

## A Process from Eczema to Breast Surgery: Paget's Disease of the Nipple

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### Abstract

### Original Research Article

**Objective:** Clinical symptoms of Paget's disease of the nipple include malignant crusting or ulceration in the nipple-areola region, along with chronic eczematous alterations followed by throbbing pain or itching. When a biopsy is not performed after developing suspicion, the diagnosis is delayed. In this study, we sought to present the patients who had undergone histopathologic testing in our institution and received the diagnosis of Paget disease of the nipple. **Patients and Methods:** Retrospective evaluations were performed on patients who had a Paget's disease of the nipple diagnosis prior to January 2020. Patients were located in the pathology laboratory's archived records. Computer data, outpatient clinic records, and epicrises of individuals sent to the surgical service were examined after identifying the patients whose records were reviewed. Age, presenting ailment, and histopathologic diagnosis of the patients were examined. **Results:** The pathology archive's computer records for the patients were examined. The research had six patients that were eligible and met the requirements. The average age of the patients, who were all female, was 66.5 ± 12.75 years (55-88). The other four patients also had nipple eczema, while two of the patients also had a breast lump. **Conclusions:** Chronic nipple or areola dermatoses should have a biopsy for histological evaluation, particularly if they continue after three weeks of topical therapy.

**Keywords:** Paget's Disease, Eczema, Nipple, Mastectomy.

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## INTRODUCTION

Although Velpau initially documented the distinctive eczematous alterations of the nipple seen in Paget's disease of the nipple in 1856, Sir James Paget revealed the connection between these changes and breast carcinoma roughly 20 years later, and the condition is now recognized by his name. Unfortunately, there is a delay between the start of symptoms and the diagnosis, just as there is a delay between its identification and the explanation of its connection to cancer. Patients' perception that this ailment is a skin disease is the main cause of this [1, 2].

It is uncommon, with a frequency of 1-4.3% among all breast cancer patients [3]. The first sign of the condition is typically an erythema that resembles eczema on the nipple, but other symptoms include squamation, bleeding, erosion, skin ulceration, and occasionally inward retraction of the nipple. These findings may also be accompanied by symptoms of pain and itching. Due to its rarity and resemblance to benign skin lesions, Paget's disease might initially go unnoticed and be mistaken for other skin conditions such dermatitis or

psoriasis. It is typically identified through tests after therapies (such topical steroids) have failed to work. The disease's primary characteristic is that it first affects the nipple before moving on to the skin around it. Through biopsy, a conclusive diagnosis is produced. Exams including pathology, scraping, and epidermal swabs are also beneficial. The type of underlying breast cancer affects the prognosis and treatment options, and the diagnosis is made histologically [4]. Early diagnosis is one of the most crucial steps in the disease's therapy. Breast-conserving surgery, as opposed to total mastectomy and more extreme treatments, can now be used to give patients with early-diagnosed instances a higher quality of life and longer survival chance [3].

In this study, we aimed to present the patients who were diagnosed with Paget disease of the nipple after histopathologic examination in our hospital.

## PATIENTS AND METHODS

Patients with a retrospective diagnosis of Paget's disease of the breast before January 2020 were evaluated after obtaining local permission for a retrospective review of pathology laboratory results.

Patients were obtained from the archive records of the pathology laboratory. After identifying the patients whose records were accessed, computer records, outpatient clinic records, and epicrises of those referred to the surgical service were analyzed. The cases were analyzed in terms of age, presenting complaint, and histopathologic diagnosis.

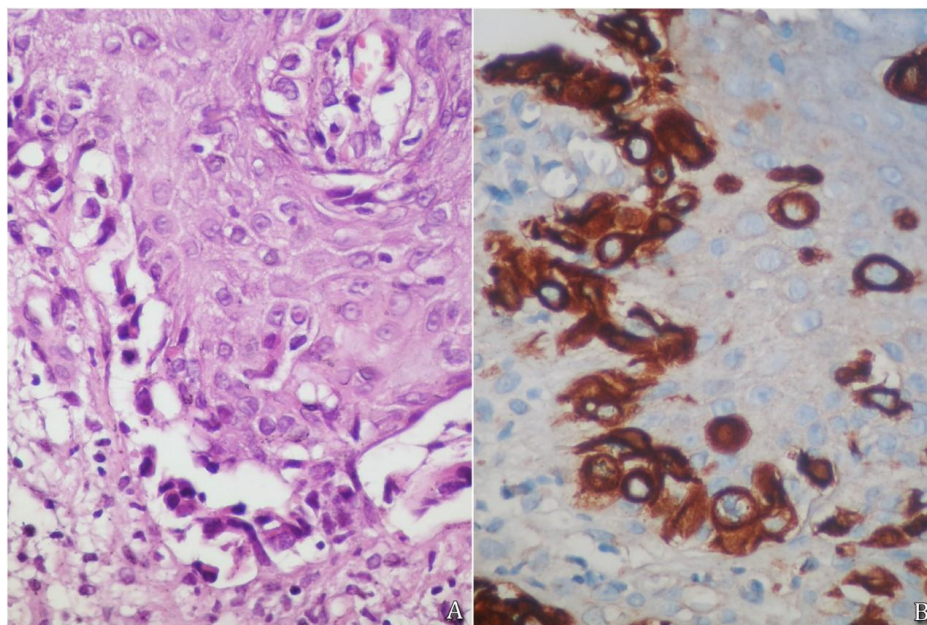
Local permission for the study was obtained from the hospital administration (Date: 26.08.2020 Number: 13281952-702.99).

### Statistical Analysis

IBM SPSS for Windows, Version 17.0 (IBM Statistics for Windows Version 17, Chicago, IL, USA) software was used for the statistical tests. Data were expressed as mean + standard deviation (O + SD) or n (%).

## RESULTS

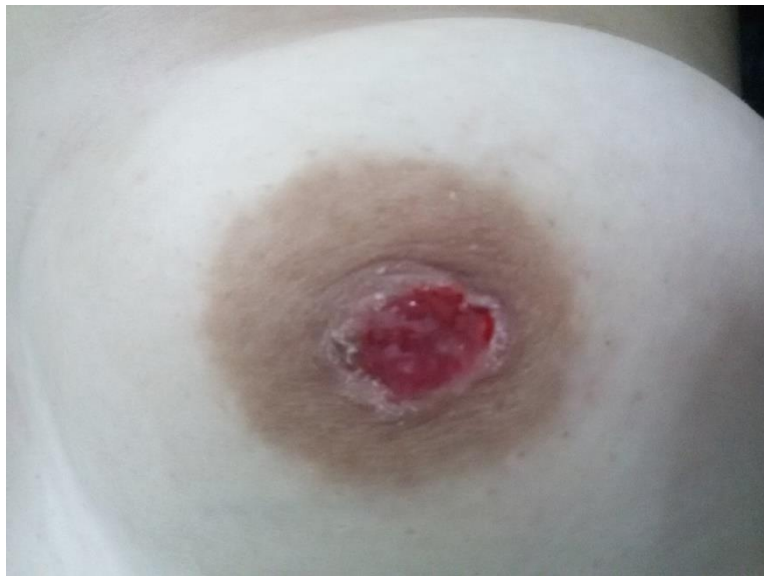
The records of 8 patients diagnosed with Paget's disease were obtained from the pathology archive and their computer records were analyzed. Two of the patients were excluded from the study because their records could not be accessed completely and they were diagnosed by pathology specimen after direct surgery. Thus, 6 patients were included in the study. All patients were female and the mean age was  $66.5 \pm 12.75$  years. The youngest patient was 55 years old and the oldest was 88 years old. Three of the patients (50%) underwent surgery in our hospital, two of them underwent modified radical mastectomy and one underwent simple mastectomy with sentinel lymph node sampling. Follow-up and treatment of the other 3 patients were performed in other centers. According to the patient complaints from the epicrises, 2 of the patients presented with complaints of breast mass and nipple eczema, and the other 4 with the complaint of nipple eczema. Of the patients who underwent surgery in our hospital, 2 had tumors in the breast and 1 had no tumor macroscopically.



**Figure 1: Malignant cells can be seen in the epidermis individually or in groups under a microscope, especially in the basal layer**



**Figure 2: It may be seen as a sharp-edged, erythematous plaque with squames on it and causing erosion on the nipple**



**Figure 3: It may be seen as erosion only on the nipple**

## DISCUSSION

Typically, nipple dermatitis develops during nursing. This illness is frequently bilateral and responds to therapy quickly, getting better. The lesion in Paget's disease of the breast is often unilateral, severely confined, and long-lasting. The majority of patients have an underlying tumor in the breast, and it is an uncommon form of breast cancer that manifests as distinctive skin lesions on the nipple. Regarding the histogenesis of Paget cells, which are crucial for pathologic diagnosis, there are a variety of viewpoints. According to the currently dominant theory, tumor cells move epidermotropically upward and toward the nipple [5, 6].

Malignant cells can be seen in the epidermis individually or in groups under a microscope, especially in the basal layer. Tubule formations, on the other hand,

might also exist, albeit infrequently. The skin's appendages may also be affected by Paget cells (mmre 1). Inflammation and telangiectasia can also be seen [6]. In these cells, which express cytokeratin 7 and low molecular weight keratin, Her2 overexpression is seen [7]. Breast cancer is 95% frequently related with Paget's illness. These carcinomas are almost all ductal or insitu ductal carcinoma types. However, a breast tumor may not always be visible. On pathologic evaluation, one of the patients in this research had no macroscopic tumors. The tumor in this instance is thought to have its origins in the epidermis and to be localized there. There is little predictive value to the connection between Paget's disease and invasive breast cancer [8].

Clinically, areola or nipple eczematoid changes, ulceration, erythema, and pruritus are observed.



Therefore, patients often present to dermatology outpatient clinics. The most important reason for the delay in diagnosis is the chronic eczematous course of this disease and the long-term use of local treatments. Topical treatments given after the nipple appearance is mistaken for eczema or other inflammatory conditions provide improvement in the inflammatory component of the disease. However, a complete cure is not achieved. Nevertheless, the underlying pathology is often masked and the diagnosis may be delayed [1].

On inspection, it may be seen in a spectrum ranging from eczema-like to psoriasisiform appearance around the nipple. It may be seen as a sharp-edged, erythematous plaque with squames on it and causing erosion on the nipple (Figure 2) or it may be seen as erosion only on the nipple (Figure 3). It is mostly confused with dermatitis. Unresponsiveness to steroids creates suspicion, especially in terms of Paget. Although Paget is usually unilateral, dermatitis is bilateral [5, 9]. However, bilateral cases have been reported, albeit rarely. Therefore, a biopsy should be obtained in bilateral eczema if it is refractory to treatment [10].

Paget's disease of the breast, which is one of the skin diseases diagnosed by biopsy, is one of the conditions in which a multidisciplinary approach is important. Biopsy should be planned in patients with a preliminary diagnosis of Paget's Disease and the patient should be referred to a breast surgeon for other examinations. Because this diagnosis is a condition in which the underlying conditions should be investigated well. If dermatitis does not resolve despite three weeks of topical treatment, a biopsy should be performed [11]. In the differential diagnosis, atypical or contact dermatitis of the nipple, Bowen's disease, psoriasis, hyperkeratosis of the nipple, superficial basal cell carcinoma, amelanotic melanoma, intra-ductal papilloma, ductal ectasia, pityriasis versicolor, and benign familial pemphigus should be considered [3, 12-14].

The average age of Paget's illness in the literature is between 55 and 65 years old [3, 12]. The mean age of our patients was 66.5 years, which is consistent with the literature. Paget's disease of the nipple is more common as people get older. Although there were few occurrences in this investigation and all patients were female, men can also experience Paget disease of the nipple [15]. Additionally, in the majority of studies, nipple Paget disease is identified as the primary tumor or as the first discovery for the identification of a tumor. However, patients who underwent surgery for breast cancer and then developed Paget disease again have also been documented in the literature [16]. Therefore, Paget's disease should be considered if nipple eczema manifests in individuals who have undergone breast-conserving surgery for breast cancer. Nipple-based infection spreads to the areola and, in more severe cases, to the nearby skin. Nipple

invagination, ulceration, and bleeding are possible in more severe cases. The diameter of the lesions at the time of diagnosis can range from 0.3 to 15 cm in the literature. The lesion almost totally covered the areola and completely penetrated the nipple in one of our patients (Figure 2). Another consideration is that the evaluation should not ignore accessory and ectopic breasts. Ectopic breasts and accessory nipples are other symptoms of the condition [17].

## CONCLUSIONS

As a rule, chronic dermatoses in the nipple or areola should be investigated histologically by biopsy, particularly if they continue after three weeks of topical therapy. A delayed diagnosis could result from prolonged topical corticosteroid therapy [5, 11].

**Conflicts of Interest:** The authors declare that they have no conflict of interest

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