

# Paget's disease of the breast after nipple-areola sparing mastectomy: case report

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## Summary

**Introduction:** Paget's disease of the breast is a rare condition which is usually associated with underlying ductal *in situ* or invasive carcinoma. The incidence of tumor recurrence after mastectomy with preservation of the nipple-areola complex (NAC) is still unclear. **Case Report:** A 66-year-old woman diagnosed with a high-grade ductal carcinoma *in situ* underwent a nipple-areola sparing mastectomy, breast reconstruction with submuscular prosthesis, and adjuvant tamoxifen treatment. Eight years following breast surgery, the patient presented with an eczematoid lesion in the NAC. Histopathological exam was consistent with Paget's disease of the breast. **Considerations:** Only 14 cases of Paget's disease after nipple-areola sparing mastectomy have been published in the literature. The mean patient age reported was 48.8 years and disease occurred after a mean period of 44.6 months.

**Key words:** Breast neoplasms; Paget's disease, Mammary; Neoplasm recurrence; Local.

## Introduction

Paget's disease of the breast is a rare condition. It accounts for 0.5-5.0% of all breast carcinomas [1, 2]. It is generally associated with underlying ductal *in situ* or invasive carcinoma [3]. Clinically, Paget's disease of the breast manifests as a pigmented, eczematoid lesion, with erythematous eruptions or a scaly lesion with irregular borders located in the nipple-areola complex. It is usually limited to the nipple or extended to the areola. In advanced cases, it may involve the surrounding skin [4].

Paget's disease may be primary or present as a local recurrence after previous breast cancer treatment [5-9]. Local recurrence occurs in 2.2-13.3% after breast-conserving treatment [7-11]. The incidence of tumor recurrence after nipple-areola sparing mastectomy is still unknown [12]. The cause of Paget's disease presenting as a local recurrence remains unknown. The epidermotropic and transformation theories have been proposed to explain the pathogenesis of the disease. The authors report a case of Paget's disease occurring after nipple-areola sparing mastectomy.

## Case Report

A 66-year-old woman underwent a right nipple-areola sparing mastectomy eight years ago with sentinel lymph node

mapping and breast reconstruction with submuscular prosthesis due to extensive ductal carcinoma *in situ*. Final histopathology examination demonstrated a high-grade ductal carcinoma *in situ*, negative areolar margin, and negative sentinel lymph nodes. Estrogen and progesterone receptors were positive on immunohistochemistry. The patient received adjuvant tamoxifen treatment for five years.

Annual bilateral mammography showed no abnormality during the follow-up period. Physical exam was also normal during the entire follow-up. Approximately a year ago, the patient reported an eczematous lesion in the nipple-areola complex (NAC) associated with itching (Figure 1). Clinical examination revealed an eczematous lesion involving the whole nipple-areolar complex and a negative axilla. Breast examination and ultrasonography failed to detect any further changes. No alterations were observed in the prosthesis. Biopsy of the NAC lesion was performed and Paget's disease was diagnosed.

The patient underwent NAC resection with negative margins and primary closure. The final histopathological study demonstrated an intraepidermal infiltration by neoplastic cells with glandular differentiation. A diagnosis of a high-grade intraductal carcinoma *in situ* associated with Paget's disease was confirmed. Margins were clear. Immunohistochemistry showed an ER-positive, HER-2 positive, p63 positive in myoepithelial cells, 5% KI-67, and PR-negative tumor.

## Discussion

In the Medline database, only 14 published cases of



Figure 1. — Clinical aspect of Paget's disease after nipple-areola sparing mastectomy and reconstruction with submuscular prosthesis.

Paget's disease after nipple-areola sparing mastectomy were found. The rarity of the condition justifies publication of the present case. The pathogenesis of Paget's disease presenting as local recurrence is still unknown. It has been suggested that the disease arises from cells migrating from an underlying breast carcinoma into the epidermis. Microscopic deposits in the spared nipple should not be excluded. Although rare, the condition has been recognized in approximately 1% of macroscopically normal nipples [13] (epidermotropic theory). Malignant transformation of the cells within the epithelium of the nipple itself is another possible cause [6, 12] (transformation theory). After nipple-areola sparing mastectomy, some residual breast tissue may remain, especially below the NAC [14, 15]. This may explain the increased possibility of Paget's disease presenting as a local recurrence in these patients.

The present patient had Paget's disease eight years after nipple-areola sparing mastectomy. However, this type of treatment is not contraindicated due to insufficient evidence, since it provides the patient with a better cosmetic outcome and psychological satisfaction. Furthermore, it does not seem to affect survival rates [6, 16].

Clinical presentation of the present case report was similar to features described in the literature for Paget's disease of the breast. The most common symptoms were eczema, crusting, scaling, bleeding or ulceration of the nipple skin [17].

The development of Paget's disease of the breast is almost invariably a sign of underlying intraductal or invasive carcinoma [18, 19], commonly multifocal located in any part of the breast [18]. Paget's disease of the breast alone, without an associated malignancy is uncommon, accounting for approximately 8% of patients with this condition [19-21].

Since there was no associated carcinoma, NAC resection with negative margins was the treatment indicated, without sentinel lymph node mapping. However, some studies have recommended sentinel lymph node biopsy in all cases of Paget's disease, due to reports of positive cases in Paget's disease of the breast alone [22-24]. The present patient had undergone mastectomy, therefore the authors chose to preserve the prosthesis. No rupture of the prosthesis capsule had occurred in the intraoperative period and frozen section revealed negative margins. There was no desire for NAC reconstruction and the patient was satisfied with the cosmetic result.

Table 1 [6, 7, 13, 25-27] shows all cases described in the literature. In the 14 cases, the age of the patients ranged from 37 to 68 (mean age: 48.8) years. Paget's disease occurred at a mean period of 44.6 months after mastectomy. The most widely used treatment was surgical excision. Overall survival ranged from 1 to 10 (mean time period: 4.8 years) years.

## Conclusion

Paget's disease of the breast after resection of breast neoplasm with NAC preservation is a rare condition. In the case described, patient age and disease presentation after mastectomy were at the upper limit described in the literature. A favorable survival is expected. Therefore, clinical conditions should always be evaluated in a patient suspected of having a local recurrence. Diagnosis should be confirmed by histopathological and immunohistochemical analysis to determine patient management.

Table 1. — Published cases of Paget's disease of the breast after mastectomy.

Authors	Age	Type of surgery	Time after surgery	Type of reconstruction	Treatment	Survival
Mendez <i>et al.</i> , 1980 [6]	53	Bilateral Subcutaneous mastectomy	84 months	Silicone prosthesis	Radical mastectomy, chemotherapy and - radiation therapy	-
Shearman <i>et al.</i> , 1986 [7]	41	Subcutaneous mastectomy	18 months	Silicone prosthesis	Radiation therapy	More than 8 years
	51	Subcutaneous mastectomy	18 months	Silicone prosthesis	Radiation therapy and prosthesis removal	More than 5 years
	50	Subcutaneous mastectomy	48 months	Silicone prosthesis	Prosthesis removal	More than 4 years
Plowman <i>et al.</i> , 1986 [25]	68	Segmental mastectomy	41 months	Without	Simple mastectomy and radiation therapy	-
Basu <i>et al.</i> , 2008 [26]	64	Radical mastectomy	13 (left breast)	TRAM flap and nipple reconstruction with contralateral nipple	Excision	-
			6 in the contralesional breast (right breast)	Silicone prosthesis	Simple mastectomy	-
Giovannini <i>et al.</i> , 2006 [27]	57	Simple mastectomy (Madden) and axillary dissection	36 months	Without	Adjuvant tamoxifen	More than 10 years
Lohsiriwat <i>et al.</i> , 2012 [13]	53	Subcutaneous mastectomy	43 months	-	Surgical excision	More than 5 years
	38	Subcutaneous mastectomy	47 months	-	Excision and radiation therapy (45 Gy)	More than 3 years
	48	Subcutaneous mastectomy	24 months	-	Surgical excision	More than 4 years
	44	Subcutaneous mastectomy	12 months	-	Surgical excision	More than 6 years
	38	Subcutaneous mastectomy	27 months	-	Surgical excision	More than 4 years
	37	Subcutaneous mastectomy	49 months	-	Surgical excision	More than 1 year
	42	Subcutaneous mastectomy	22 months	-	Surgical excision	More than 3 years

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