IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Bowens Disease of the Breast: Diagnosis, Management & Surveillance of 5 years

Rupesh Roshan*, Deepak Singh Mouni, Asmita Gautam

1. Rupesh Roshan, MS (General Surgery), Clinical Fellowship - Breast Oncosurgery, Orcid:
2. Deepak Singh Mouni, MS (Surgical Oncology), Unit Chief – Breast Oncosurgery at B.P. Koirala Memorial Cancer Hospital,
3. Asmita Gautam, MBBS,

Abstract

Bowen's disease, also known as squamous cell carcinoma in situ, is a precancerous condition limited to the epidermis. In terms of clinical presentation and microscopic appearance, Bowen's disease of the nipple may bear similarities to breast carcinoma or Paget's disease of the nipple. This literature review aims to explore the diagnostic approaches, treatment options, and surveillance methods employed in cases of Bowen's disease of the breast.

Introduction

Bowen’s disease was first described by an American Dermatologist John T. Bowen in the year 1912(1). At B.P. Koirala Memorial Cancer Hospital, the tertiary cancer center in Nepal, we share our observational study spanning five years on the diagnosis, management, and surveillance of Bowen’s disease of the breast.

Bowen's disease or squamous cell carcinoma in situ is a precursor malignant neoplasm restricted to the epidermis. It is often associated with sun exposure, human papillomavirus, immunosuppression, or carcinogens such as arsenic exposure (2).

While Bowen’s disease commonly develops in areas of the skin exposed to sunlight, such as the scalp, trunk, and limbs, it can also develop in other sites (3). Bowen disease usually consists of a solitary lesion that may occur on sun-exposed or unexposed skin(4).

Coexistence of Bowen disease and Paget disease was reported, occurring mostly in the scrotum and vulva(5). Bowen’s disease is extremely rare and has thus far been reported only in women(6). Ulceration of the Bowen’s is suggestive of invasive carcinoma(1).

The age group with the highest occurrence of Bowen disease is typically between 60 and 79 years. On the other hand, Bowen's disease tends to affect an even older population(7).

Discussion

The development of Bowen's disease or squamous cell cancer in the skin is mainly attributed to actinic (sunlight) damage, leading to the formation of actinic lesions. Therefore, the frequently involved areas are those exposed to sunlight, such as the face, neck, ears, scalp, arms, and hands. Individuals with fair or white skin are more susceptible to developing squamous cell carcinoma due to their reduced ability to protect against UV radiation compared to individuals with darker skin. Consequently, the incidence of squamous cell carcinoma is substantially lower in dark-skinned individuals who have more natural protection against harmful UV radiation.

B.P. Koirala Memorial Cancer Hospital the tertiary cancer center in Nepal, we have examined over 20,000 patients in between 2012 to 2022 and diagnosed a single case of Bowen's disease through Core Needle Biopsy. There are several reports of Bowen's disease of the nipple areola complex, but the experience of diagnosing, managing, and surveilling Bowen's disease in the breast was not clear and present a diagnostic dilemma.

The patient had fungating 3x2 cm lump in upper outer quadrant of right breast. Initially patient had small lump which gradually increased in size with intermittent itching. No relative risk factors could be established.

First reported in 1912, Bowen's disease is an intraepidermal malignant neoplasm precursor. It is described clinically as a slowly enlarging, sharply demarcated erythematous plaque which can over time become nodular or verrucous. Risk factors for Bowen's disease include sun exposure, arsenic, human papillomavirus infection, ionizing radiation, and trauma. Prolonged exposure to arsenic is considered an etiological factor in lesions of areas unexposed to sunlight(8).

Approximately 3% of all patients with Bowen's disease will develop invasive squamous cell carcinoma, and progression is linked to a modulation of the patient's immune status(3). Some researchers point out that Bowen's disease is frequently associated with internal neoplasms; however, recent studies reject this statement(7).

Diagnosis:

Bowen's disease of the breast typically presents as a palpable, firm mass with irregular margins. Early presentation is similar to breast cancer lump. There are no signs of Peau d'orange, nipple retraction, nipple discharge, puckering or axillary lymph nodes enlargements associated with Bowen's disease of the breast.

Radiology evaluation:

Radiology imaging is not specific and cannot distinguish between breast cancer and Bowen's disease. Ultrasonography shows that Bowen's disease is typically solid appearance. On mammography, they present as a dense mass with a partially
distinct margin, with micro calcifications with spiculated margins.

Pathology evaluation:

Core needle biopsy of Bowen's disease include abnormal mitoses in the thickened epidermis, dyskeratosis, and the presence of proliferating atypical cells that do not exhibit evidence of dermal invasion(3).

The characteristics consistent with Bowen's disease include surface epithelial thickening, parakeratosis, epithelial mitoses, pleomorphic nuclei with full-thickness atypia, and preservation of the basal layer. These features, along with the presence of proliferative, highly atypical squamous cells without evident infiltration into the surrounding tissue, can serve as valuable clues for diagnosing Bowen's disease.

Immuno Histo chemistry (IHC):

Estrogen Receptor, Progesterone Receptor, and HER-2 do not express any activity in Bowen's Disease of the breast and there is no role of IHC in diagnosing Bowen's disease of the breast.

Differential Diagnosis:

- Breast Cancer: Presentation of breast lump often gives a thought of carcinoma in patients above 50 years. Tripple assessment helps to distinguish breast cancer from Bowen's disease of the breast.
- Superficial Spreading Melanoma: Immuno histochemistry analysis with positive result for s-100 marker.

Treatment:

No specific guidelines have been established for the treatment of Bowen's disease of the breast. However, wide local excision with negative margins of 5mm is recommended. Bowen's disease of the breast does not have lymphatic or hematogenous spread; Mastectomy and sentinel lymph node biopsy are not recommended.

Surveillance:

We had our patient follow up every 3 months for first year, then every 6 months for 2 years and yearly afterwards. Clinical examination with yearly mammogram is advised. Routine blood investigations, imaging studies are not recommended.

Prognosis:

Bowen's disease of the breast treated with wide local excision with 5mm margin have excellent prognosis

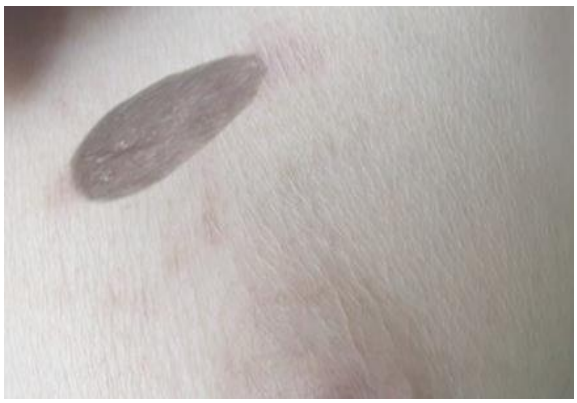

Fig: Fungating lesion of the Breast

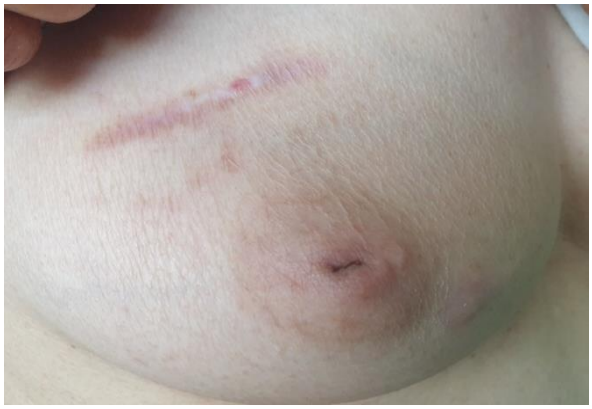

Fig: Patient after 5 years of treatment for Bowen's disease of the breast.

Conclusion:

Breast lump screening must include triple assessment (Clinical examination, Radiological Evaluation and pathological study) with confidence index of >99% the definitive diagnosis can be achieved. The 5-year surveillance suggests surgical treatment (wide local excision) with 5mm pathological margin is curative. Routine follow-up should be done and there is no need of Chemotherapy or Radiotherapy in the treatment of Bowen's disease of the breast.

References:

1. M P V, P V, P V S P, P K K, L LR. BOWEN'S DISEASE OF THE BREAST: A RARE ENTITY. J Evol Med Dent Sci. 2014 May 30;3(22):6048–52.

2. Liang DG, Soliman B, Cha J. A rare case of Bowen's disease of the nipple: Literature review and management pathway. Breast J. 2020 Jun;26(6):1234–8.

3. Kitahara M, Hozumi Y, Watanabe A, Iijima T. Bowen's Disease of the Nipple. Case Rep Oncol. 2018 Sep 7;11(3):609–14.

4. Takayama R, Ishiwata T, Ansai S ichi, Yamamoto T, Matsuda Y, Naito Z, et al. Lumican as a Novel Marker for Differential Diagnosis of Bowen Disease and Actinic Keratosis. Am J Dermatopathol. 2013 Dec;35(8):827–32.

5. Elbendary A, Xue R, Valdebran M, Torres KMT, Parikh K, Elattar I, et al. Diagnostic Criteria in Intraepithelial Pagetoid Neoplasms: A Histopathologic Study and Evaluation of Select Features in Paget Disease, Bowen Disease, and Melanoma In Situ. Am J Dermatopathol. 2017 Jun;39(6):419–27.

6. Sharma R, Iyer M. Bowen's Disease of the Nipple in a Young Man with AIDS: A Case Report. Clin Breast Cancer. 2009 Feb;9(1):53–5.

7. Dr. Carlos Manuel Ortiz-Mendoza,* Dra. Norma A. Acosta-Sánchez,** Dr. Arturo Catarino-Dircio**. Enfermedad de Bowen en la epidermis de la mama. Available from: https://www.redalyc.org/articulo.oa?id=66273510

8. Yamaguchi K, Matsunuma R, Kumeta T, Imada S, Hayami R, Arai K, et al. Concurrent Bowen's Disease of the Nipple and Breast Cancer. Case Rep Oncol. 2020 Nov 30;13(3):1410–4.