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Round Cell Sarcoma after Clear Cell Sarcoma Remission

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STEGER *et al.* [1] reported a relapse of round cell sarcoma after a complete remission of a clear cell sarcoma recurrence induced by treatment with interferon alpha$_{2b}$ (IFN-α_{2b}).

We have recently studied a similar case that was not treated with IFN-α_{2b}, thus raising new insights on the possible role of biological response modifiers in the natural course of clear cell sarcoma of tendons and aponeurouses (CSSTA), as well as providing additional evidence on the neural crest origin of CSSTA.

The patient, a 26-year-old woman, presented with a slow-growing tumour on the left popliteal region that she had noticed 6 years before (1982). The surgical specimen consisted of a whitish and fleshy mass, 10 cm in its largest dimension, infiltrating the musculo-aponeurotic tissues on the periphery. The surgical margins were free of tumour. Light microscopic study disclosed a fairly typical clear cell sarcoma without melanin pigmentation (Fig. 1a). The neoplastic cells were diffusely immunoreactive for S100 protein and non-reactive with cytokeratin. Immunoreactivity for neuron specific enolase (NSE) was equivocal. Staging procedures failed to demonstrate lymph-node, visceral and bone metastases. She received local radiotherapy over 1 month (6400 Rads), followed by ten sessions every 28 days of a polychemotherapy protocol (day 1: 70 mg doxorubicin + 400 mg dacarbazine; days 2–5: 400 mg dacarbazine).

15 months later the patient presented with two subcutaneous nodules on the right deltoid (1.5 cm) and left thoracic (2.1 cm) regions. Staging showed multiple bone metastases (head, ribs, dorsolumbar vertebra and pelvis). There were neither nodal and visceral metastases nor any signs of local recurrence of the tumour. Light microscopy of the subcutaneous nodules revealed a round cell sarcoma with Hommer-Wright rosettes (Fig. 1b), immunoreactive for S100 protein and NSE. Palliative chemotherapy (25 mg actinomycin + 2 mg vincristine + 6 g ifosfamide) was given. The patient died 29 months after initial surgery. Necropsy was not done.

As in the recurrence of the case reported by Steger *et al.* the subcutaneous metastases of our patient displayed the typical features of a round cell sarcoma consistent with a primitive neuroectodermal tumour. However, in contrast to this case, local IFN-α_{2b} was not administered and we can therefore, in our case, rule out the possibility of a *de novo* round cell sarcoma induced by interferon.

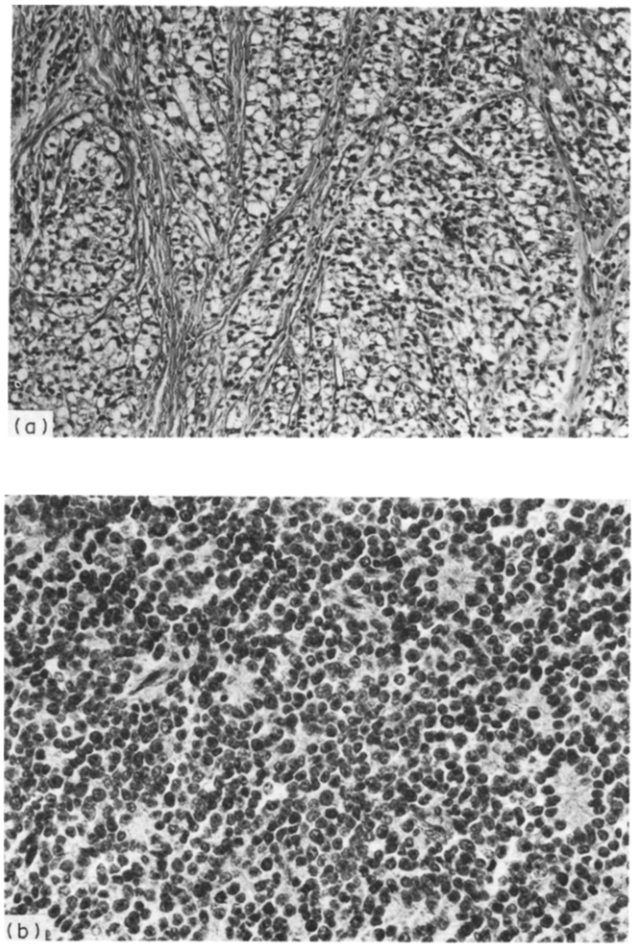

Fig. 1. (a) Clear cell sarcoma with typical pattern in the primary tumour (haematoxylin-eosin × 125); (b) monomorphic proliferation of round cells with scanty cytoplasm displaying Hommer–Wright rosettes in the subcutaneous metastasis (haematoxylin-eosin, × 250).

In the primary tumour of our patient we could not find round cells similar to those observed in the subcutaneous metastases. The change of histological pattern may thus reflect a dedifferention of the clear cell sarcoma induced by the radiotherapy and/or chemotherapy that our patient received. Alternatively, the round cells seen in the metastases may represent the selection of a subclone of neoplastic cells, resistant to therapy, that could not be demonstrated in the primary tumour despite thorough search.

Both alternatives support the neuroblastic potential of (de)differention of CSSTA, at least when under treatment, in keeping with the neural crest origin of CSSTA [2]. This possibility should always be considered, particularly when establishing therapeutic protocols for recurrences and metastases of CSSTA resistant to therapy.

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