A Tender Plantar Swelling

Manal Alsabbagh

Department of Internal Medicine, King Hamad University Hospital, Busaiteen, Kingdom of Bahrain

An 11-year-old otherwise healthy girl presented with more than 6-month history of a swelling in her right sole that was painful while walking. There was no history of trauma. On examination, there was a fleshy colored, mildly tender 2 cm × 2 cm nodule with normal overlying skin [Figure 1]. The patient was referred to pediatric surgery, and the lesion was fully excised.

Histopathological examination revealed hyperkeratotic epidermal layer with parakeratosis and acanthosis. The excised lesion was cystic in nature filled with lamellated keratin and surrounded by fibroadipose tissue with mixed inflammatory cells.

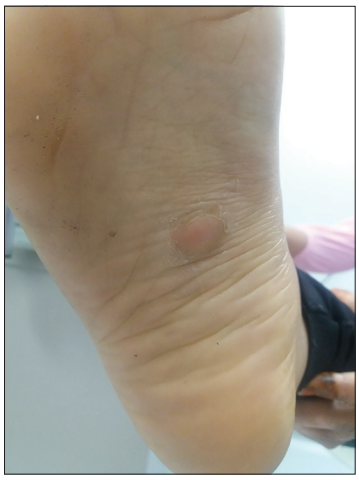

Figure 1: Clinical appearance of the plantar LESION

What is the Diagnosis?

a. Eccrine poroma
b. Epidermal inclusion cyst
c. Foreign body granuloma
d. Verrucous cyst

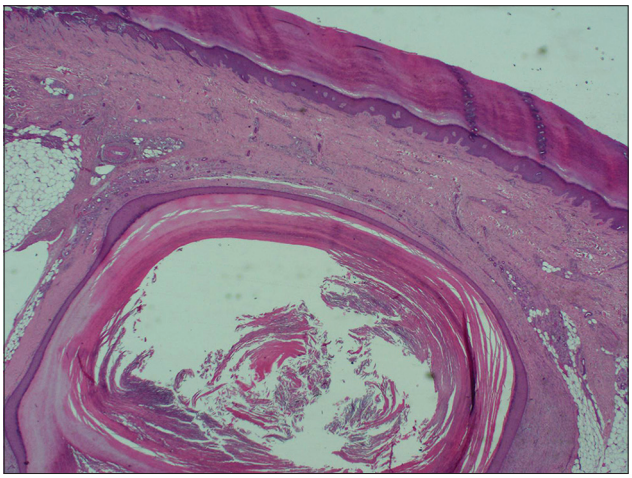

Figure 2: Histological examination showing the excised cyst lined by stratified squamous epithelium and filled with lamellated keratin. (H and E, ×2)

Address for correspondence: Dr. Manal Alsabbagh, Department of Internal Medicine, King Hamad University Hospital, P.O. Box: 24343, Busaiteen, Kingdom of Bahrain.
E-mail: mas040013@rcsi.com

Access this article online

Quick Response Code:

Website: www.jddsjournal.org

DOI: 10.4103/jdds.jdds_16_19

How to cite this article: Alsabbagh M. A tender plantar swelling. J Dermatol Dermatol Surg 2019;23:93-4.

Answer

b. Epidermal inclusion cyst

Epidermal inclusion cysts are commonly seen in hair-bearing skin with a suggestion of being formed from infundibular part of the hair follicle. The formation of such cysts in the palmoplantar area is rare.[1]

Epidermal cyst clinically presents as a solitary, dome-shaped cyst with smooth surface and a punctum. This type is typically seen in trunk, face, and external genitalia. Histologically, it is lined with stratified squamous epithelium where the granular layer presents.[2] Figure 2 shows the classical histological findings of epidermal cyst in our patient.

Three main theories were suggested for the formation of epidermal cysts in the palmoplantar area:

1. Trauma: due to epidermal invagination into the dermis. Histological features of these lesions are parakeratosis and focal lack of a granular layer at least at the upper portion of the cyst's wall. The cyst content is predominantly compact orthokeratotic material[1]
2. Human papillomavirus (HPV): Two types of HPV are related to palmoplantar epidermal cysts: HPV 57 and 60. Histologically, HPV 60 infection presents with intracytoplasmic inclusion bodies and vacuolar structures within the cyst wall and cyst cavity, respectively. HPV 57 features resemble HPV 2's: the presence of keratohyalin granules in the granular layer, in the presence or absence of keratinous mass with parakeratotic nuclei in the cystic cavity[3]
3. Eccrine duct origin: some plantar epidermal cysts are derived from epidermoid metaplasia of eccrine ducts.[4,5]

Other Answers

Eccrine poroma is a pyogenic granuloma-like, firm, erythematous nodule that is commonly seen in palms and soles. Histologically, there is acanthosis with basaloid cells extending in columns into the dermis. Melanin deposition is usually noted with sweat ducts and vascular stroma, giving the lesions their erythematous appearance.[2]

In foreign body granuloma, there is usually a history of previous procedure or trauma, commonly to wood splinters, pencil lead, glass, or suture material.[2]

Verrucous cyst: Weedon divided verrucous cysts into three main types:[2]

1. HPV-60 variant: usually on pressure points of the plantar surface
2. Verrucous epidermal cyst: seen usually in areas other than palms and soles
3. Cystic structure mimicking molluscum bodies: often caused by HPV 1 and involving the big toe.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Shimizu Y, Sakita K, Arai E, Tsuchida T, Ogawa F, Ban S, *et al.* Clinicopathologic features of epidermal cysts of the sole: Comparison with traditional epidermal cysts and trichilemmal cysts. J Cutan Pathol 2005;32:280-5.
2. Johnston RB. Weedon's Skin Pathology Essentials, 2nd ed.. UK: Elsevier; 2017.
3. Kitasato H, Egawa K, Honda Y, Ono T, Mizushima Y, Kawai S. A putative human papillomavirus type 57 new subtype isolated from plantar epidermoid cysts without intracytoplasmic inclusion bodies. J Gen Virol 1998;79 (Pt 8):1977-81.
4. Choi JE, Kwon IH, Seo SH, Kye YC, Ahn HH. Pathogenesis of plantar epidermal cyst: Three-dimensional reconstruction analysis. Ann Dermatol 2016;28:133-5.
5. Egawa K, Egawa N, Honda Y. Human papillomavirus-associated plantar epidermoid cyst related to epidermoid metaplasia of the eccrine duct epithelium: A combined histological, immunohistochemical, DNA-DNA *in situ* hybridization and three-dimensional reconstruction analysis. Br J Dermatol 2005;152:961-7.