

Case Report

Utility of Scrape Smear in Diagnosis of Paget's Diseases of Breast - A Case Report

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Abstract

Mammary Paget's disease is an uncommon intraepithelial adenocarcinoma which may or may not be associated with underlying carcinoma. Traditionally Paget's disease was diagnosed on excision biopsy. But now primary clinical impression along with scrape smear cytology is useful in the diagnosis. Scrape smear cytology where touching the microscopic slide to the weeping lesion or scraping the scaly lesion gently with slide is easy, quick, cost effective and non invasive. Here, we present a case of Paget's disease of nipple with underlying breast carcinoma diagnosed on scrape smear examination and fine needle aspiration cytology of underlying mass. Subsequent histopathological examination confirmed the diagnosis. Early diagnosis of the condition is helpful in planning therapy.

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Key Words : Breast, Paget's disease, scrape smear.

Introduction

Mammary Paget's disease occurs exclusively on the nipple/areola complex from where it may spread onto surrounding skin. Mammary Paget's disease accounts for 2-3% of neoplastic conditions of the breast. In most cases (82-92% in several studies) tumour cells have spread to skin of the nipple and areola from underlying invasive carcinoma or ductal carcinoma in situ. Rare cases appear to have originated primary within the nipple epidermis.¹

It occurs most commonly in post menopausal woman, with peak incidence between 6th and 7th decades of life, with a mean age of 54 years. More patients with Paget's disease of breast have been reported to be nulliparous.²

Sir James Paget in 1874 first described the association between an ulcerated lesion of the nipple with underlying carcinoma of the breast. If the underlying carcinoma becomes palpable then the prognosis is poorer than mammary carcinoma without Paget's disease. By contrast, the prognosis for Paget's disease with minimal intrinsic in-situ

carcinoma is excellent.²

We report a case of Paget's disease diagnosed on cytologic examination of scrape smears of eczematous nipple with underlying carcinoma breast on fine needle aspiration cytology (FNAC).

Case Report

A 45 year old female came to surgical out patient department with complaints of itching and crusting of left nipple since 4 months followed by bleeding from the lesion. There was no nipple discharge.

Physical examination revealed an eczematous lesion over left areola and the nipple was distorted. A retro-areolar firm nodule, 4x3 cm was palpable. There was no associated axillary and supraclavicular lymphadenopathy. The right sided nipple and breast were normal. There was no other significant finding on physical examination as well as no family history of breast cancer. Routine laboratory investigations were within normal limits.

The scrape smears prepared from eczematous nipple/areola complex lesion showed dual population of cells in dispersed manner, three dimensional cell aggregates and cells in acinar groups (Fig. 1). Characteristic Paget's cells which were round to ovoid with high N:C ratio, eccentric nuclei, dense chromatin, inconspicuous nucleoli and vacuolated cytoplasm were seen. Background showed an inflammatory infiltrate, keratinous debris and dyskeratotic squamous cells.

FNA from retro-areolar breast lump showed features of

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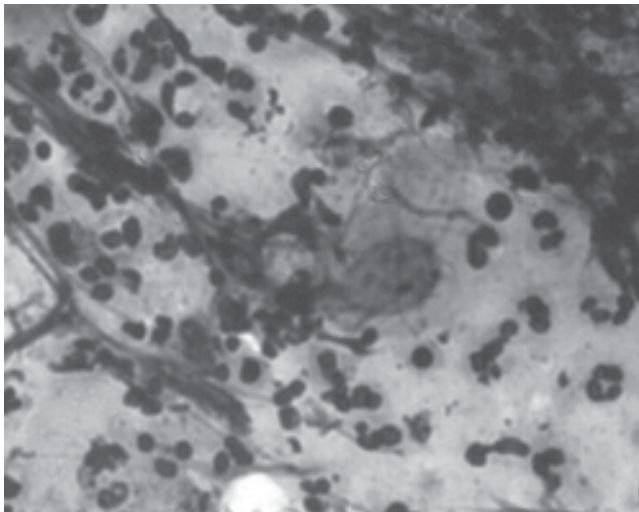


Fig. 1 : Scrape smears showing Paget's cell and dyskeratotic squamous cell with inflammatory background (Pap, x 400).

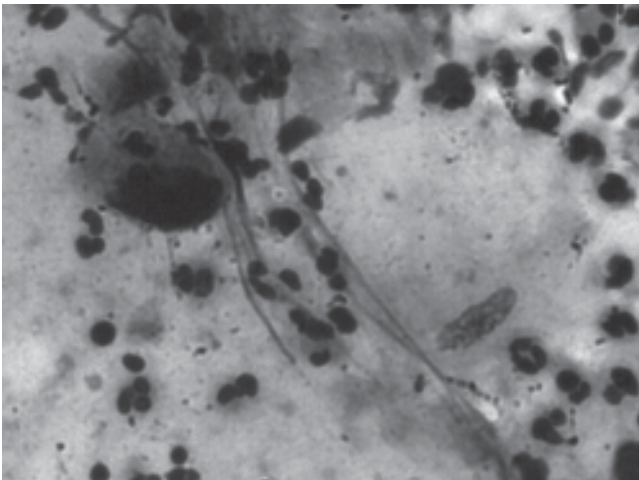


Fig. 2 : FNAC smears from the breast lump showing features of duct carcinoma with an inflammatory background (Pap, x 400).

mammary carcinoma (Fig. 2). On cytology, diagnosis of Paget's disease with underlying breast carcinoma was given.

Sections from nipple and breast lump of mastectomy specimen confirmed the diagnosis of Paget's disease of nipple with underlying infiltrating carcinoma of breast.

On histopathology, Paget's cells were seen dispersed singly, in clusters or solid nests (Fig. 3). They were large with abundant, amphophilic finely granular/vacuolated cytoplasm. Nuclei were large, centrally situated and with prominent nucleoli in some. Most of the cells were in subepidermal region and few in lower epidermis.

Discussion

Paget's disease of breast is a rare unilateral lesion which may present as - 1) Changes of nipple and areola only, 2) Nipple-areola complex changes and an underlying palpable tumour in breast, 3) Breast tumour only (subclinical Paget' diseases, incidental finding on histological examination).

Various studies have shown the incidence of mammary Paget's disease to be around 0.5 to 5 % of

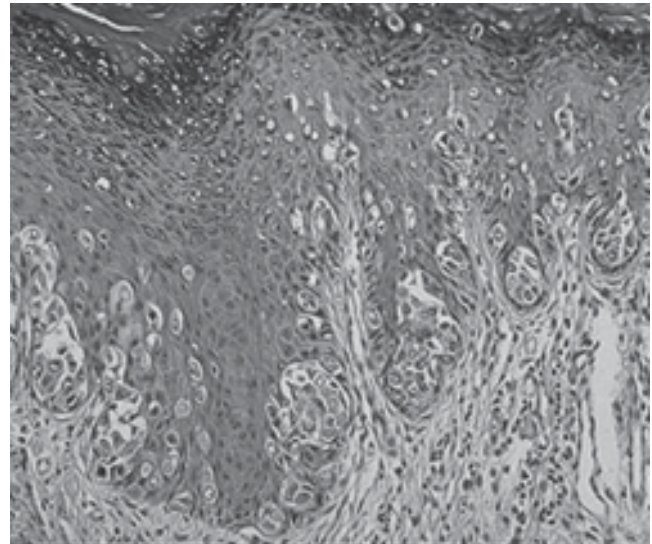


Fig. 3 : Histopathology section showing Paget's cells with clear cytoplasm in the epidermis (H&E, x 400).

all neoplastic conditions of the breast and in 80-92 % cases; it was associated with underlying invasive carcinoma or ductal carcinoma in situ.¹⁻³

Clinically patient of Paget's disease presents with itching/burning over areola, eczematous reaction, ulceration and destruction of nipple areola complex or nipple discharge. Patient may or may not have underlying mass.

Traditionally diagnosis of Paget's diseases was made by incision biopsy, mammography does not always reflect underlying diseases, so today primary diagnosis is done on clinical presentation and cytology finding. Cytologic diagnosis is very simple with scrape smear. If patient has an underlying mass then FNA of mass is helpful.^{2,3}

Lucarott et al⁴ reported 8 cases of mammary Paget's disease on nipple scrape smear cytology out of 14 patients with nipple change. Pritt et al⁵ reported 4 positive cases of invasive ductal carcinoma with nipple scrape smear showing changes of Paget's disease out of 466 cases of nipple discharge and eczematous nipple lesion.

Our patient was also diagnosed by scrape smear and underlying mass was aspirated which showed invasive duct carcinoma, thus scrape smear cytology is easy, quick, noninvasive method of diagnosis.

The differential diagnosis of Paget's disease include chronic eczema, psoriasis, erosive adenomatosis, contact dermatitis, syphilitic chancre, adenoma nipple, superficial spreading melanoma, squamous cell carcinoma.^{1,2} The presence of dual population of cells, absence of melanin pigment and PAS with diastase resistant positivity is helpful to diagnose this case.

Immunohistochemical study shows that Paget's cells are EMA and c-erbB-2 positive in 100% and 84% respectively.⁶ In our case due to lack of facility it could not be done.

Histogenesis of Paget's diseases has been surrounded by much controversy but is important when considering treatment options. The epidermotrophic theory postulates that Paget's cells are in origin ductal cells that have migrated to epidermis of nipple along the basal membranes of underlying ducts. As per others it is the in situ malignant transformation from existing cells into Paget's cells.^{3,6}

In conclusion mammary Paget's can present as independent diseases or with underlying mass. Cytology helps in early diagnosis and gives the chance for conservative surgery but likelihood of an underlying

carcinoma should be carefully evaluated with imaging for planning surgery.

References

1. Lloyd J, Flanagan AM. Mammary and extra mammary Paget's disease. *J Clin Pathol* 2000; 53:742-9.
2. Sakorafas GH, Blanchard DK, Sarr MG, Farley DR. Paget's disease of the breast. *Cancer Treat Rev* 2001; 27:9-18.
3. Bilgen IG, Oktay A. Paget's disease of the breast: clinical, mammographic, sonographic and pathologic finding in 52 cases. *Eur J of Radiol* 2006; 60:256-63.
4. Lucarotti ME, Dunn JM, Webb AJ. Scrape cytology in the diagnosis of Paget's disease of breast. *Cytopathology* 1994; 5:301-5.
5. Pritt B, Pang Y, Kellogg M, John TS, Elhosseiny A. Diagnostic value of nipple cytology. *Cancer* 2004; 102:233-8.
6. Bhadani PP, Sharma MC, Sah SP, Agarwal A. Paget's disease of the nipple diagnosed on cytology: a case report. *Indian J Pathol Microbiol* 2004; 47:246-8.

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