation sarcoma: a single institutional experience on 52 cases

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INTRODUCTION: Radio-induced sarcoma is a rare entity. Previous studies reported on post-radiation sarcomas. However, the incidence, latency from radiation therapy, treatment and survival has been difficult to evaluate.

OBJECTIVES: We retrospectively reviewed our experience to characterize its prevalence, treatment, relapse and survivorship at long term follow-up.

METHODS: Fifty-two patients aged from 14 to 83 years (mean 49 years), were treated from 1980 to 2008. Lesions affected the femur (16), pelvis (11), tibia (6), clavicle(6), scapula (4), spine (3) humerus (3), skull(2) and sacrum (1). The mean radiation exposure dose to the patient was 33 Gy (range from 25 to 50 Gy) with a mean interval from radiation of 15.1 years (range 5-40 years). Forty-five patients had post-radiation bone sarcoma, seven had post –radiation soft-tissue sarcoma. There were thirty-five secondary osteosarcomas, sixteen secondary high grade spindle cell sarcomas and one case of secondary angiosarcoma. Limb salvage surgery was performed in 24 cases, amputation in 15 cases. Thirty-two patients were treated with neoadjuvant chemotherapy and surgical treatment, twelve patients had only surgery, five had chemotherapy only, one patient underwent embolization, two patients received palliative care. Once excluded patients without surgical treatment, statistical analysis with Kaplan Meier curves and Cox regression multivariate analysis were performed.

RESULTS: At a mean follow up of 4 years twenty-one patients were disease-free, seven were alive with disease, twenty-four died with disease. Six local recurrences were observed and 12 patients developed lung metastases. Kaplan Meier curves showed overall survival of 53%, 47% and 42% respectively at 2,5, 5 and 10 years. The multivariate analysis, using the Cox proportional hazard model, was performed to determine the same variables: margins, neoadjuvant chemotherapy and site of tumour. The multivariate analysis showed that there are no significant prognostic factor on survival. Metastases at diagnoses seemed to influence survivorship but it had no statistical significance.

CONCLUSION: Post radiation sarcoma has a poor prognosis as previously reported in the literature. About half of the patients are alive at 4 years mean follow up with neoadjuvant chemotherapy and surgery. In most patients, limb salvage is feasible.

REFERENCES:

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