



Tissue microarrays analysis in chondrosarcomas. Light microscopy, immunohistochemistry and xenograft study.

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Abstract

Background: Chondrosarcoma (Chs) is the third most frequent primary malignant tumour of bone and can be primary or secondary, the latter results mainly from the malignant transformation of a benign pre-existing tumour.

Methods: All the cases diagnosed as Chs (primary tumours, recurrences and/or metastasis and xenotransplanted Chs) from the files of our Department were collected. Only cases with paraffin blocks available were selected (Total 32 cases). Six Tissue Microarrays (TMAs) were performed and all the cases and biopsies were distributed into the following groups: a) only paraffin block available from primary and/or metastatic tumours (3 TMAs), b) paraffin block available from primary and/or metastatic tumours as well as from the corresponding Nude mice xenotransplant (2 TMAs), c) only paraffin block available from xenotransplanted Chs (1 TMA). A reclassification of all the cases was performed; in addition, conventional hematoxylin-eosin as well as immunohistochemistry staining (S100, SOX-9, Ki-67, BCL-2, p53, p16, CK, CD99, Survivin and Caveolin) were analyzed in all the TMA.

Results: The distribution of the cases according to the histopathological pattern and the location of tumour were as follows: fourteen Grade I Chs (all primaries), two primary Grade II Chs, ten Grade III Chs (all primaries), five dedifferentiated Chs (four primaries and one primary with metastasis), and two Chs from cell cultures (Ch grade III). One recurrent extraskeletal myxoid Chs was included as a control in the TMA. Although there was heterogeneity in immunohistochemistry results of the different material analyzed, S100, SOX-9, Caveolin and Survivin were more expressed. The number of passages in xenotransplants fluctuated between 1 and 13. Curiously, in Grade I Chs, these implanted tumours hardly grew, and the number of passages did not exceed one.

Conclusions: The study of Chs by means of TMA techniques is very important because it will improve the assessment of different antibodies applied in the immunohistochemical assays. Xenotransplanted tumours in TMA improve knowledge concerning the variability in the morphological pattern shown by these tumours during the evolution in nudes.

Keywords: Tissue microarray, Chondrosarcomas, Immunohistochemistry, Xenograft.

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