Painless Ulcer on the Areola

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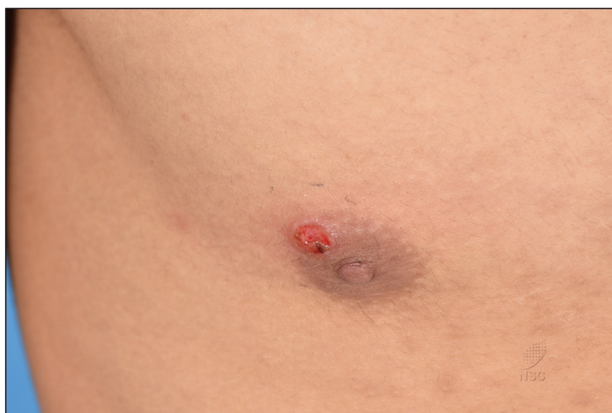

A previously healthy 20-year-old Chinese man presented to our dermatology outpatient clinic with a solitary painless ulcer on the right areola of 1 week's duration. Examination showed a small, slightly indurated ulcer with well-defined borders. No lesions were noted elsewhere. Swabs for pyogenic culture and herpes simplex virus polymerase chain reaction tests were sent, and he was treated empirically with oral cephalexin and tetracycline ointment 3%. At 1-week follow-up the ulcer had dried up and begun to heal, and results from the laboratory investigations were negative.

WHAT'S THE **DIAGNOSIS?**

a. erosive adenomatosis of the nipple
b. nipple eczema
c. Paget disease
d. primary syphilitic chancre of the nipple
e. ulcerated basal cell carcinoma

PLEASE TURN TO PAGE 31 FOR THE DIAGNOSIS

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The authors report no conflict of interest.
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THE **DIAGNOSIS:**

Primary Syphilitic Chancre of the Nipple

Because laboratory investigation was negative, a primary syphilitic chancre was suspected based on clinical findings, which was confirmed by a positive rapid plasma reagin with a titer of 1:32 and a positive *Treponema pallidum* particle agglutination assay. Results were negative for human immunodeficiency virus. On further inquiry, the patient acknowledged that the right areola had been traumatized during sexual activity with his regular male partner 1 month prior. In the last year he reported having had 5 different male partners. He was treated with a single dose of 2.4 million IU of intramuscular benzathine penicillin. Screening for other sexually transmitted infections revealed concomitant gonococcal infection of the pharynx and chlamydia proctitis, both of which were subsequently treated. On follow-up 2 weeks after presentation the ulcer had resolved, and he currently is undergoing serial rapid plasma reagin titer monitoring.

Primary syphilitic chancres can occur at any mucocutaneous site of inoculation, most frequently on the genitalia.[1] Classically, after an incubation period of 9 to 90 days, a painless indurated ulcer forms[2] and heals spontaneously after 3 to 6 weeks if left untreated.[3] Chancres at extragenital sites are uncommon, occurring in approximately 2% of patients with primary syphilis.[1] Of them, common sites include the lips and mouth (40%–70%),[4] with areolar involvement rarely being reported. A PubMed search of articles indexed for MEDLINE using the terms *nipple* and *chancre* revealed 9 case reports in the English-language literature, with the first 2 cases being reported by Lee et al[5] in 2006. The characteristics of these cases and our patient are summarized in the Table.[5-12]

Oral contact or traumatization of the nipple by the patient's sexual partner was reported in all but one of these cases[5-10,12]; trauma was unknown in one case.[11] Our patient reported a similar history of trauma to the nipple. It is known that transmission of syphilis can take place via kissing or oral contact, and it has been asserted that oral syphilitic lesions are highly infectious.[13] Syphilis also

Chancre of the Nipple Patient Characteristics

Study (Year)	Age, y	Sexual Orientation	Incubation Period, wk	Nipple Trauma	Presenting Feature(s)
Lee et al[5] (2006)	54	HSM	2–4	Yes	Swelling of the nipple
Lee et al[5] (2006)	24	HSM	2–4	Yes	Erosive change of the nipple
Oh et al[6] (2008)	47	HSM	3	Yes	Indolent ulcer covered with crust
Sim et al[7] (2010)	56	HSM	3–4	Yes	Erythematous, nontender, nonpruritic, erosive patch with ipsilateral lymphadenopathy
Yu et al[8] (2012)	36	Unknown	4	Yes	Erythematous, crusted, erosive patch with several pustules
Chiu and Tsai[9] (2012)	27	HSM	1	Yes	Crusted erythematous plaque
Zheng et al[10] (2014)	36	HSM	2	Yes	Bilateral, scaly, erythematous patches with erosion
Podlipnik et al[11] (2015)	49	MSM	Unknown	Unknown	Well-demarcated, erythematous, eroded nodule that was firm and slightly tender
Fukuda et al[12] (2015)	29	MSM	Unknown	Yes	Indurated, scaly, erythematous lesion with erosion and lymphadenopathy
Current report	20	MSM	4	Yes	Well-demarcated indurated painless ulcer

Abbreviations: HSM, heterosexual men; MSM, men who have sex with men.

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can be transmitted by an already infected sexual partner sustaining minor trauma at the oral mucosa, allowing *Treponema pallidum* from the bloodstream to be inoculated onto the nipple. Another explanation for transmission could be the Koebner phenomenon, whereby trauma at the nipple of an already infected patient could lead to the formation of a chancre.[6,8]

The differential diagnosis includes erosive adenomatosis of the nipple, nipple eczema, Paget disease of the breast, and ulcerated basal cell carcinoma. Erosive adenomatosis of the nipple is a benign tumor of unilateral involvement that presents as an asymptomatic eroded/ulcerated papule. Clinically, it is similar to Paget disease of the breast. Eczema of the nipple usually is associated with pruritus and epidermal changes such as scaling.[7,8] Paget disease of the breast arises from the extension of breast ductal carcinoma in situ onto the skin overlying the nipple. It can present as a unilateral nipple plaque with ulceration and bloody discharge. The diagnoses of erosive adenomatosis and Paget disease are confirmed with histologic examination. Basal cell carcinoma is the most common nonmelanoma skin cancer and can present as an ulcerated plaque, often with rolled borders, pearly edges, and overlying telangiectasia. It is known to be locally invasive. A punch biopsy and histopathologic examination would confirm the diagnosis of basal cell carcinoma.[14]

Extragenital chancres, especially those occurring at unusual sites, are uncommon. Therefore, a high index of suspicion is required to diagnose and initiate appropriate treatment for these patients.

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