PRELIMINARY STUDY OF OSTEOSARCOMA TISSUE PROTEINS EXPRESSION OF PRE AND POST-CHEMOTHERAPY PATIENT

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ABSTRACT

Osteosarcoma is a very aggressive malignancy of the bone that usually at times of diagnosis, patients have already presented with metastasis. In this study, we tried to detect the cellular adhesion molecules (VCAM-1 and ICAM-3) that are believed to be involved in tumor cells migration that might cause the metastasis. Two osteosarcoma samples were harvested from two patients before and after chemotherapy respectively. The tissue sections were stained with Hematoxylin and Eosin (H&E) staining for reviews and subsequently stained for VCAM-1 and ICAM-3 antibody by Immunohistochemical (IHC) staining to observe these cellular adhesion molecules expressions. At the same time, the area and number of nuclei were measured and compared before and after chemotherapy to relate it with the expression of VCAM-1 and ICAM-3, also, to relate it with the current clinical situation of the patients. In this study, no significant expression of ICAM-3 was observed in both Patient 1 and Patient 2. However, there was a strong VCAM-1 expression and also an increased of number and area of tumor cells in Patient 2 that was presented with early local recurrence. This could be associated with the poor response to chemotherapy and also could be a potential prognostic marker in patients with osteosarcoma.

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1.0 INTRODUCTION

1.1 Osteosarcoma

Osteosarcoma is a rare disease which comprises approximately 55% of child and adolescent malignant bone tumors in the United States (Mirabello et al., 2009). However, among all primary bone malignancies, osteosarcoma is the most common compared to Ewing's Sarcoma, chondrosarcoma, fibrosarcoma and others. Moreover, it comprises about 3.4% of pediatric tumors (Program, 1999). It is termed as primary because it begins and localized in the bone. On gross appearance of osteosarcoma bone, commonly there will be area of necrosis and hemorrhage as seen in Figure 1(A). Histologically, bone-forming tumor cells that were differentiated from mesenchymal cells can be seen, showing new immature bone matrix, termed osteoid(Geller and Gorlick, 2010), as seen in Figure 1 (B)
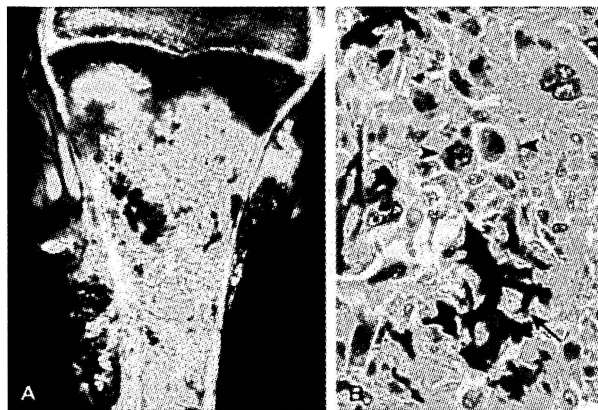

Figure 1 (A) shows gross features of osteosarcoma. Whereas histological appearance of osteosarcoma can be seen as in Figure 1(B)