

## Pagetiform relapse of primary breast lymphoma

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A 73-year-old woman presented with a 4 cm right breast mass. Excision biopsy showed DLCBL, and marrow biopsy and computerized tomography (CT) scan confirmed stage III disease with axillary lymph node involvement. She achieved a complete remission with 3 courses of COPP chemotherapy (cyclophosphamide, vincristine, prednisolone, procarbazine) and local radiotherapy (45Gy). One year later, she complained of itch and soreness of left nipple (Figure 1A). Physical examination showed subcutaneous swelling of the left nipple. An incisional biopsy showed extensive infiltration, up to the dermo-epidermal junction, by sheets of large lymphoid cells with CD20 expression (Figure 1B), compatible with relapse DLCBL. There was ductal infiltration (Figure 1B, insert) but no intraepithelial lymphoma cells. A repeat CT scan confirmed disease relapse in the left axilla, bilateral cervical, thoracic and abdominal lymph nodes, and deep left breast tissue. The areolar mass resolved completely with NOPP chemotherapy (mitoxantrone, vincristine, prednisolone, procarbazine).

Primary lymphoma, mostly DLCBL, of the breast accounts for 2% of all extranodal lymphomas.<sup>1</sup> Contralateral breast relapse occur in 15% of cases, suggesting a homing mechanism. However, specific homing to the areolar skin is rare and is reminiscent of Paget's disease. This is characterized by intra-epithelial carcinoma infiltration of the nipple, heralding an ipsilateral, often non-palpable, carcinoma of the breast.<sup>2</sup> Such epidermotropism of the cancer cells may be caused by periductal migration,<sup>3</sup> chemotactic secretions from epithelial cells<sup>4</sup> or induction of local malignant transformation at the areolar region.<sup>5</sup> Similar lymphoma tropism to the areolar region is very rare, and most reported cases are cutaneous T cell lymphomas.<sup>6,7</sup> Since B-lymphocytes are absent from normal skin, breast and areolar tissue, the finding of B-cell infiltration of areolar skin is diagnostic of malignant relapse. The unilateral involvement of left breast and nipple, sparing the atrophic right breast, nipple and other skin areas, support the concept of the contralateral breast ductal tissue as a homing / sanctuary site, and periductal epidermotropism of the lymphoma cells to the areolar tissue. Prophylactic irradiation of the opposite breast may have prevented the subsequent Pagetiform and systemic relapse in our patient.

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**Figure 1.** A: Left side areolar swelling and skin infiltration by lymphoma cells. Note right breast atrophy due to previous irradiation, and normal right nipple. B: Low power (x50) and high power (insert x400) of punch biopsy of the area of areolar involvement showing extensive lymphoma infiltration the dermis up to the dermo-epidermal junction, consisting of large lymphoid cells, some showing periductal infiltration.

## References

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