

Paget's Breast Disease with Invasive Carcinoma: A Case Report from a Tertiary Institution in Northern Mindanao

Ralph Leo C. Villaflores, MD*, DPBS, Jose Rhoel C. De Leon, MD, FSOSP, FPCS, FACS

Mindanao Academy of Surgical Oncology, Capitol University Medical Centre, Cagayan de Oro City Department of Pathology, Capitol University Medical Centre, Cagayan de Oro City Philippines

***Corresponding author:**

Ralph Leo C. Villaflores,
Mindanao Academy of Surgical Oncology,
Capitol University Medical Centre, Cagayan de
Oro City Department of Pathology, Capitol
University Medical Centre, Cagayan de Oro City
Philippines

Received: 03 Dec 2025

Accepted: 12 Dec 2025

Published: 24 Dec 2025

J Short Name: Ajssecr

Copyright:

©2025 Ralph Leo C. Villaflores. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and build upon your work non-commercially

Keywords:

Breast Carcinoma; Invasive Cancer; Paget's Disease

Citation:

Ralph Leo C. Paget's Breast Disease with Invasive Carcinoma: A Case Report from a Tertiary Institution in Northern Mindanao. *Ame journal of Sur and Clin Case Rep*® 2025; V15(1): 1-5

1. Abstract

Paget's breast disease is a rare histological breast cancer that affects post-menopausal women, who are typically over 60 years old, but can occur in younger individuals as well. It manifests as a nipple eczema that is deteriorating, sometimes people mistake its appearance for a benign ailment, which causes delays in diagnosis. The increased likelihood of breast cancer linked to Paget's breast disease (PBD), an effective work-up requires high-quality diagnostic imaging to rule out malignancy. A comprehensive history and physical examination are essential for diagnosing Paget's breast disease. The presence or absence of an underlying malignancy and the disease's stage determine the prognosis for breast Paget's disease. Moreover, 5-year overall survival rates for DCIS and invasive cancer are 94%–98% and 73%–93%, respectively. We report a case of a 60-year-old Filipino female who presented with a 1-year history of right nipple eczema and breast mass. Mammography showed multiple coarse heterogeneous, fine pleomorphic and linear-branching calcifications are seen in the upper outer and retro areolar regions of the right breast, and areas surrounding the nipple suggestive of breast malignancy. Ultrasound revealed indistinct irregular hypoechoic solid nodule and prominent ducts with medium-level echoes and punctate calcifications and positive LAD at the right axilla which is suggestive of breast carcinoma. Modified radical mastectomy was done on the right breast. Histopathology showed Paget disease involving the entire nipple and areola with invasive ductal carcinoma. Immunohistochemistry revealed ER (-), PR (-), Her2neu positive. Patient was discharged improved and underwent chemotherapy and anti-her2 therapy. Thus far, there has been no distant metastasis or local recurrence.

2. Introduction

One to four percent of female breast cancers are Paget's breast disease (PBD), a rare histological breast cancer. The majority of those affected are post-menopausal women, who are typically over 60 years old, but can occur in younger individuals as well [1,2]. In contrast, female PBD patients were significantly younger in Asian nations such as Iran, India, South Korea, Turkey, Saudi Arabia, and China, with the majority of reported mean ages being under 60 (3). It manifests as a nipple eczema that is deteriorating. Sometimes people mistake its appearance for a benign ailment, which causes delays in diagnosis. Mastectomy is the most common treatment [4]. Paget's cells are malignant cells that arise in situ without reference to any underlying precancerous or cancerous condition, according to the in situ malignant transformation theory, one of two hypotheses put out to explain the pathophysiology of Parkinson's disease [5]. According to the epidemiologic theory, Paget's cells enter the nipple epidermis from the underlying ductal tumour and move down the lactiferous ducts [6]. In this instance, we describe a patient with Paget's disease (PD) who had a breast mass for 1 year.

3. Case Presentation

A 66-year-old woman, G5P4 (5014), had a lesion on her right nipple for over 1 year. She claimed to have first experienced itching on her right nipple, along with skin peeling and a prickly feeling. The lesion progressively grew worse, affecting the entire nipple and causing the skin around it to darken. She utilized a variety of topical treatments, both over-the-counter and prescription at peripheral health clinics, during her illness, but no clear diagnosis was made and no improvement was observed. She denied having ever experienced breast trauma. She has no

history of using tobacco products or contraceptives, and all three of her children were delivered via cesarean section. She had her menopause at 51 years old. She had a regular 28–30 day cycle and menarched at the age of 12. No family history of prostate, ovarian, or breast cancer exists.

She was hemodynamically stable and her vital signs were within normal limits at the time of the initial evaluation. She weighed thirty kilograms per square meter. An examination of the breasts showed a 2 × 3 cm, non-tender eczema- all lesion on the right nipple areolar complex (Figure 1). On the right lower outer breast, there was a lump. Her other systemic examination was unremarkable, and breast ultrasonography verified that she had positive right axillary lymph nodes with thickened cortices (Figure 2). Her mammogram showed (Figure 3) a focal asymmetric density with architectural distortion in the upper outer quadrant of the right breast. Multiple coarse heterogeneous, fine pleomorphic and linear-branching calcifications are seen in the upper outer and retro areolar regions of the right breast, and areas surrounding the nipple. The right nipple appears flattened with

associated diffuse skin thickening in the peri areolar regions. Enlarged ovoid lymph nodes are visible in the right axillary region. A complete blood count (CBC) showed that the platelet count was 314,000/mm³, the haemoglobin level was 13.4 g/dL, and the leukocyte count was 8.3/mm³. Her conventional chest X-ray PA view was also although the abdomen pelvic ultrasonography revealed normal results (Figure 3). The core biopsy of the tumour showed positive results for invasive carcinoma and Nottingham score 7/9, negative for ER (estrogen receptor) and PR (progesterone receptor), and positive for HER-2. The histological report of the breast tissue biopsy showed Paget Disease involving the entire nipple and areola, Ductal carcinoma in situ with comedonecrosis, solid pattern, high nuclear grade, tumor diameter 4cm, Invasive Ductal carcinoma Nottingham histologic score of 7, Grade 2, tumour diameter 2cm (Figure 4). The scheduled surgery was evaluated when the patient was admitted under surgical service. After undergoing a modified radical mastectomy, the patient was discharged improved and chemotherapy as well as anti-her2 therapy. Thus far, there has been no distant metastasis or local recurrence.



Figure 1: Clinical photograph showing an eczematous nipple areolar complex.

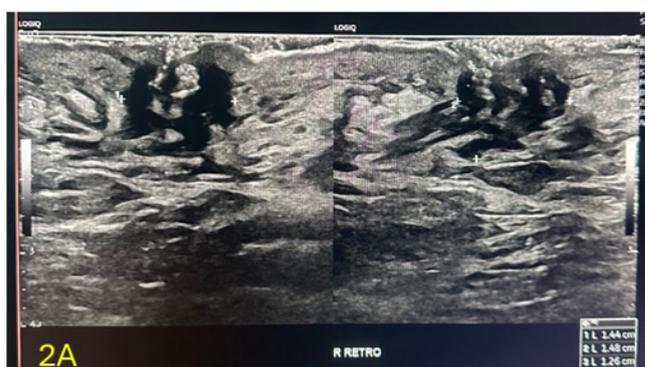


Figure 2A: Prominent ducts with medium-level echoes and punctate calcifications.

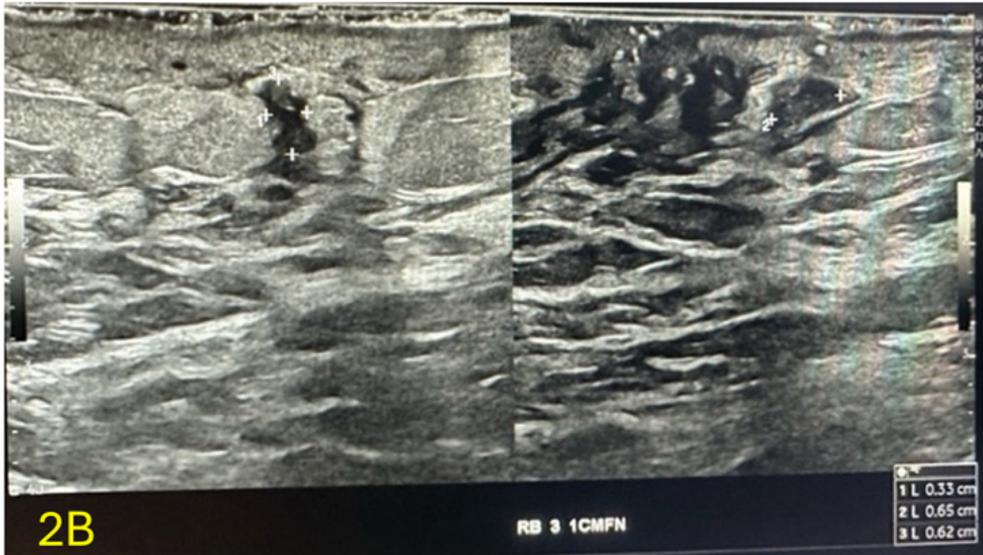


Figure 2B: 0.6 x 0.6 x 0.3cm prominent ducts with medium-level echoes and punctate calcifications.

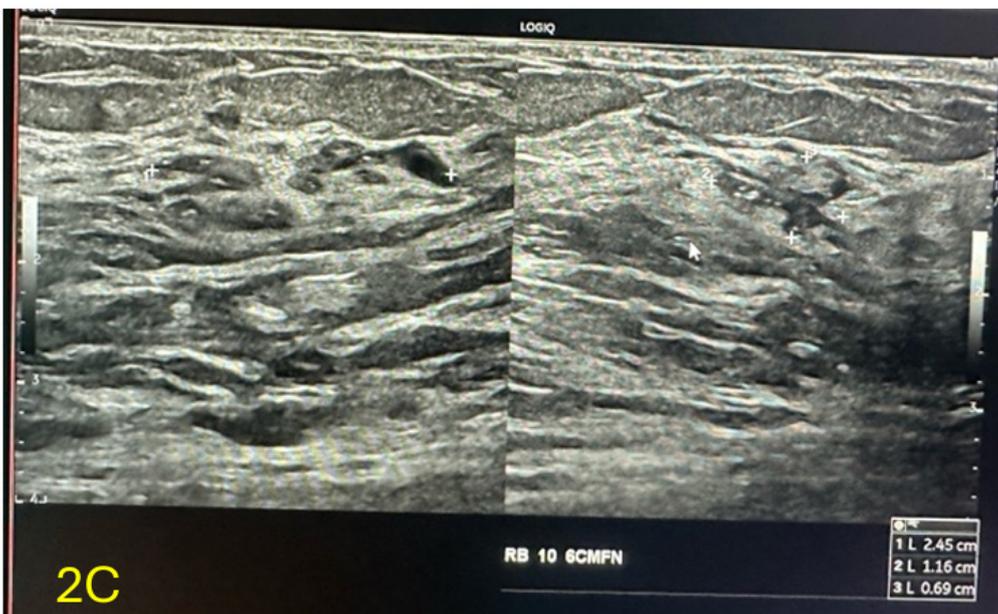


Figure 2C: 1.1 x 1.4 x 1.8cm indistinct irregular hypoechoic solid nodule.

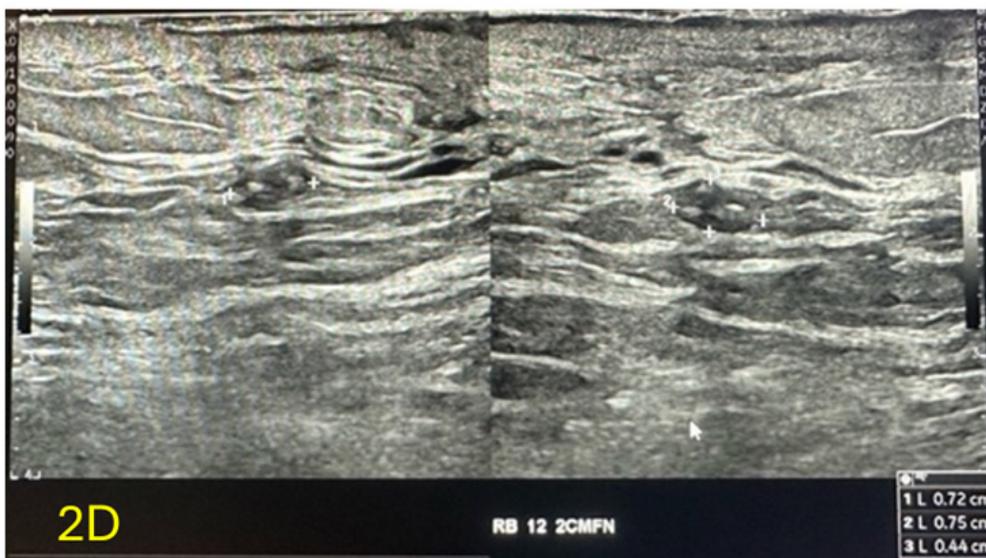


Figure 2D: 0.4 x 0.8 x 0.7cm prominent ducts with medium-level echoes and punctate calcifications.

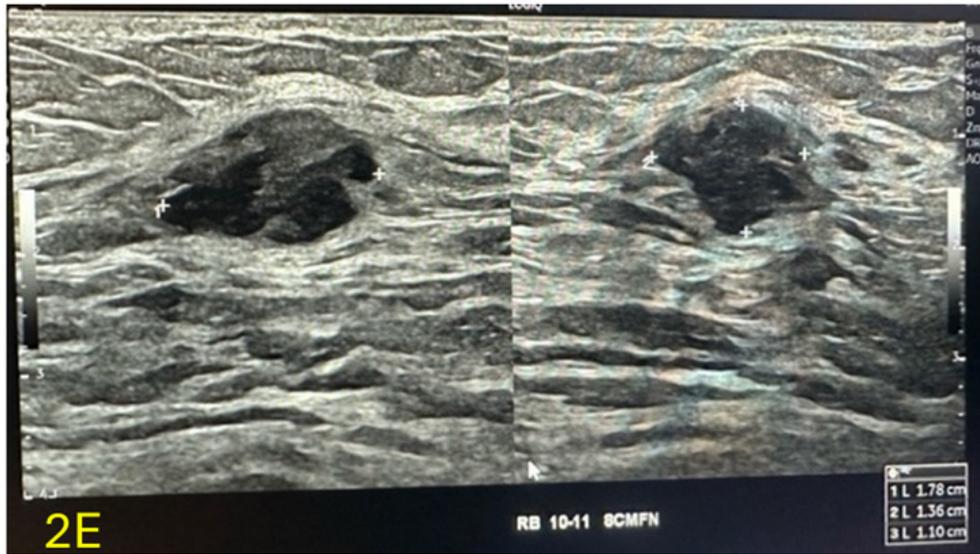


Figure 2E: 1.1 x 1.4 x 1.8cm indistinct irregular hypoechoic solid nodule.

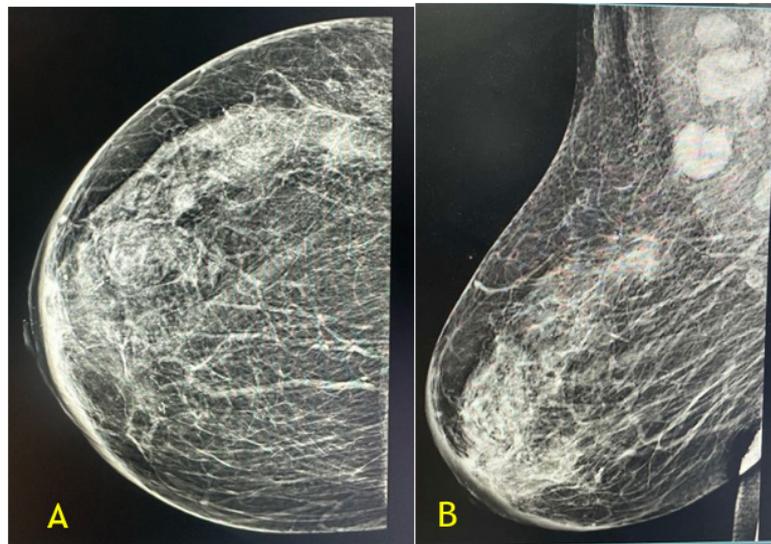


Figure 3: Mammogram (A) Right Craniocaudal (CC), B) Mediolateral oblique view (MLO).

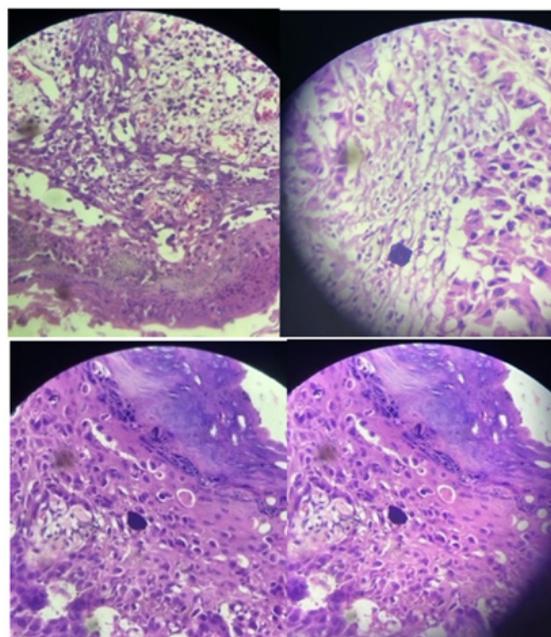


Figure 4: PD of the nipple: Microscopic examination of the specimen using H&E staining showed breast mass show presence of frankly malignant glandular elements seen in solid sheets (score of 3) with an infiltrative pattern, and exhibiting enlarged hyperchromatic nucleus with marked pleomorphism and small nucleolus (score of 3). Mitotic activity is low (score of 1).

4. Discussion

In 1874, Sir James Paget used the term “an eczematous change in the skin of the nipple preceding an underlying mammary cancer” to characterize Paget’s disease of the breast [7].

Histologically, Paget’s breast disease (PBD) is typified by the intraductal spread of Paget’s cells and an epidermal migration. It was shown that the existence or lack of invasive malignancy in the underlying breast tissue could affect the prognosis of patients with Paget’s disease of the breast [8]. The development of Paget’s breast disease is subtle. Usually unilateral, it first touches the nipple before growing centrifugally to the areola and subsequently the skin next to it. It mimics the appearance of eczema, which is occasionally accompanied by weeping erythema. The skin turns from pink to deep red in tone. In cases of advanced Paget’s disease, the nipple may retract, ulcerate, or bleed. The most reported symptoms include pain, tingling, burning, and itching [9]. A comprehensive history and physical examination are essential for diagnosing Paget’s breast disease [10]. Given the increased likelihood of breast cancer linked to Paget’s breast disease (PBD), an effective work-up requires high-quality diagnostic imaging to rule out malignancy. While less than 10% of cases are linked to a palpable mass, Paget’s breast disease co-occurs with ductal carcinoma in situ in over 93% of instances [11]. The literature distinguishes three types of Paget’s disease according to the presence and extent of related conditions: (1) PBD associated with invasive carcinoma in the breast that extends ≥ 2 cm from the nipple-areolar complex, (2) PBD associated with underlying DCIS in the lactiferous ducts within 2 cm of the nipple, and (3) PBD without underlying carcinoma [12]. The accepted standard of care for a long time has been simple lumpectomy, mastectomy, either with or without axillary lymph node dissection. For patients with minimal disease, conservative breast surgery and radiation therapy is a viable option, according to recent assessments. In terms of total disease-free longevity, long-term breast-conserving surgery would be comparable to mastectomy [13]. The presence or absence of an underlying malignancy and the disease’s stage determine the prognosis for breast Paget’s disease. The 5-year recurrence-free survival for DCIS patients is 75% to 90%, but for invasive carcinoma patients, it is 63% to 75%. In the meantime, 5-year overall survival rates for DCIS and invasive cancer are 94%–98% and 73%–93%, respectively [14].

5. Conclusion

Patients with Paget’s breast disease necessitates early identification and a high index of suspicion and thorough understanding of the symptoms. Patients who have been diagnosed will also require long-term follow-up. For a diagnosis to be made, imaging and clinical results must correspond one another.

References

1. Dubar S, Boukrid M, Bouquet de, Joliniere J. Paget’s breast disease: a case report and review of the literature. *Front Surg* 2017; 4: 51.
2. Lodhia J, Urassa E, Mremi A. Invasive breast cancer with Paget’s disease: A rare case report from a tertiary facility in Northern Tanzania. *SAGE Open Med Case Rep.* 2023; 11: 2050313X231151753.
3. Elenwo SN, Jamabo RS. Paget’s disease of the breast: a case series. *International Surgery Journal.* 2020; 7(8): 2706-2708.
4. Shunsuke Onoe, Takayuki Kinoshita, Nobuko Tamura. Feasibility of breast conserving surgery for Paget’s disease, *The Breast.* 2011; 515-518.
5. Han BY, Xu XL, Zhu X. Clinicopathological Characteristics and Survival Outcomes of Mammary Paget’s Disease: A Retrospective Study Based on a Chinese Population. *Cancer Management and Research.* 2022; 14: 237-247.
6. Sandoval-Leon AC, Drews-Elger K, Gomez-Fernandez CR, et al. Paget’s disease of the nipple. *Breast Cancer Res Treat.* 2013; 141(1): 1-12.
7. Subramanian A, Birch H, McAvinchey R, Stacey-Clear A. Paget’s disease of uncertain origin: case report. *Int Semin Surg Oncol.* 2007; 4: 12.
8. Ooi PS, Draman N, Yusoff SSM. Mammary Paget’s Disease of the Nipple: Relatively Common but Still Unknown to Many. *Korean J Fam Med.* 2019; 40(4): 269-272.
9. Vercambre-Darras S, Bertrand M, Daussay D. Paget disease. *Dermatology.* 2012; 7(2): 1-9.
10. Grewal IS, Rajagopal T. Studying the Presentation of Paget Disease of the Breast. *Cureus.* 2023; 15(6): e41057.
11. Markarian S, Holmes DR. Mammary Paget’s Disease: An Update. *Cancers (Basel).* 2022; 14(10): 2422.
12. Scott-Emuakpor R, Reza-Soltani S, Altaf S. Mammary Paget’s Disease Mimicking Benign and Malignant Mimicking Benign and Malignant Dermatological Conditions: Challenges and Clinical Diagnostic Considerations. *Cureus.* 2024; 16(7): e65378.
13. Marshall JK, Griffith KA, Haffty BG, Solin LJ, Vicini FA. Conservative management of Paget disease of the breast with radiotherapy: 10- and 15-year results. *Cancer.* 2003; 97(9): 2142-9.