

Porocarcinoma and lymph node biopsy

Report of a case

Raquel Cardoso¹, Ricardo Vieira¹, João Duarte Freitas¹, Oscar Tellechea¹, Cândida Lourenço², Hugo Duarte², Maria José Julião³, João Pedroso Lima² and Américo Figueiredo¹

Departments of ¹Dermatology, ²Nuclear Medicine and ³Anatomic Pathology, University Hospital, Coimbra, Portugal.

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ABSTRACT

Porocarcinoma is a rare and aggressive cutaneous neoplasm of sweat gland epithelium origin. An epidermotropic and a trabecular form occur. Besides the different histological presentation, these variants possess distinct biological behaviour and, in contrast with the trabecular porocarcinoma, the former variant has metastasising potential.

We report a case of a 74-year-old woman with epidermotropic porocarcinoma presenting as a verrucous plaque on the dorsum and lateral border of the left foot. Wide surgical excision of the tumour was performed, along with sentinel lymph node biopsy, to allow early identification of metastasis from this sweat gland carcinoma. Histological examination of the lymph node did not reveal invasion by tumoural cells. In the follow-up period a local recurrence without lymph node enlargements was detected at 6 months. Surgical excision was performed and, 6 months after this procedure, there is no recurrence or metastases.

Although epidermotropic porocarcinoma has a propensity to metastasise to regional lymph nodes and systemically, it is still unclear if this technique can be helpful in the improvement of the overall survival.

Described, in 1963, by Pinkus and Mehregan¹ in its classic, epidermotropic form, and by Mishima and Morioka² in its trabecular variant, porocarcinoma is an

uncommon sweat gland neoplasm that can occur *de novo* or, less often, from a pre-existing eccrine poroma³. It constitutes the more frequent type of sweat gland carcinoma, accounting for about 30% to 50% of the cases³. Porocarcinoma is more frequent after the sixth decade and its incidence is similar in both genders, with a preferred location on the legs, with no topographic overlap with eccrine poroma^{4,6}.

Clinically, it presents as a verrucous plaque or a nodule that can be angiomatous with a progressive evolution (average of 3 to 4 years), after which a rapid phase of

Correspondence:

Raquel Cardoso, M.D.
Serviço de Dermatologia
Hospitais da Universidade de Coimbra
Praceta Professor Mota Pinto
3000-075 Coimbra
Portugal.
Tel.: (351) 239 400 420
Fax: (351) 239 400490

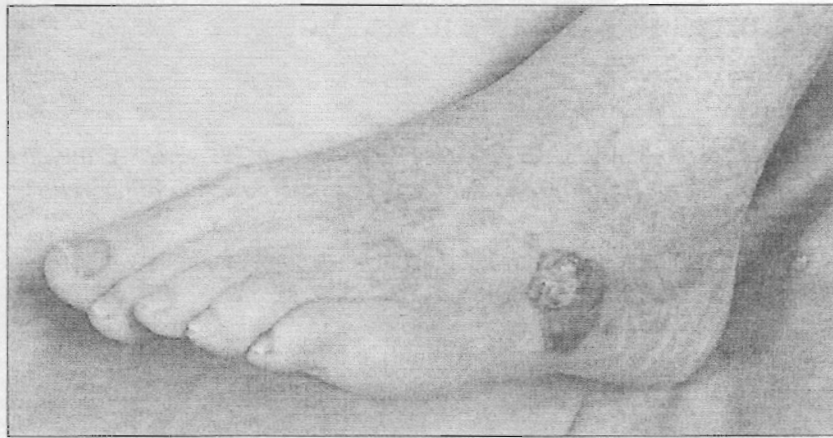


Fig. 1 - Verrucous and papillomatous, infiltrated plaque, with one year evolution.

growth with ulceration and bleeding can follow^{1,6}. The presence of peripheral papules and/or regional lymphoedema denotes lymphatic embolisation with cutaneous satellitosis and/or lymph node metastases^{1,6,7,8}. Post lymph node metastatisation

has been microscopically confirmed in the pleura, lung, bone, ovary, spleen, pelvic cavity and retroperitoneum^{3,7,11-13}.

Classically considered as a high mortality neoplasm, the prognosis of porocarcinoma may depend on the histological type (3,5).



Fig. 2 - Close-up of Fig. 1.

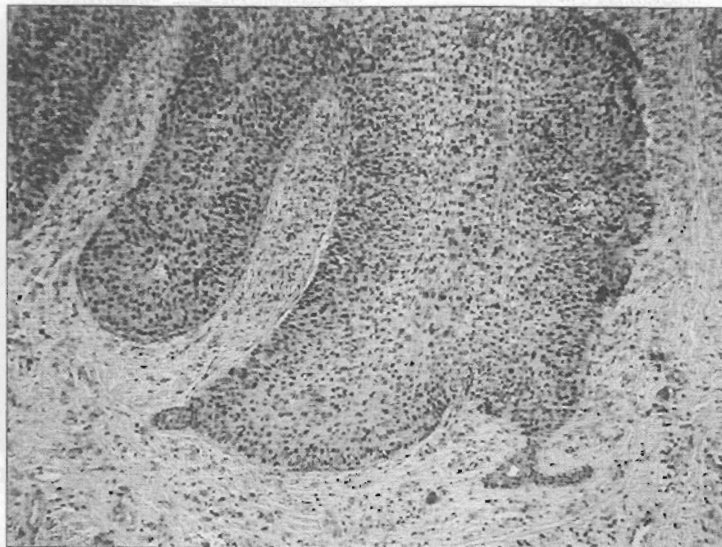


Fig. 3 – Intra-epidermal proliferation with dermal invasion of cuboidal atypical poroid cells aggregated in irregular nests.

Microscopically, two types of porocarcinoma have been described. The epidermotropic type¹ characterised by asymmetrical intra-epidermal growth of irregular, sharply limited nests with secondary dermal expansion. The nests are made of polygonal, poroid cells with frequent atypia and rare foci of ductal differentiation and cornification. Cuticular clear cells that correspond to tentative lumen differentiation are a common finding. Cell necrosis, which may be confluent, focally occurs. Lymphatic dermal permeation is the rule in cases with metastatisation, and, histologically, satellite or distant cutaneous metastases replicate the primary neoplasm. This epidermotropic variant of porocarcinoma is unquestionably associated with metastatisation and its prognosis is, in general, unfavorable^{5,6,7}.

In the trabecular type of porocarcinoma², the architectural pattern and cytological aspects of the proliferation are similar to those seen in eccrine poroma. Often, the his-

tological image of typical eccrine poroma is present, but the trabecular porocarcinoma can be distinguished from the latter by its asymmetry, focal invasiveness and cytological atypia. The occurrence of metastases in this type of porocarcinoma has not been documented, and some authors consider that it should be considered a variant of eccrine poroma rather than a type of porocarcinoma³.

We had the opportunity to observe a patient with epidermotropic carcinoma without clinical evidence of metastases, in which a sentinel lymph node biopsy was performed, on the basis of the exclusively lymphatic route of dissemination of the neoplasm, in order to evaluate the possibility of subclinical lymph node spreading.

CASE REPORT

In July 2003, we observed a 74-year-old Caucasian woman with an asymptomatic, well delimited, infiltrated oval plaque,

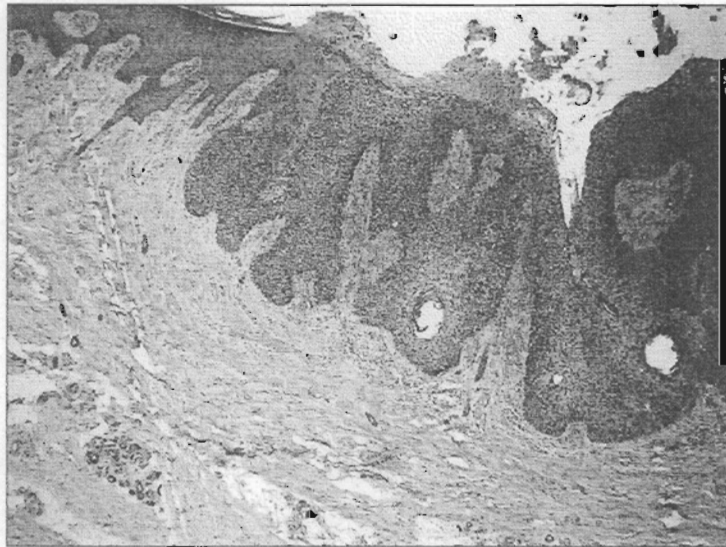


Fig. 4 - Poroid and cuticular cells. Atypic mitosis and nuclear pleomorphism are striking. A sweat duct in intimate relation with the tumour cells is present.

with verrucous and papillomatous surface, located on the dorsum and lateral border of the left foot. It measured 5cm in diameter and in its upper border it had a 1.5cm nodule, that had grown in the last

four months (Figs. 1 and 2). The lesion had been noticed one year earlier.

Personal history included glaucoma and hypertension, under medical control. The patient was in good general health and no

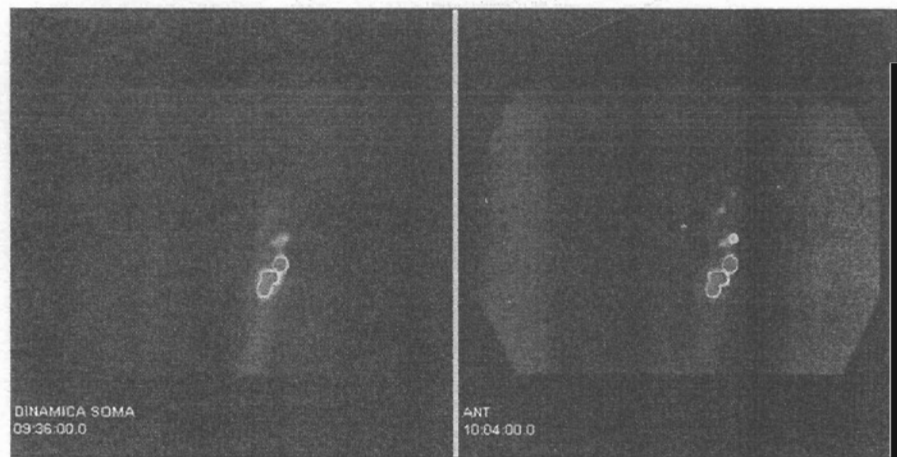


Fig. 5 - Identification of two left inguinal lymph nodes.

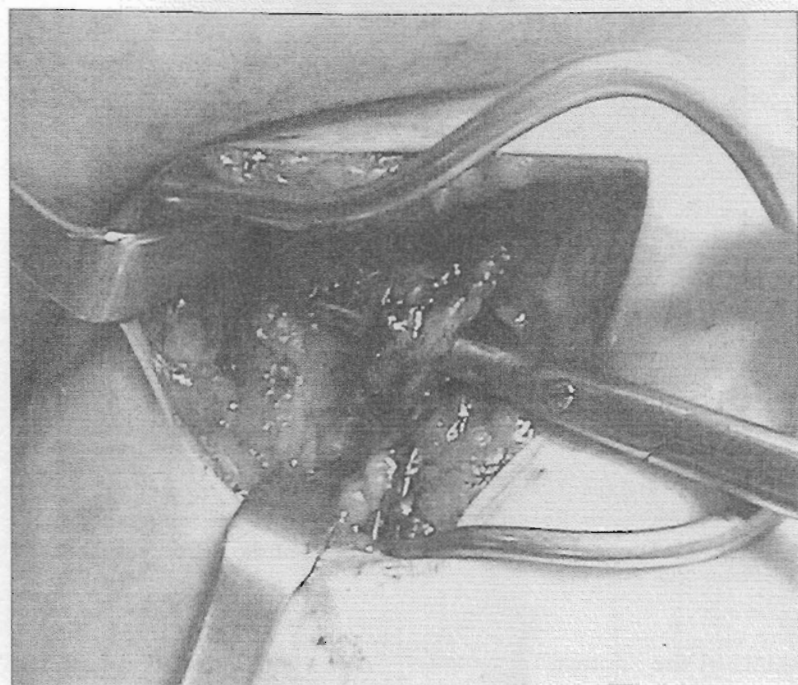


Fig. 6 - A blue stained lymph node is exposed.

lymph node enlargements or lymphoedema were detected.

Histopathological examination of a cutaneous biopsy (Figs. 3 and 4) revealed an asymmetrical intra-epidermal proliferation of irregular nests made of polygonal atypical cells, with high mitotic index. Larger pale cuticular cells were seen in the tumour nests, and hints of intra-cytoplasmic duct formation occurred rarely. No cornification or overt duct formation were present but transitional areas between sweat ducts and tumour cells were occasionally seen. Focal dermal invasion occurred. The corneal layer was parakeratotic and contained picnotic cells, as well as small vesicles. The stroma was rich in blood vessels and with a scant lymphomononuclear cell inflammatory infiltrate. Lymphatic permeation or embolisation was not seen.

The patient was submitted to pre-operative lymphoscintigraphy with injection of

one millicurie of technetium 99-m sulphur colloid intra-dermally, at four points around the tumour site, in order to obtain successive images of the lymph drainage, necessary to identify the sentinel lymph node. Two sentinel lymph nodes in the homolateral inguinal region were disclosed (Fig. 5).

After induction of general anaesthesia, 1ml of isosulfan blue was injected intra-dermally around the tumour site. The hand-held gamma probe allowed us to measure tracer counts of the lymph node basins. Afterwards, an incision was made in the left inguinal region conglobating both cutaneous marks that identify the sentinel lymph nodes positions. Two blue-stained, radioactive lymph nodes (tracer counts superior to 100 counts/minute above background) were excised (Fig. 6). Another lymph node, next to the internal sentinel lymph node, was also excised. After their removal there was less

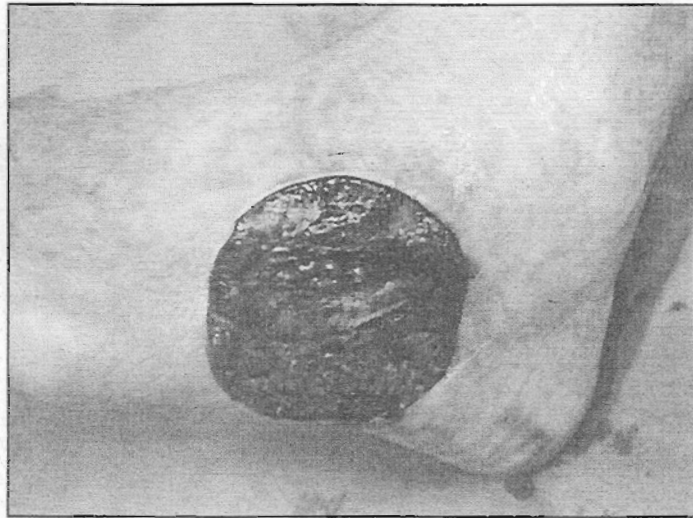


Fig. 7 - Surgical defect after the removal of the primary tumour with 2cm margin.

than 10% counts of the "hottest" detected lymph node in the left inguinal region.

The second surgery step consisted in removing the tumour with a 2 cm margin (Figs. 7 and 8). The surgical defect was cor-

rected with a thin skin graft taken from the anterior left thigh.

Histopathological examination of the excised lesion, stained with haematoxylin-eosin, was identical to the previously

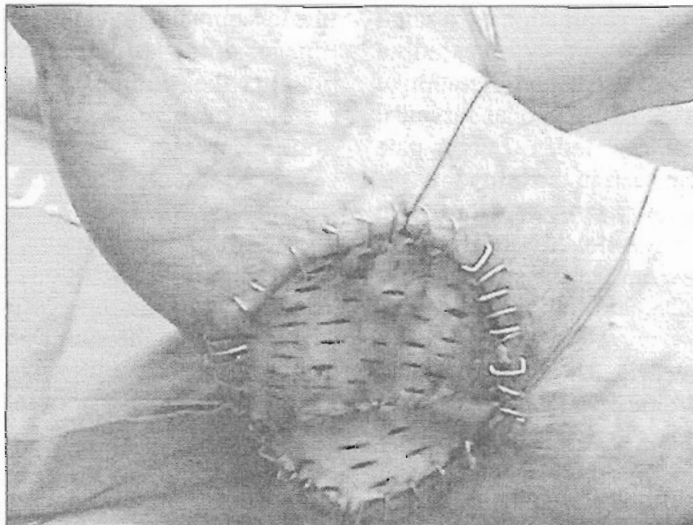


Fig. 8 - Correction of the surgical defect with a thin graft from the anterior surface of the left thigh.

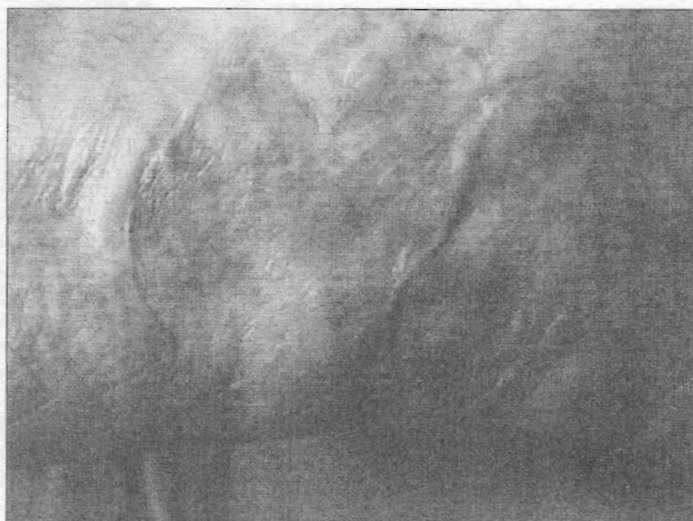


Fig. 9 - Clinical aspect, six months after the last surgery.

referred, confirming the diagnosis of porocarcinoma, and had free margins. Histological examination of the lymph nodes, disclosed no metastases, even after immuno-staining with MNF 116, CK 7 and with carcino-embryonic antigen (CEA).

No abnormalities were found in a thoraco-abdomino-pelvic CT-scan.

After six months of follow-up, the patient had local recurrence, and another surgery was performed to remove it with wide margins, but no lymph node enlargements or visceral metastases were present. Six months after the last surgery there were no recurrence (Fig. 9) or lymph node metastases.

DISCUSSION

Considering the low incidence of sweat gland carcinoma and the scarce clinical data regarding the patients follow-up, it is difficult to conclude with precision the risk of metastases¹³. A study concerning 56 cases of porocarcinoma revealed lymph node metastases in 19% of patients¹³.

Sentinel lymph node biopsy is performed in cases of melanoma and breast cancer and, theoretically, it may be used in those tumours that spread to regional lymph nodes. This procedure could be useful if it improved survival or assured more adequate measures of treatment.

Data in recent literature, in which lymph node biopsy was performed in patients with different types of sweat gland carcinoma, including one patient with porocarcinoma, showed a high rate of metastatic lymph nodes^{13,14}. The identification of metastases was achieved by haematoxylin & eosin and by immunohistochemical staining¹³⁻¹⁵. It was concluded that the sentinel lymph node biopsy, a low morbidity technique, could be helpful in the detection of sub-clinical regional lymph node metastases, allowing elective regional lymphadenectomy¹³⁻¹⁵. However, the studied series^{13,14} were small and it is unknown if the early recognition and subsequent treatment of regional lymph node metastases have a positive impact in the survival of patients with porocarcinoma. Further studies addressing these questions

are needed, but the rarity of the tumour may preclude their strength.

In the case reported, the lymph node biopsy was negative and, after a six-month follow-up, local recurrence was identified, although there were no lymph node enlargements. One year after the diagnosis and six months after the second surgery there were no metastases or recurrence of the tumour.

A more extensive observation period, along with the study of more cases is required to conclude about the interest of elective lymph node biopsy in epidermotropic porocarcinoma.

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