

Extensive Bone Marrow Involvement by Metastatic Rhabdomyosarcoma

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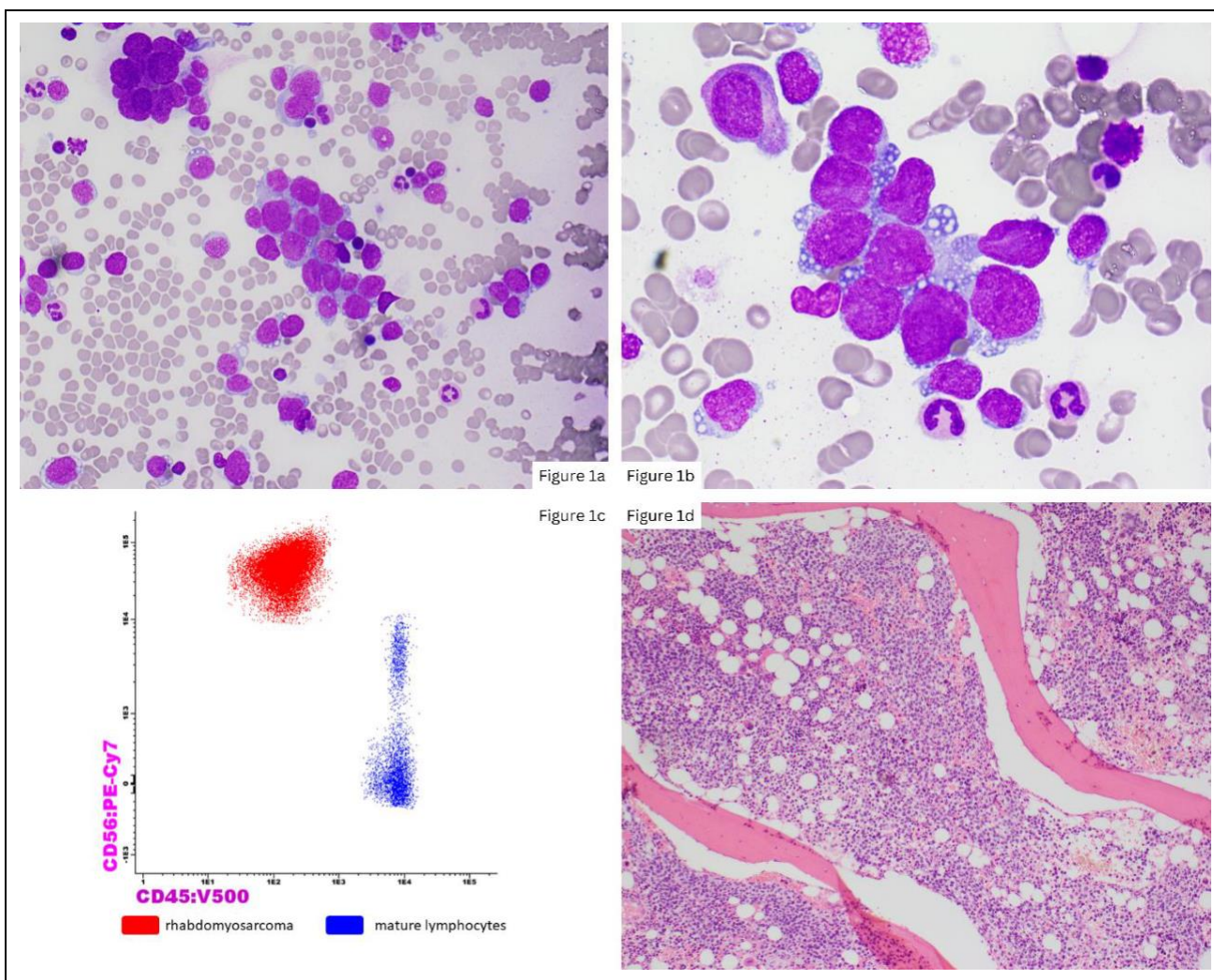


Figure 1a: Peripheral blood smear, 40x magnification, May-Grumwald-Giemsa stain. Extensive infiltrate of rhabdomyosarcoma cells in cobblestone pattern.

Figure 1b: Peripheral blood smear, 100x magnification under oil, May-Grumwald-Giemsa stain. Rhabdomyosarcoma cells demonstrating morphological characteristics similar to lymphoid malignancies, including frequent vacuolation and basophilic cytoplasm.

Figure 1c: Flow cytometry demonstrating large CD45- CD56^{+(bright)} population that did not express any lymphoid or myeloid markers suggestive of non-haematopoietic origin.

Figure 1d: Bone marrow trephine, hematoxylin and eosin stain, 20x magnification. Sheet-like infiltrate of small round blue cells with scant cytoplasm and dense nuclei.

Clinical Image

A 20-year-old woman presented with thrombocytopenia ($58 \times 10^9/L$), persistent epistaxis and a raised lactate dehydrogenase (1856 U/L). Cranial imaging was performed demonstrating an expansile enhancing lesion centered in the left maxillary sinus, with marked osseous erosion and extension into the left orbit with resultant proptosis. She underwent a concurrent biopsy of the nasal mass and bone marrow (BM).

The aspirate showed an extensive infiltrate of medium-sized cells with intermediate N:C ratio, frequent vacuolation and basophilic cytoplasm with frequent aggregates in a cobblestone appearance (Figure 1a and 1b; original magnification x40 and x100 oil respectively, May Grumwald-Giemsa stain). Flow cytometry showed a CD45- CD56^{+(bright)} population that did not express any lymphoid or myeloid markers suggestive of non-haematopoietic origin (Figure 1c). The bone marrow trephine demonstrated a sheet-like infiltrate of small round blue cells with scant cytoplasm and dense nuclei (Figure 1d; original magnification x20, hematoxylin and eosin stain). Immunohistochemical stains were positive for desmine, myoD1, myogenin, CD56, FLI1, INI and later FISH testing for FOX-01 confirmed a diagnosis of metastatic alveolar rhabdomyosarcoma.

The patient underwent chemotherapy but was refractory and died during the first cycle.

Rhabdomyosarcoma may present with morphological features that make it difficult to distinguish from haematological malignancies.