

# PROXIMAL FEMUR EPIPHYSIOLYSIS AND FEMURAL HEAD NECROSIS AFTER RADIOTHERAPY IN ILIAC EWING SARCOMA: CASE REPORT

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## Introduction

Ewing's tumor accounts for 6-8% of all primary bone neoplasms. However, it is the second most common malignant bone tumor in children and young adults. It shows a slight male predominance, with a sex ratio of 1.4:1. The pelvis and ribs are described as the second most common site of involvement. After systemic scan and a confirmatory biopsy, the treatment is done by administering chemotherapy, local control surgery and adjuvant radiotherapy. In some cases, as in pelvic or spine involvement, when the surgery results in a high rate of morbidity, especially in good chemotherapy responsive patients, the radiotherapy is shown as a safe and efficient choice of local control. We describe a non-metastatic patient with Ewing's tumor of the pelvis treated with chemotherapy and local control by radiotherapy that evolved with unilateral osteonecrosis and epiphysiolysis of the proximal femur.

## Case report

Twelve years-old male patient presented with right hip pain whit three months of evolution. X-rays showed a lytic lesion in right iliac bone. Bone scan and lung CT does not showed any other lesions. Needle biopsy confirmed the Ewing tumor. The VAC-IE chemotherapy protocol was done by 34 weeks. It was performed a PET-CT scan the 13th week and revealed an excellent response. It was performed a 45Gy Radiotherapy for local control considering the good clinical response and opting to not increase the treatment morbidity. The patient was considered free of disease after 17 months since the treatment beginning.

The diagnosis of osteonecrosis of the proximal femur was done in the course of the oncological treatment but it was asymptomatic. However, after 4 months of the end of the treatment the patient started with an acute hip pain not related to local trauma. The X-ray and MRI demonstrated an osteonecrosis of the proximal femur and a acute epiphysiolysis. It was performed an in situ epiphysiodesis with one cannulated screw. There is no metabolic or endocrine disease diagnosed in this patient and he has a Frohlich biotype.

## Discussion

There is no association of epiphysiolysis of the proximal femur with radiotherapy in the actual literature. No articles with this keyword was found in the Pubmed database. There is a high incidence of osteonecrosis after radiotherapy shown by the traditional and actual literature. However, the proximal femur epiphysiolysis presented by this patient in the same site of an osteonecrosis led us to consider if there is any risk factor involved in this clinical presentation. The Frohlich biotype presentation of the patient increase the theory that he would have the epiphysiolysis despite the osteonecrosis secondary to the radiotherapy. We could not determine the cause of this clinical presentation however it lead us to discuss if there is any hip risk involved in the radiotherapy besides the osteonecrosis.