Erosive lesion of the nipple: What is your diagnosis?

Dora Mancha[1] MD, Cláudia Brazão[1] MD, Leonor Lopes[1] MD, Luís Soares-de-Almeida[1-3] PhD

Affiliations: [1]Department of Dermatology and Venereology, Hospital de Santa Maria, Centro Hospitalar Universitário Lisboa Norte EPE, Lisbon, Portugal, [2]Dermatology and Venereology, University Clinic Faculty of Medicine, University of Lisbon, Lisbon, Portugal, [3]Dermatology Research Unit, Instituto de Medicina Molecular João Lobo Antunes, University of Lisbon, Lisbon, Portugal

Corresponding Author: Dora Mancha MD, Department of Dermatology and Venereology, Hospital de Santa Maria, Centro Hospitalar Universitário Lisboa Norte EPE, Avenida Prof Egas Moniz MB, 1649-028 Lisboa, Portugal, Tel: 351-21 780 5243; Email: dora.mancha@gmail.com

Abstract

Erosive and oozing lesions of the nipple, especially when unilateral, should raise suspicion about malignant neoplasms. Herein we report a patient with typical clinical and histopathological features of erosive adenomatosis of the nipple (EAN). It is an uncommon, benign proliferative process of lactiferous ducts of the nipple. Clinically, EAN is characterized by erosion, serous discharge, edema, itching, and erythema of one of the nipples. Complete excision of the tumor yields excellent results. Although EAN is a rare disease, clinicians must be aware of this benign neoplasm in patients with erosive lesions of the nipple. The main concern is the need to rule out malignant proliferations in the differential diagnosis. Histology is the gold standard for diagnosis. The coexistence of nipple adenoma and breast cancer is well-reported in the literature. Thus, it is necessary to encourage patients with a history of EAN to maintain regular breast screening.

Keywords: adenomatosis, benign, breast, erosion, nipple

Introduction

Erosive and oozing lesions of the nipple, especially when unilateral, should raise suspicion over malignant neoplasms, mainly Paget disease or other cutaneous manifestations of breast cancer, although Bowen disease and even amelanotic melanoma should be considered [1]. Other possible diagnoses include nipple eczema, chronic contact dermatitis, erosive adenomatosis of the nipple, primary syphilis, herpes simplex virus infection, and impetigo [1-3]. Herein, we present a woman with a unilateral erosive plaque of the nipple.

Case Synopsis

A 43-year-old woman presented to our outpatient dermatology clinic with a 6-month history of erosion and scaling on her left nipple with intermittent painless serous discharge. The patient was treated with topical mometasone furoate 0.1% with no response. Her past medical history included cervical cancer. She had a family history of breast cancer. Physical examination revealed a crusted erosion of the left nipple (**Figure 1**). The right breast and nipple were normal. There were no palpable breast masses or axillary nodes. Ultrasonography and

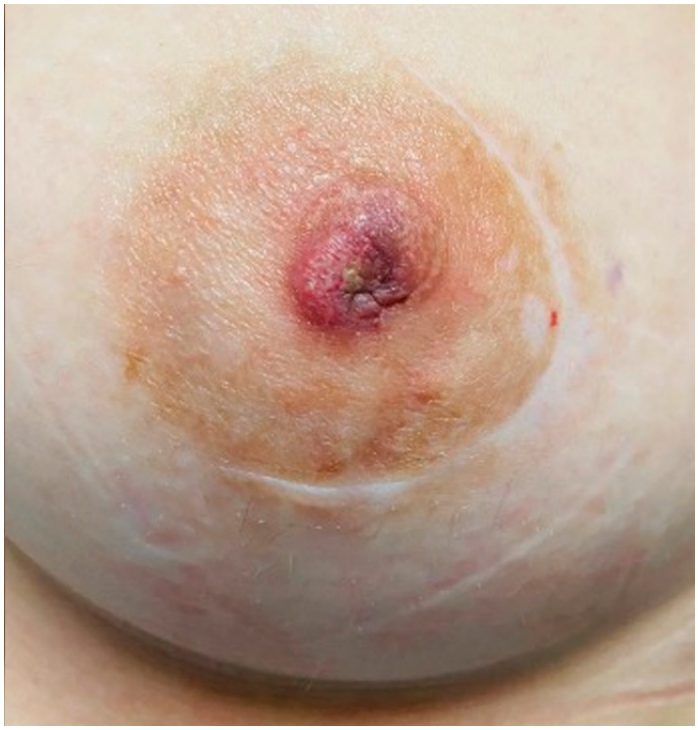

Figure 1. *Clinical picture: erosive nodule, covered by brownish crust on the left nipple.*

mammography did not show masses or calcifications in either breast.

A four mm punch skin biopsy revealed a proliferation of glandular structures in the dermis (**Figure 2A**). Glandular ducts were lined by an inner columnar epithelium and an outer myoepithelial layer (**Figure 2B**, **C**). Neither atypical cells nor necrosis was present. Immunostaining for p53 revealed a peripheral layer of positive myoepithelial cells (**Figure 2D**). The patient underwent wedge resection of the nipple. Six months after surgery, no recurrence was present.

Case Discussion

Erosive adenomatosis of the nipple is an uncommon, benign proliferative process of lactiferous ducts of the nipple [1-4]. Clinically, EAN is characterized by erosion, serous discharge, edema, itching, and erythema of one of the nipples. Physical examination reveals an erosion/ulcer on the nipple without breast lump or lymphadenopathy [1-4]. Malignant proliferations, such as Paget disease, ductal carcinoma, and tubular carcinoma are concerning conditions that must be ruled out [5]. On cutaneous biopsy, EAN is characterized by two cell populations, an internal layer of cuboidal epithelial cells with apocrine secretion and an external layer of myoepithelial cells [4]. The presence of a myoepithelial cell layer in neoplastic ducts is the most critical histological observation for distinguishing EAN from carcinoma. For this reason, confirmatory immunophenotypic staining is required to establish the diagnosis. The most frequently-used myoepithelial markers are p63, h-caldesmon, calponin 1, α-smooth muscle actin, CK5/6, and CD10 [4]. In our case, we chose p63 immunostaining.

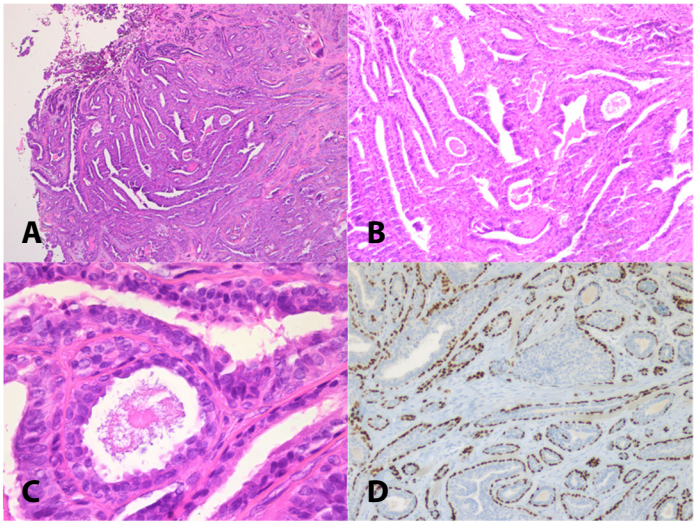

Figure 2. *Skin biopsy. H&E histopathology:* ***A)*** *proliferation of glandular structures in the dermis with direct connection to the epidermis, 40×;* ***B)*** *focal papillary projections of ductal cells, 100×;* ***C)*** *ducts are lined by an inner columnar epithelium and an outer myoepithelial cell layer, 400×. The inner layer of the ducts shows apical secretory projections.* ***D)*** *Immunostaining of p53 confirms the presence of a peripheral layer of p53-positive myoepithelial cells, 100×.*

Unlike EAN, mammary Paget disease is more prevalent in women after menopause [2-5]. It presents as a unilateral lesion with an oozing erythematous plaque, ulceration, and destruction involving the nipple and areola. The histologic hallmark is the presence of large pale isolated cells (Paget cells) in the epidermis migrating to the upper layers [5]. Histopathology is essential to determining the correct diagnosis between Paget disease, Bowen disease, amelanotic malignant melanoma, and EAN or other benign conditions.

Benign diagnostic conditions exhibiting erosive lesions of the nipple include atopic or allergic contact nipple eczema and infections [1-4]. Eczema presents as itching erythematous scaly papules or plaques affecting one or both nipples with an intermittent clinical course.[2]. Some rare cases of primary syphilis in the nipple have been reported recently [6].

Although simple complete excision of the tumor can have an excellent prognosis, for women of childbearing age who need to maintain intact nipples, tissue-sparing surgical techniques, like Mohs surgery can be considered [3,4].

Conclusion

Although EAN is a rare disease, clinicians must remember this benign neoplasm in patients with erosive lesions of the nipple. Histology is the gold standard for diagnosis. The coexistence of nipple adenoma and breast cancer is well reported in the literature. Thus, it is necessary to encourage patients

with a history of EAN to maintain regular breast screening.

Potential conflicts of interest

The authors declare no conflicts of interest.

References

1. Marcos-Pinto A, Soares-Almeida L, Borges-Costa J. Unilateral Erosive and Oozing Lesion of the Nipple. Lesión erosiva y supurativa unilateral del pezón. *Actas Dermosifiliogr (Engl Ed)*. 2019;110:e14. [PMID: 30795837].
2. Ying S, Fang H, Qiao J. Erosive Adenomatosis of the Nipple: A Clinical Diagnostic Challenge. *Clin Cosmet Investig Dermatol*. 2020;13:587-590. [PMID: 32903935].
3. Spohn GP, Trotter SC, Tozbikian G, Povoski SP. Nipple adenoma in a female patient presenting with persistent erythema of the right nipple skin: case report, review of the literature, clinical implications, and relevancy to health care providers who evaluate and treat patients with dermatologic conditions of the breast skin. *BMC Dermatol*. 2016;16:4. [PMID: 27206635].
4. DI Bonito M, Cantile M, Collina F, et al. Adenoma of the nipple: A clinicopathological report of 13 cases. *Oncol Lett*. 2014;7:1839-1842. [PMID: 24932244].
5. Ooi PS, Draman N, Yusoff SSM, et al. Mammary Paget's Disease of the Nipple: Relatively Common but Still Unknown to Many. *Korean J Fam Med*. 2019;40:269-272. [PMID: 30486607].
6. Fukuda H, Takahashi M, Kato K, Oharaseki T, Mukai H. Multiple primary syphilis on the lip, nipple-areola and penis: An immunohistochemical examination of *Treponema pallidum* localization using an anti-*T. pallidum* antibody. *J Dermatol*. 2015;42:515-517. [PMID: 25708895].