

## Mammary Paget's Disease with Intraductal Spread: a Patient Report

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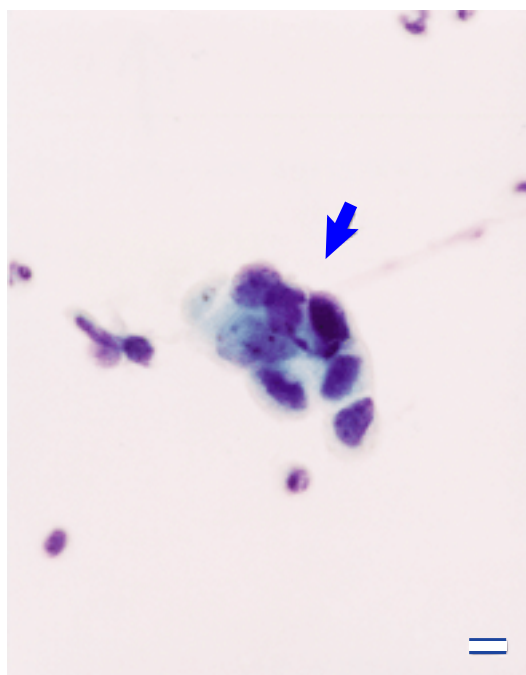
**A 49-year-old woman was diagnosed with mammary Paget's disease and underwent a modified mastectomy. Paget's cells were observed not only in the nipple epidermis and adjacent lactiferous ducts, but also at several branches of the lactiferous ducts in the deeper breast. In treating mammary Paget's disease, the possibility of intraductal spreads should be kept in mind.**

**Key words:** breast conservative therapy; intraductal spread; mammary Paget's disease; modified mastectomy

Mammary Paget's disease is usually localized in the nipple epidermis and lactiferous duct near the nipple (Lloyd et al., 2000). Breast conservative therapy has been attempted for such a patient (Pierce et al., 1997). However, this method may not be appropriate for all patients with Paget's disease, because extensive intraductal spreads of Paget's cells have been occasionally found. Here, we report a case of a patient with mammary Paget's disease involved in intraductal spreads to the deeper portions of the breast.

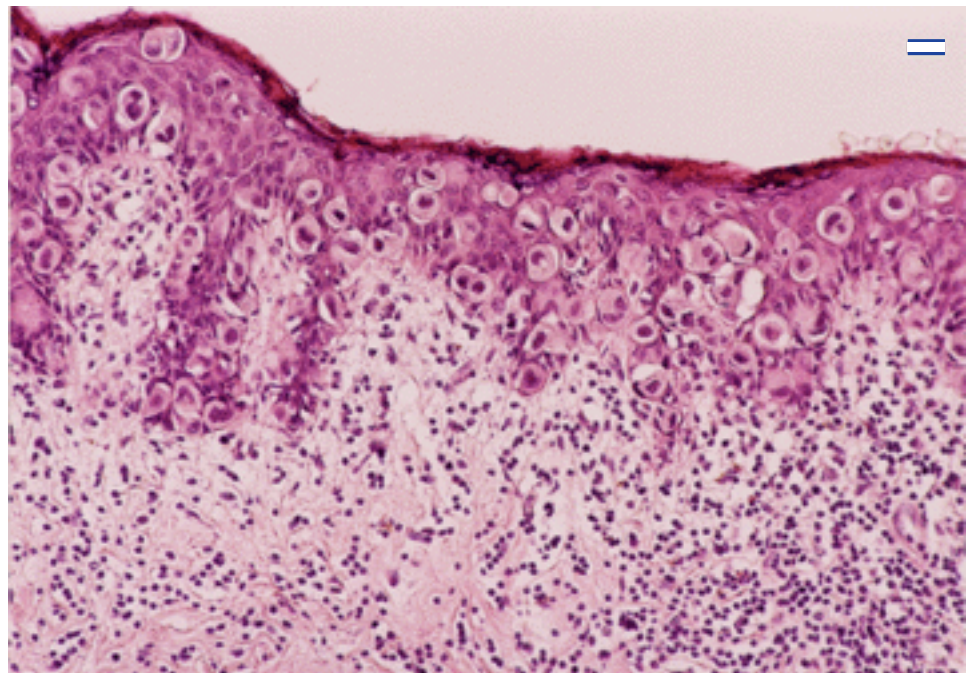
### Patient Report

A 49-year-old woman was admitted with an eczematous change lasting 5 years, followed by disruption and serous secretion of the right nipple. A cytological examination of the secretion showed a few Paget's cells characterized by abundant clear cytoplasm and large nucleoli (Fig. 1). No palpable masses or nodules were recognized in the right breast and axillally region. Ultrasonography, mam-

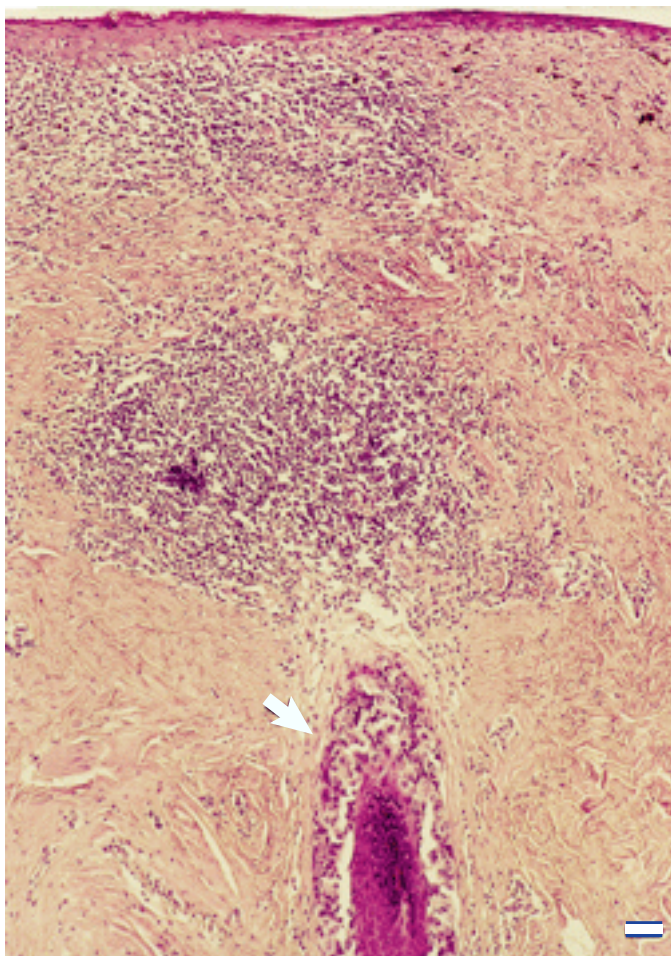


**Fig. 1.** A cytological examination of the patient's nipple secretion shows a few Paget's cells characterized by abundant clear cytoplasm occasionally containing large nucleoli (arrow) (Papanicolaou stain; original magnification  $\times 400$ ). Bar = 50  $\mu\text{m}$ .

Abbreviations: EVG, elastic van Gieson; MRI, magnetic resonance imaging; PAS, periodic acid-Schiff



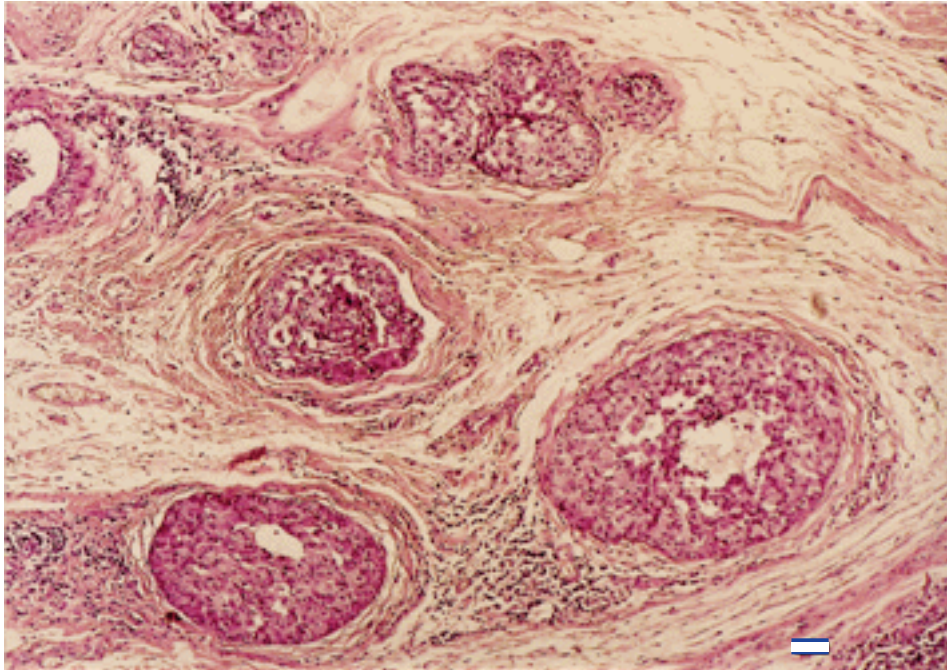
**Fig. 2.** Paget's cells characterized by abundant clear cytoplasm and large nucleoli are observed in the nipple epidermis (hematoxylin and eosin stain; original magnification  $\times 100$ ). Bar = 100  $\mu\text{m}$ .



mography and magnetic resonance imaging (MRI) showed no abnormal findings of any underlying mass or micro-calcification in the breast. She was diagnosed with mammary Paget's disease, which was clinically corresponded to Tis N0 M0, stage 0 according to the tumor-node-metastasis classification of The Japanese Breast Cancer Society (2000). After giving informed consent, she underwent a modified mastectomy with a level-II axillary dissection, because preoperative imaging results including ultrasonography, mammography and MRI were inconclusive in detecting any underlying tumor or intraductal spread of Paget's cells (Dixon et al., 1991; Kothari et al., 2002).

Macroscopically, the removed right breast showed no solid tumor, calcification, necrosis or hemorrhage. The specimen was sliced at 5 mm-interval serial sections, fixed in 10% buf-

**Fig. 3.** Paget's cells spread into the superficial lactiferous ducts (arrow) near the nipple (hematoxylin and eosin stain; original magnification  $\times 40$ ). Bar = 100  $\mu\text{m}$ .



**Fig. 4.** Paget's cells spread into the lactiferous ducts in the deeper portions of the breast (hematoxylin and eosin stain; original magnification  $\times 40$ ). Bar = 160  $\mu\text{m}$ .

ferred formalin and embedded in paraffin wax. The histological sections were stained with hematoxylin and eosin, periodic acid-Schiff (PAS) and elastic van Gieson (EVG) methods to distinguish lactiferous ducts from blood vessels.

Histologically, a large number of Paget's cells with abundant clear cytoplasm and large nucleoli were present in the nipple epidermis (Fig. 2). PAS staining showed granular bodies in the cytoplasm of a few Paget's cells. The cells were distributed in proximal lactiferous ducts underlying the nipple (Fig. 3). Furthermore, extensive intraductal spreads of Paget's cells were found at several branches of the lactiferous ducts in the deeper breast (Fig. 4). There was no invasive carcinoma. All the axillary lymph nodes showed no metastatic tumor.

She remained free from any signs of relapse for 2 years after the operation. The current form implies there was a relapse after 2 years.

## Discussion

Mammary Paget's disease occupies 2% of all breast cancers (Lloyd et al., 2000). The disease does not grow from the nipple epidermis but from the underlying breast carcinoma, which develops secondarily because of spreads due to the extension or migration of malignant cells from underlying breast carcinoma.

Intraductal spread of Paget's cells with the flow, either continuous or discontinuous, has been reported (Rosai, 1996). Mai and coworkers (Mai, 1999; Mai et al., 1999) reported the discontinuous pattern of intraductal tumor spread identified in the foci of carcinoma in deep breast tissues. They suggested 3 possible mechanisms of this discontinuous pattern of tumor spread: i) tumor cell migration, ii) tumor implantation and iii) multifocal carcinogenesis that most likely affects progenitors of ductal cells in the duct.

In the past, radical or modified mastectomy was the mainstream choice for the surgical treat-

ment of mammary Paget's disease. Recently, breast conservative therapy (excision of the nipple/areola complex) has been performed for most patients (Pierce et al., 1997). However, there are no randomized trials that provide a specific basis to the selection of an ideal treatment for this condition. Preoperative procedures including ultrasonography, mammography and MRI are uncertain in diagnosing underlying tumors or intraductal spread of Paget's cells which might be overlooked even after careful sectioning of the resected breast (Dixon et al., 1991; Kothari et al., 2002). Kothari et al. (2002) reported that cone excision of the nipple resulted in incomplete excision in approximately 75% of mammary Paget's disease patients. Mammary Paget's disease with extensive intraductal spread seems to be a nonsuitable candidate for breast conservative therapy. Therefore, breast conservative therapy for mammary Paget's disease should be treated as a consideration for possible intraductal spread.

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