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Marco PERUZZI, Matteo BARTOLI, Raffaele VITIELLO, Rosanna PALMISANO,
Damiano ARCIUOLO, Marco GALLI

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CASE REPORT

A rare case of epidermoid cyst on plantar face of hallux

Marco PERUZZI ^{1*}, Matteo BARTOLI ¹, Raffaele VITIELLO ¹,
Rosanna PALMISANO ¹, Damiano ARCIUOLO ², Marco GALLI ¹

¹Istituto di Clinica Ortopedica, Polo di Geriatria, Neuroscienze, Testa-Collo e Ortopedia, Fondazione Policlinico Universitario A. Gemelli, Rome, Italy; ²Istituto di Anatomia Patologica, Fondazione Policlinico Universitario A. Gemelli, Rome, Italy

*Corresponding author: Marco Peruzzi, Istituto di Clinica Ortopedica, Polo di Geriatria, Neuroscienze, Testa-Collo e Ortopedia, Fondazione Policlinico Universitario A. Gemelli, Roma, Italia. E-mail: marcoperuzzi87@gmail.com

ABSTRACT

The epidermoid cyst (EC) is the most frequent tumoural lesion of cutaneous tissue, it derives from follicular cells and his more common site of development is the scalp. The presence of EC in tissue without hairs is rare, especially in a non-keratinized skin like that of the plantar surface of the foot. The case of a 41-year-old woman with a mass in the plantar aspect of the hallux is reported. The mass was painful during walk and on manual pressure. The lesion (15 x 15 x 9 mm) was surgically excised. Histological analysis confirmed the suspect of EC. We report about the present case because of the rare and atypical finding of a epidermoid cyst occurring at the plantar skin.

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Key words: Foot - Toe joint - Epidermoid cyst.

An epidermoid cyst (EC) is a common skin lesion due to proliferation of epidermal cells within dermis in response to inflammation of the pilo-sebaceous unit.¹ Its most frequent site of occurrence is the scalp, face, neck, thorax and shoulders. EC is rarely found in the skin without hair, like palm of the hand and sole.¹⁻⁴ The accepted pathogenesis of EC among palmo-plantar skin is a proliferation of epidermis cells which are implanted into derma by an inflammation process or surgical wound.⁵ Also HPV infection is implicated into the development of EC in unusual site.^{6, 7}

Case report

A 41-year-old woman comes to our observation reporting the presence of a painful mass on the plantar surface of the right hallux. The patient referred the presence of a mass six months earlier. The lesion was painful during walking. One month before referring to us there had been a sudden increase of growth and worsening of symptoms.

No history of trauma, previous foot surgery or HPV infection with warts were reported.

A clearly visible mass was detectable on the plantar/lateral aspect of the right hallux.

On physical examination the mass appeared hard-elastic, with defined borders and mobile in relation to the adjacent tissues. Pain was very strong (VAS 7/10) and patient couldn't wear adequate shoes (Figure 1).

AOFAS score showed a 55/100 points, with the worst score in the pain subset category.

An RMN assessment documented: "[...] on plantar surface of first ray a nodular lesion is present, with expansive pattern in close contact with the flexor tendon. This mass (15x9 mm) appears capsulated, with intermediate density in T1 scan and more high in T2 scan, especially in suppression-fat scan. [...]" (Figure 2).

The patient underwent surgical excision of the mass. The mass was excised through an approach with plantar-to-lateral incision. The lesion was well circumscribed with a capsulated appearance and a marginal excision was performed. Surgical piece was sent to pathology for histological investigation (Figures 3, 4).

At follow-up pain vanished immediately, surgical wound healed promptly and no complication was recorded.

Histological examination confirmed the diagnosis of epidermoid cyst.

Macroscopically it was characterised by a cystic lesion with creamy content. Histopathologic findings showed laminated kera-



Figure 1.—Clinical appearance of the hallux.



Figure 2.—RMN.

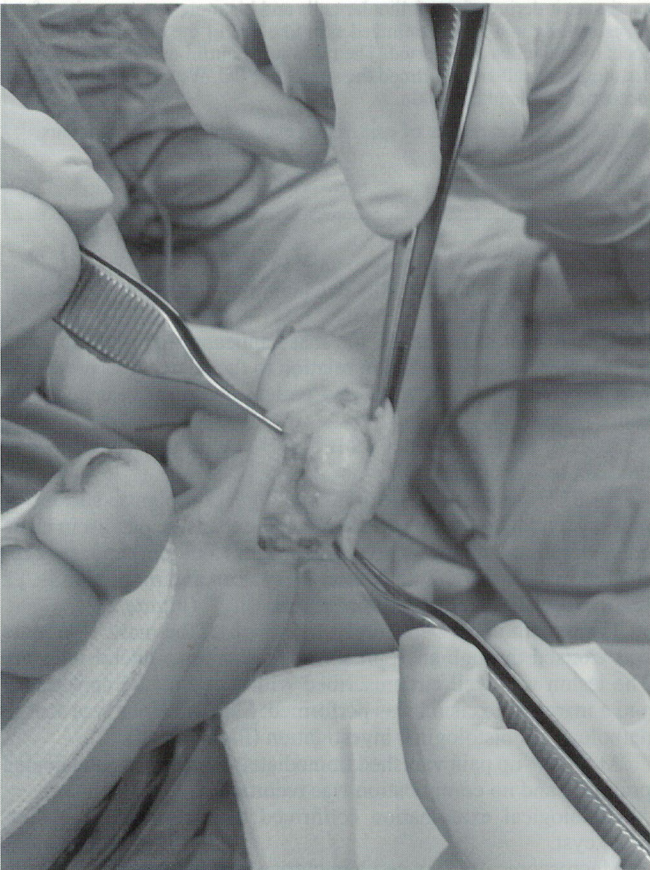


Figure 3.—Surgical approach and mass appearance.

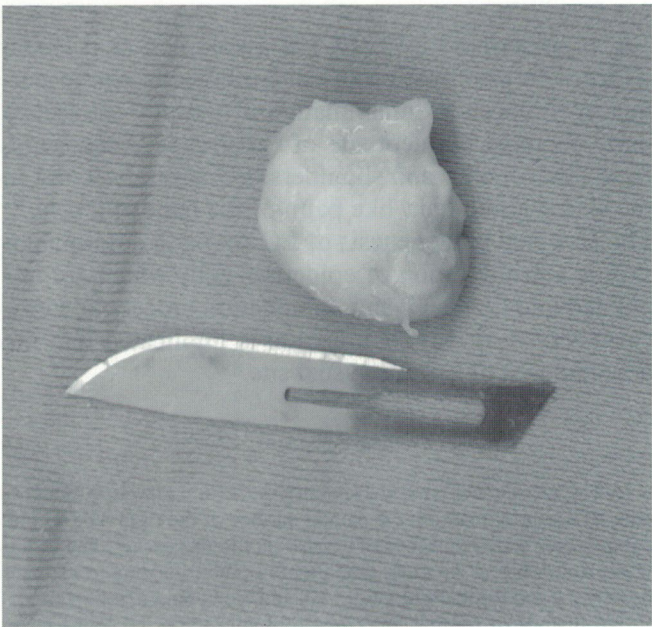


Figure 4.—Macroscopic appearance of the mass.

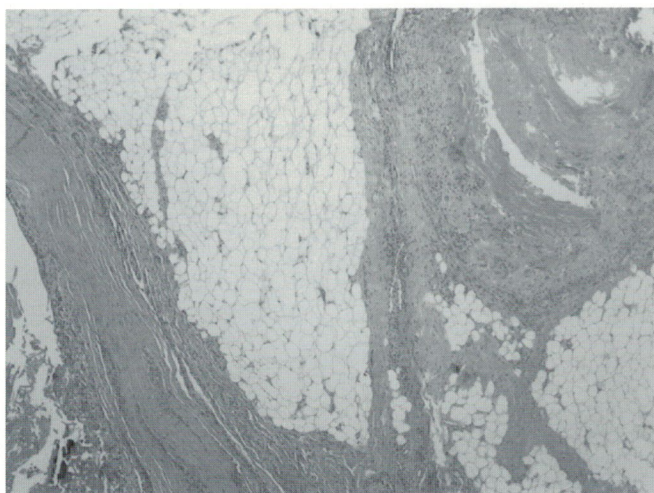


Figure 5.—Microscopic appearance of the lesion.

tin inside the lesion and the cyst is partially lined by an epidermis-like epithelium. Loss of continuity of the cyst wall accompanied by intense foreign body giant cell reaction was found (Figure 5).

At three months follow up, the patient complained no pain (VAS 0/10) and AOFAS score was 100/100.

Discussion

The epidermoid cyst, also known as epidermal cyst or infundibular cyst, is a subcutaneous benign tumour. EC gives origin to barely spherical, hard-elastic masses that usually appear mobile respect to deep tissues.¹ Epidermoid cysts grow slowly and are commonly asymptomatic. They may cause pain when infected or developed as to compress surrounding tissues.⁸ They are capsulated lesions that sometimes break with a leakage of its content. The overflow of internal content induces an inflammatory reaction in the surrounding tissues which ends up with pain and discomfort.²

These cysts originate from the infundibular portion of the hair follicle. They are more common at the level of body regions where are most represented hair: scalp, face, neck, chest and upper back. The pathophysiological mechanism more accepted is that an inflammatory process of the pilo-sebaceous unit causes proliferation of epidermal cells that migrate into the dermis.¹⁻⁴

Epidermoid cysts are very rare in body regions where hairs aren't normally present.

In this case the more likely pathophysiological mechanism is the inoculum of epidermoid cells in the deep layer due to a penetrating trauma or a surgical wound.¹⁻³ In the EC of hands and feet is suggested a relation with HPV infections.^{6, 7}

In our case, pain is possibly due to either the cyst dimension itself or to a rupture of its external capsule. A relevant dimension is likely to be responsible for an increase of intracompartmental pressure, moreover if the lesion is sited in a structure mechanically overloaded such as the hallux.

Patient denied relation to any of the well accepted etiological causes. We are incline to believe to the that pathophysiological mechanism put forward by Basterzi *et al.*² that relates cyst development to a chronic trauma due to the shoe or biomechanical overload.

Differential diagnosis is with other benign masses such as ganglion cyst, synovial cyst, lipoma, neuroma, fibroma and adnexae tumour. These are benign, not invasive lesions whose diagnosis is performed by histological analysis.²

Conclusions

The present case of epidermoid cyst is very rare and entails special consideration on account of its unusual site of onset and uncommon etiological implications.

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