Using immunostains to distinguish the look-alike Blue Cell Tumors, their pathogenesis and behavior: Experience of a single center in Khartoum

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Blue cell tumours are a diverse group that look alike in the H&E stained sections and are difficult to distinguish from each other except by immunohistochemistry. They include: Desmoplastic small-round-cell tumour, Ewing's Sarcoma/PNET, Neuroblastoma, Medulloblastoma, Rhabdomyosarcoma, Carcinoid tumor, Small cell lung cancer, Wilms' tumour, Retinoblastoma, Small-cell lymphoma and Hepatoblastoma. We have encountered all these in our practice. Because of the long list only some will be discussed. These are Ewing group of tumours and some uncommon but quite interesting members of the other Blue cell tumours. There are 3 main types of Ewing tumors: Ewing sarcoma of bone, Extraosseous Ewing tumor (EOT) and Peripheral primitive neuroectodermal tumor (PPNET). The latter is a rare childhood cancer that involves the brain and can also starts in the bone or soft tissue and shares many features with Ewing sarcoma of bone and EOT. Peripheral PNETs that start in the chest wall are known as Atkin tumors. We used certain immunohistochemical stains to correctly diagnosis these cases. Classic Ewing sarcoma is positive for CD99, Vimentin but negative for the neural stain S-100 protein. PPNET has the same markers as Ewing but they are s-100 and Cytokeratin and/or EMA positive. We had odd sites for Ewing sarcoma such as the Esophagus. Some other interesting small round cell tumours are myelomas. When they have typical appearance of plasma cells the diagnosis is easy. However there is a poorly differentiated plasmacytoma that looked like other blue cell tumours. One was in the spine. It stained positive for the B cell marker CD20 but was negative for LCA which led us to do immunostaining for plasma proteins. The cells were positive for IgG and negative for Ig A and Ig M. Mature plasma cells of multiple myeloma are negative for CD20. Diagnosis: Myeloma of the small lymphocyte-like type involving D11.