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Case Report

Paget's disease of nipple with lymphedema developing after lumpectomy for an Invasive ductal carcinoma of the breast

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Abstract

Paget's disease is an uncommon intraepithelial neoplasm which presents with erythema, scaling, ulceration, bleeding or an eczematous painful nipple. It represents approximately 1–3% of all primary breast malignancies. The disease is frequently mistaken for dermatitis of the nipple. The tumour is detected by imaging, such as mammography, ultrasound examination, magnetic resonance imaging, thermography, fine needle aspiration cytology or after thorough pathological examination of the surgical specimen. Simple mastectomy with or without axillary node dissection has been standard treatment of choice for Paget's disease. A case of 54 yr old female with Paget's disease of nipple developing after 8 years of lumpectomy for invasive ductal carcinoma is discussed here.

Key-words: Paget's disease , Nipple, Invasive ductal carcinoma

Introduction

Paget's disease (PD) is an uncommon intraepithelial neoplasm first described by Sir James Paget in 1874 as nipple ulceration associated with an underlying breast carcinoma.[1] It presents with erythema, scaling, ulceration, bleeding or an eczematous painful nipple.[2] It represents approximately 1–3% of all primary breast malignancies.[3] Simple mastectomy with or without axillary node dissection has been standard treatment for Paget's disease According to NCI's surveillance, epidemiology and end result program 5 year survival declines in the woman with PD of breast and invasive cancer in the same breast with increasing stage of the cancer.[4] A case of 54 yr old female with Paget's disease of nipple is discussed here who was diagnosed and treated for invasive ductal carcinoma 8 years back in the same breast. Patient also developed lymphedema of the limb on the same side.

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Case History

A 54 yr old female presented with ulcerative lesion over right nipple associated with history of pain, itching and occasional bleeding since 2 months. Patient's past history includes invasive ductal carcinoma of right breast 8 years back, confirmed by fine needle aspiration cytology. She underwent right lumpectomy and axillary node dissection for the same and she had received 6 cycles of chemotherapy with doxorubicin and cyclophosphamide followed by radiotherapy. She then developed edema over right upper limb after 2 years . She was given physiotherapy & compressive bandage for same with no improvement. Edema of limb was still present at the time of presentation. No other systemic complaints were present. Cutaneous examination showed well defined erythematous plaque with scaling and crusting over right nipple and areola showing features of subacute phase of eczema. [Figure-1] Left breast was absolutely normal. Biopsy was taken from right areola keeping eczema and Paget's disease as differentials The histopathological exmaination showed nests of malignant epithelial cells infiltrating the basal layers of epidermis and extending into dermis. Cells were large with round and pleomorphic vesicular nuclei , prominent nucleoli & scant eosinophilic cytoplasm.[Figure-2a&b] Moderate lymphocytic infiltration was present in stroma with atypical mitosis.

Changes were suggestive of Paget's disease of nipple and areola. Patient was advised modified radical mastectomy of right breast.

Discussion

PD of the breast clinically presents as a skin alteration in the nipple-areola , Paget's disease of the nipple may be associated with an underlying invasive cancer, a non-invasive cancer, ductal carcinoma in situ or no underlying cancer. It predominantly affects white women between 50 and 80 years old.[5] Paget's disease of breast is not so commonly seen in India.[6,7] As per our literature search, approximately 14 cases of Paget's disease over breast has been reported till date. There are two theories on Paget's histiogenesis. The epidermotropism theory suggests that Paget's cells are ductal carcinoma cells that have migrated from underlying carcinoma of the breast parenchyma to the epidermis of the nipple while the 2nd theory explains that in situ transformation with no underlying neoplasm.[5] Mammillary Paget's disease (MPD) is believed to originate from an intraductal carcinoma that has spread by upward migration to the nipple.[8] The disease is frequently mistaken for dermatitis of the nipple. Benign eczema is usually bilateral, associated with systemic symptoms of atopic dermatitis and responds to a topical steroid. In cases of Paget disease, the delayed diagnosis resulting from treatment with topical steroids aggravates the underlying malignancy. The tumour is detected by imaging, such as mammography, ultrasound examination, magnetic resonance imaging, Thermography, fine needle aspiration cytology or after thorough pathological examination of the surgical specimen. Imaging may show subareolar microcalcifications, architectural distortion or nipple changes such as thickening. Histology reveals hyperkeratosis, parakeratosis or acanthosis of the epidermis and infiltration with the classical Paget cell that is large, ovoid, has pale staining cytoplasm and hyper chromic nuclei.[9] In their study Clifford P Shearman, George T Watts.[10] reported 3 cases of Paget's disease of nipple after subcutaneous mastectomy for underlying cancer. In two of the patients recurrence was after 18 months while in one case it was after 4 years. The reason may be the possibility of microscopic deposits in the preserved nipple which is a rare, but recognised problem, occurring in approximately 1 % of macroscopically normal nipples.[11] The other possible cause of the Paget's disease is the development of a new malignant growth in the remaining breast tissue. Paget's disease of the nipple has been described in a patient after seven years later who had a subcutaneous mastectomy for invasive ductal carcinoma with reconstruction using a silicone prosthesis.[12] Our case presented 8 years later with Paget's disease of nipple even though she was treated with lumpectomy and been given chemo and radiotherapy. Histologically, MPD (Mammary Paget's disease) must be differentiated from other intraepidermal neoplasms with clear cells such as, (clear cell) Bowen's disease and Pagetoid melanoma. Immunohistochemistry allows easily differentiation of these entities. EMA, HER-2 /neu, CEA and cytokeratin-7 are the markers of Paget's disease.[13] Modified Radical mastectomy should be the surgery of choice as high possibility of underlying ductal carcinoma.The experience of treatment of palpable intraductal carcinoma in patients with Paget's disease has shown a very high incidence of the development of invasive carcinoma in the same breast if treated by wide excision alone.[14] it is recommended that these patients should also receive radiotherapy Lymphedema is common usually mild type after axillary node dissection . Our patient developed severe lymphedema which was persistent even after 8 years and didn't responded with any treatment.

Conclusion

Paget's disease can mimic nipple eczema and can also develop after treatment for invasive ductal carcinoma, so biopsy of such suspicious lesions is mandatory to rule out any malignancy. The case also developed severe lymphedema which is not so commonly seen.

References

1. Paget J. On the disease of the mammary areola preceding cancer of the mammary gland. St Bartholomew Hosp Rep. 1874;10:87-9.
2. Fouad D. Paget's disease of the breast in a male with lymphomatoid papulosis: a case report. J Med Case Rep. 2011;5:43.
3. Mitchell S, Lachica R, Randall MB, Beech DJ. Paget's disease of the breast areola mimicking cutaneous melanoma. Breast J 2006;12:233–36.
4. Ries LAG,Eisner MP. Cancer of the female Breast.In:Ries LAG,Young JL,Keel GE,et al,editors.Betheseda ,MD:National Cancer Institute,SEER Program,2007. Retrieved April 10,2012.
5. Meibodi NT, Ghoyunlu VM, Javidi Z, Nahidi Y. Clinicopathologic evaluation of mammary Paget's disease. Indian J Dermatol 2008;53:21-23.
6. Vani BR, Thejaswini MU, M.Sudha Rao; Pigmented Paget's disease of nipple: A diagnostic

challenge on cytology; Journal of cytology 2013;30(1): 68-70

7. Singla V, Virmani V, Nahar U, Singh G, Khandelwal N K. Paget's disease of breast masquerading as chronic benign cancer.Indian J. Cancer 2009;46:344-47
8. Tanaka VDA, Sanches JA, Torezan L, Niwa AB, Neto CF: Mammary and extramammary Paget's disease: a study of 14 cases and the associated therapeutic difficulties. *Clinics* 2009; 64:599-606.
9. Frei K, Bonel H, Pelte M, Hylton N, Kinkel K. Paget disease of the breast: findings at magnetic resonance imaging and histopathologic correlation. Invest Radiol 2005; 40:363–67.
10. Clifford P Shearman, George T Watts. Paget's disease of the nipple after subcutaneous mastectomy for cancer with primary reconstruction . Annals of the Royal College of Surgeons of England 1986; 68:17-18.
11. Parry RG, Cochran TC, Wolfort FG. When is there nipple involvement in carcinoma of the breast? Plast Reconstr Surg1977;59:535-37.
12. Mendez-Fernandez MA, Henly WS, Geis RC, Schoen FJ, Hausner RJ. Paget's disease of the breast after subcutaneous mastectomy and reconstruction with a silicone prosthesis. Plas Reconstr Surg 1980;65:68
13. Lloyd J and Flanagan AM. Mammary and Extramammary Paget's disease *J Clin Pathol* 2000;**53**:742-49
14. Paue DL, Dupont WD, Rogers LW, Landenberger M Intraductal carcinoma of the breast: follow-up after biopsy only. Cancer 1982;49:751-58

Legends

Fig 1. Well defined erythematous plaque with scaling and crusting over the right nipple and areola, with scar of lumpectomy over the breast.

Fig 2. Paget's cells with large, round and pleomorphic vesicular nuclei, prominent nucleoli infiltrating the basal layers of epidermis. Hematoxylin & Eosin Stain (a) 10x (b) 40x