

Photo Quiz: An unusual swelling of the foot

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ANSWER: Epidermal Inclusion Cyst (EIC)

Discussion

An epidermal inclusion cyst or EIC is a benign soft tissue cyst derived from implanted epidermal cells into the dermis. A more general term is epidermoid cyst. The classic epidermal inclusion cyst is due to traumatic implantation of epidermal cells with a characteristic pore or punctum. The pore is usually attached and communicates with the cyst forming a cheesy, caseating material that can sometimes be expressed on deep palpation. This material is the result of inflammation in part mediated by the horny material contained in epidermoid cysts which contain polymorphonucleocytes.¹

In this case, there was no central pore, which made the diagnosis more difficult. It appears that repetitive tissue trauma and inflammation played an important role in the formation of this cyst. The patient was quit active and involved in many sports that caused repetitive forefoot injury. Other causes of the cyst may include occlusion of the pilosebaceous unit, eccrine duct occlusion, HPV infection or surgical implantation of epidermis. It can also be caused by sequestration of epidermal rests in embryonic life.¹

The histologic findings in all epidermoid cysts are consistent of a keratin-containing cyst concentrically laminated with condensed keratin lined by stratified squamous epithelium.

The choices for this photo quiz included subcutaneous epithelioma, adventitial bursa, ganglion cyst, sebaceous cyst, giant cell tumor, schwannoma and histiocytoma.

Adventitial bursae, ganglion cyst, and shwannoma could be immediately ruled out. These structures do not contain epidermis or keratin histologically. The giant cell tumor can also be ruled out. A giant cell tumor is a tumor of *bone* caused by the proliferation of multinucleated giant cells.²

Epitheliomas are by definition confined to the epidermis. A common epiethioma is basal cell carcinoma. A 'subcutaneous' epithelioma is a rare lesion that usually ulcerates or calcifies within the subcutaneous tissue. A histiocytoma is a common benign skin tumor in young dogs.³

References:

1. Becker, Kenneth: Epidermal Inclusion Cyst; emedicine [[online](#)].
2. Lesley-Ann Goh, MBBS, FRCR: Giant Cell Tumor; emedicine [[online](#)].
3. Histiocytoma, Marvista Animal Medical Center, [[online](#)].