Nontender white papule of the areola in a middle-aged female

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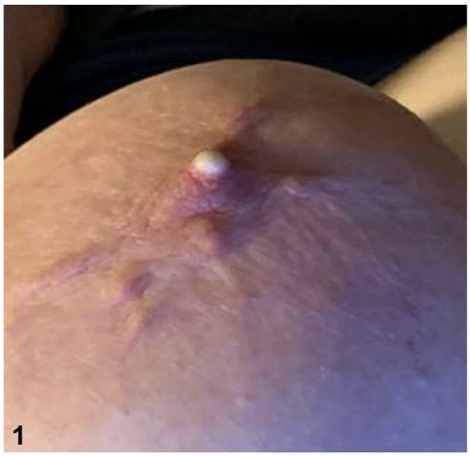
Key words: SMOLD; squamous metaplasia of the lactiferous ducts; Zuska's disease.



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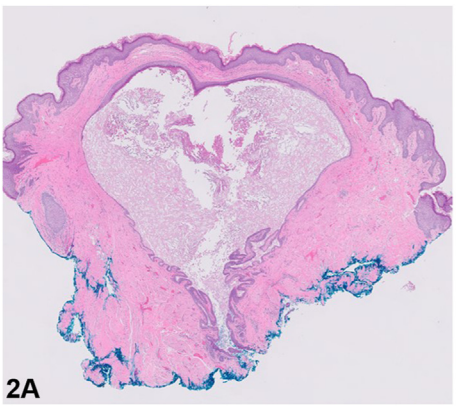

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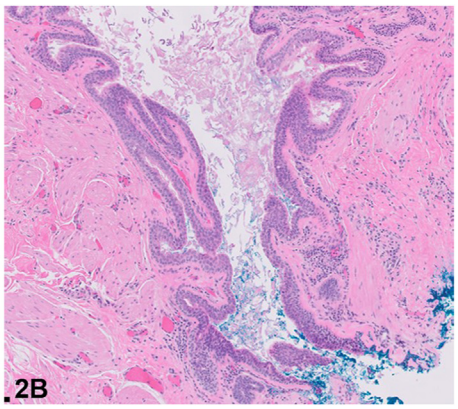

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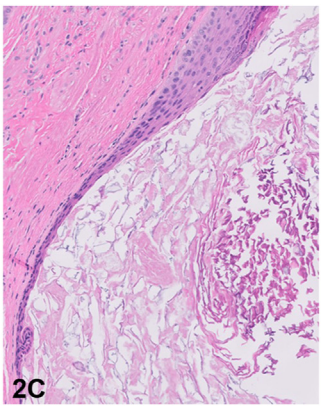

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PRESENTATION

A 46-year-old female presented to dermatology for an asymptomatic skin lesion on her left nipple, present for 1 year. She reported occasional irritation and redness of her bilateral areolae, relieved with topical petrolatum. Her regular medications included clobazam, amlodipine, fluoxetine, levonorgestrel, and triamterene-hydrochlorothiazide. She had a short history of light tobacco smoking, which she had quit 20 years prior. Physical examination revealed a solitary nontender white 6-mm papule without purulence or a punctum, arising centrally from the left nipple (Fig 1).

A punch biopsy was performed, which showed a dilated lactiferous sinus lined by keratinizing squamous epithelium in the superficial dermis. The duct was markedly expanded by entrapped keratin debris, without significant associated inflammation (Fig 2).

Question 1: What is the correct diagnosis?

A. Squamous metaplasia of the lactiferous ducts (SMOLD)

B. Epidermal inclusion cyst

C. Retroareolar abscess

D. Necrotizing breast malignancy

E. Intraductal papilloma

Answer:

A. SMOLD — Correct. Formerly called Zuska's disease,[1] SMOLD is a rare, underrecognized, benign breast disease which classically presents as an erythematous, painful, often purulent periareolar mass which may be associated with areolar sinus or mastitis.[2]

B. Epidermal inclusion cyst — Incorrect. In this patient, the lactiferous sinus had become expanded by the entrapped keratin debris, which imparted a clinical appearance similar to an epidermal inclusion cyst. Her asymptomatic presentation is explained by the fact that her lactiferous sinus had not ruptured, attributable to this structure's pleated lining, which imparts a natural capacity for expansion to accommodate stored breast milk.[3]

C. Retroareolar abscess — Incorrect, although this can occur as a complication of SMOLD. If the lactiferous duct ruptures, keratinous debris is released into the retroareolar stroma, eliciting a mixed inflammatory infiltrate including foreign body giant cells, and potentially subareolar abscess formation.[2,3] When ruptured, SMOLD may also be diagnosed by fine needle aspiration, which may show mixed inflammatory cells, macrophages, multinucleated giant cells, reactive ductal epithelia, and excessive keratinous debris.[2] Clinicopathologic correlation may be needed as pathologists may attribute these cytologic findings to a nonspecific abscess, delaying the correct diagnosis and treatment.[1]

D. Necrotizing breast malignancy — Incorrect. The differential diagnosis of ruptured SMOLD may include inflammatory carcinoma, retroareolar abscess, intraductal papilloma, and necrotizing breast malignancy. The imaging findings of SMOLD are nonspecific and overlap with malignancy (mammographic asymmetric density, mass, and tissue distortion; sonographic hypoechoic ill-defined mass and duct continuity); thus, its diagnosis must be confirmed by pathology. The key finding on histopathologic examination is keratinizing squamous epithelium deep within lactiferous ducts.[2]

E. Intraductal papilloma — Incorrect.

Question 2: What is the most significant risk factor for this condition?

A. Older patient age

B. History of any component of the follicular occlusion tetrad

C. Family history of breast cancer

D. Personal history of staph carriage

E. Tobacco smoking

Answer:

A. Older patient age — Incorrect. The mean age at diagnosis is 47 years,[2] but age is not SMOLD's greatest risk factor.

B. History of any component of the follicular occlusion tetrad — Incorrect.

C. Family history of breast cancer — Incorrect.

D. Personal history of staph carriage — Incorrect.

E. Tobacco smoking — Correct. Ninety percent of SMOLD patients have a history of smoking. In healthy individuals, the lactiferous ducts are lined to the ampulla with bilayered glandular cuboidal epithelia. Cigarette-associated toxins are believed to damage lactiferous ducts via direct injury or localized hypoxia, causing epithelial metaplasia proximal to the ampulla. This metaplasia replaces the

lactiferous duct's normal cuboidal epithelium with keratinizing squamous epithelia, leading to accumulation of keratinocytes, duct obstruction, and potentially duct rupture.[1,3]

Question 3: What is the recommended treatment for this condition?

A. Incision and drainage

B. Oral antibiotics

C. Wide excision of the areola

D. Excision of the diseased terminal lactiferous duct and smoking cessation

E. Warm compress and gentle self-massage

Answer:

A. Incision and drainage — Incorrect. Due to general unfamiliarity with SMOLD, patients may be evaluated several times before the correct diagnosis is made, often receiving excessive testing, antibiotics, and multiple sessions of painful and ineffective incision and drainage. Understandably, patients may also experience prolonged anxiety owing to these repeated discomforts, SMOLD's chronic-relapsing course, and its differential diagnosis.[2-4]

B. Oral antibiotics — Incorrect.

C. Wide excision of the areola — Incorrect.

D. Excision of the diseased terminal lactiferous duct and smoking cessation — Correct. Cure requires excision of the diseased terminal lactiferous duct and associated abscess cavity if present, and patients should be supported in smoking cessation efforts. When treated with appropriate surgical techniques, recurrence rates are low and patient satisfaction with cosmesis is high. Early recognition minimizes unnecessary suffering and chronic complications such as fistula formation.[1,3,4]

E. Warm compress and gentle self-massage — Incorrect.

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Abbreviation used:

SMOLD: squamous metaplasia of the lactiferous ducts

Conflicts of interest

None disclosed.

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