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Case Report

Intraosseous keratin cyst of the distal phalanx

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ABSTRACT

Keratin or epidermoid cysts of the phalanges are rare lesions mimicking osteolytic lesions such as infection, malignancy and other tumours. Definitive diagnosis can be made by histopathology only and treatment is by simple excision and curettage. We present a case of intraosseous keratin cyst of the distal phalanx and review of literature.

KEY WORDS

Intraosseous, keratin or epidermoid cyst, lytic bone lesion

INTRODUCTION

Intraosseous keratin cysts are rare benign lesions frequently located in the skull and in phalanges less commonly. Other rare sites are tibia, ulna, and femur.[1] A keratin cyst or epidermoid cyst is characterised by stratified squamous epithelium devoid of skin appendages.

Intraosseous keratin cysts clinically present as expansile swellings with radiolucent lytic radiographic appearance.[2] It is challenging to clinically distinguish it from neoplastic, and inflammatory conditions, and definitive diagnosis can be made only histologically.

We present this case of intraosseous keratin cyst presenting as a swelling of distal phalanx of right index finger with deformity of the nail.

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CASE REPORT

A 32-year-old male, computer software professional, right handed, presented to the outpatient department with recurrent swelling of right index finger, deformity of nail [Figures 1 and 2] and pain which failed to subside with antibiotics given by a general practitioner. He gave a history of trivial trauma to the finger 10 years ago when the wound was treated conservatively. His X-ray revealed radiolucency in the distal phalanx of his right index finger with loss of cortex at the tip [Figure 3]. Exploration under digital block revealed an encapsulated lesion with contents of cheesy material. There was no sequestered bone or findings suggestive of osteomyelitis. Excision of the cyst with curettage of bone was done, and specimen was

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sent for histopathological examination. Histopathology showed cyst with stratified squamous epithelium with keratin content [Figure 4]. His post-operative period was uneventful, and sutures were removed on the 10th post-operative day. He resumed professional activities 2 weeks following surgery. There was no recurrence at 6 months follow-up [Figures 5 and 6].

DISCUSSION

Epidermoid or keratin bone cysts are very uncommon and usually involve the skull or phalanges. In 1930, Harris.[3]

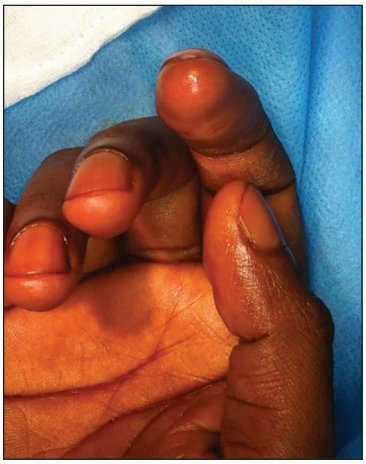

Figure 1: Pulp of affected finger

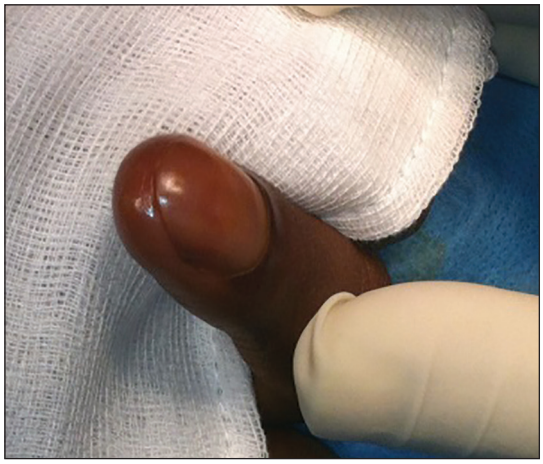

Figure 2: Nail of affected finger

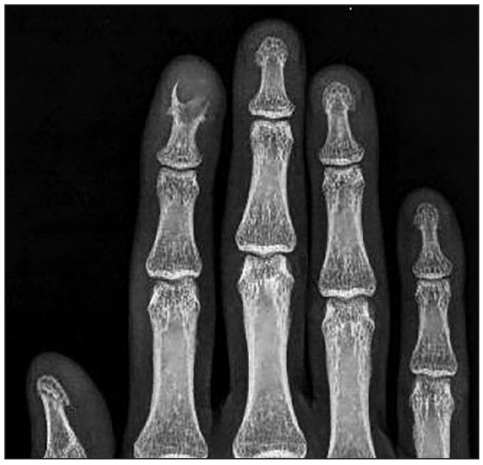

Figure 3: X-ray showing cortical translucency

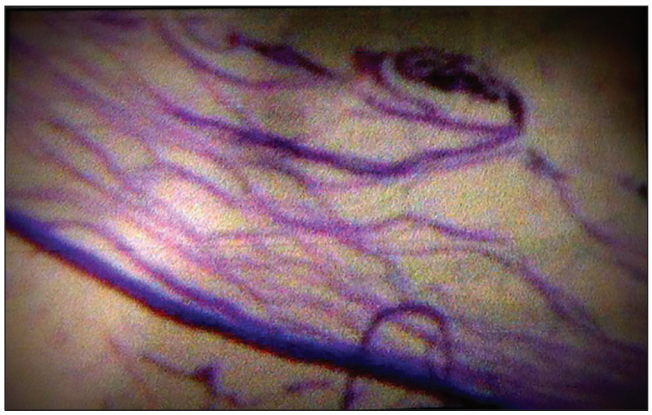

Figure 4: HPE showing keratin

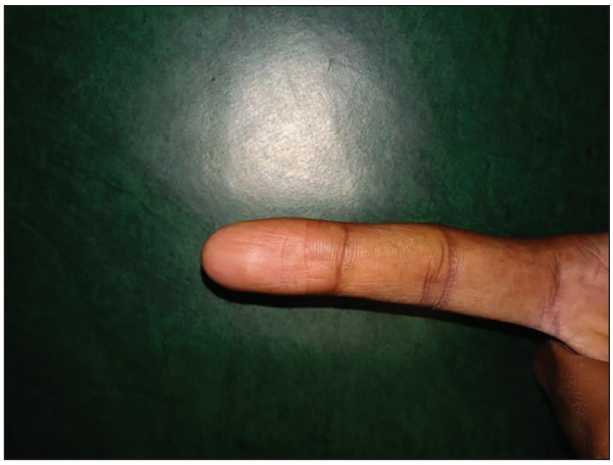

Figure 5: Six months follow-up finger pulp

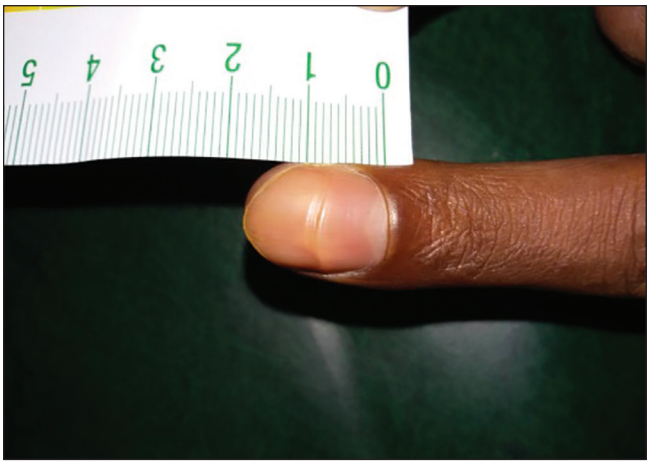

Figure 6: New healthy nail

first documented intraosseous epidermoid cysts of the digits. These lesions commonly occur in adult males in the fourth decade of life and the commonest phalanx is the distal phalanx. The pathogenesis of these cysts is not exactly known, but is regarded as traumatic, iatrogenic or rarely congenital.[4] It is presumed that trauma leads to implantation of epithelial cells into the subcutaneous tissue and these cells proliferate and produce keratin. Rarely the implantation can occur during surgery or during embryogenesis.

Clinically these lesions present with swelling, various degrees of pain and deformity of the nail similar to clubbing. Radiologically, the lucency typically occurs in the longitudinal axis with or without loss of one of the cortices. Unless there is infection or microfracture no periosteal reaction is seen. Complete involvement of the phalanx or interphalangeal joint is extremely rare and occurs only in extremely neglected cases or pathological fracture.

Histologically there is an external layer of stratified squamous epithelium that lines a centrally located cystic structure. The centre of the cyst has ghost-like remnants of keratinised epithelial cells [Figure 3]. The differential diagnosis includes enchondroma, glomus tumour, aneurysmal bone cyst, metastasis, and osteomyelitis.[4]

Enchondroma is the most common and destructive primary bone tumour of the hand and occurs more commonly in the middle and proximal phalanges.

Glomus tumours cause severe pain, cold sensitivity, tenderness and produce pressure erosion and demonstrate smooth, concave deformity at one side or on the dorsum of the phalanx beneath the fingernail, or a punched-out defect in the tuft. In the aneurysmal bone cyst, the eccentric bulb-like lesion occurs in the metaphysis of tubular bone, causing painful range of motion.[4]

Radiologically, the sharp edge of an epidermoid or keratin cyst is distinctly different from the poorly defined osteolytic lesions observed in osteomyelitis and metastatic disease[2] Histological examination is the only way to confirm the diagnosis.[5]

CONCLUSION

The diagnosis of keratin cysts must be kept in mind when there is a radiolucent defect in the distal phalanx with cortical thinning or loss. However, only gross appearance and histology can prove this diagnosis.[6] The treatment is excision of the cyst with or without curettage and grafting. Complete excision gives low recurrence rates.[3] Complete replacement of bone with cyst may require additional bone grafting.[5]

Intraosseous epidermoid cyst should be included in the differential diagnosis of bone tumours of hand.

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Conflicts of interest
There are no conflicts of interest.

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