Solitary mildly tender fast growing nodular swelling on left second toe

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CLINICAL FINDINGS

A 57-year-old male patient presented with fast growing, mildly tender subcutaneous nodular swelling on his left second toe. According to him, the lesion originally developed more than 3 years ago, and the rate of growth was very slow. The lesion was asymptomatic. The patient gave us a history of diabetes, hypertension and hypothyroidism. There was no family history of the same condition. Cutaneous examination revealed a shiny, reddish, brown, soft to firm nodule measuring 4 x 2 cm on distal left second toe. It was not attached to underlying bone and joint. The nodular swelling pressing against the distal left third toe (Fig. 1). Ultrasonography revealed a rounded mass of markedly hypoechoic appearance with smooth, well-defined walls, immediately adjacent to the involved synovial compartment. CT scanning demonstrated a well-defined water density mass with normal surrounding soft tissue. General serological investigations were within normal levels.

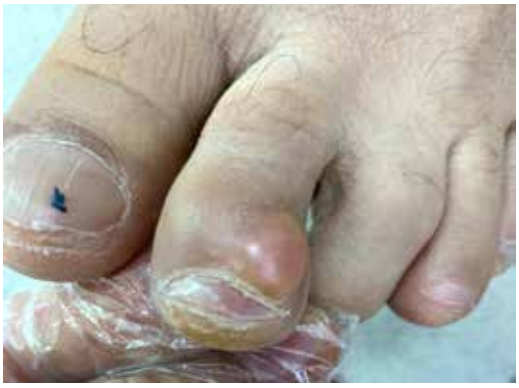

Fig. 1 A shiny, reddish, brownish subcutaneous nodule on distal left second toe

What is your clinical differential diagnosis?

Digital myxoid cyst

Myxoid neurofibroma

Superficial acral fibromyxoma

Giant cell tumor of tendon sheath

PATHOLOGICAL FINDINGS

A complete surgical excision was done and microscopic examination revealed hyperplastic epidermis with formation of epidermal collarette overlying a pool of mucin that was surrounded by fibrous stroma with absence of epithelial lining (pseudocyst) (Fig. 2, 3).

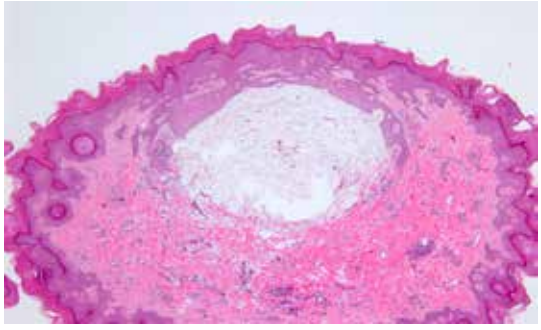

Fig. 2 Hyperplasia of the epidermis and epidermal collarette over mucinous pseudocyst

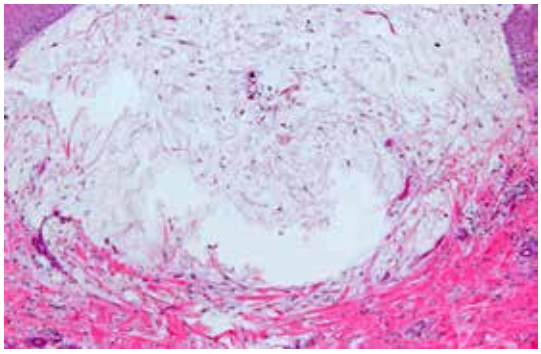

Fig. 3 Mucinous pseudocyt formed of pool of mucin and surrounding fibrous stroma without epithelial lining

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DIAGNOSIS

Digital myxoid cyst

COMMENT

Digital mucous cysts (DMCs) known as the benign ganglion cysts usually develop at the distal interphalangeal (DIP) joints or in the proximal nail fold. Although they have been seen on the toes, they typically appear on the hands.[1] Digital myxoid cyst in our patient was located on the second toe of left foot.

Despite their prevalence, there hasn't been much focus on investigating these cysts in the past. The terms "cystomata," "myxomatous cutaneous cysts," "myxomatous degenerative cysts," "periarticular fibromas," "synovial lesions of the skin," "periungual ganglions," "mucous cysts," "myxoid cysts," and "dorsal cysts" have all been used in the literature to describe them.[2]

Hippocrates was the first to recognize ganglion cysts, characterizing them as a fluid-filled knot of tissue. Eller in 1746, came to the conclusion that ganglia developed as a result of the synovial lining of a joint herniating out. The digital mucous cyst was initially described by Hyde in 1882. Ledderhose proposed that ganglia spontaneously formed in the subcutaneous tissue in 1893. Ritschel first put up the idea that mucoid degeneration might be to blame for digital mucous cysts in 1895; Carp and Stout popularized the idea in 1928. The nail malformations were then attributed to cysts, according to Anderson's 1947 report.[3]

Digital mucous cysts' process of production is unknown. Currently, it is thought that the cysts develop from mucoid connective tissue degradation, which frequently entails contact with the nearby DIP joint and the potential coexistence of osteoarthritis. At the region of the cysts, osteoarthritis is frequently visible clinically and radiographically, and osteophytes and spurring of the DIP joint were first identified there in the 1970s. The mucoblasts connected to the cyst appear capable of supporting the process, therefore there may or may not be an active connection to the joint area. Digital mucous cysts have unknown origin. Numerous etiologies, including a tuberculous process, have been proposed in the past. Cyst development is now thought to be caused by mucoid connective tissue degradation linked to proximal osteoarthritic alterations. In rare circumstances, trauma itself may be the cause.[4]

The most frequent tumor or cyst in the hand is a ganglia. In all, they make up about 70% of these tumors or cysts, with digital mucous cysts making about 10% to 15% of the total. The male to female ratio of 2-2.5:1 indicates that women are afflicted more frequently than males. Digital mucous cysts can appear as early as during adolescence or in the old population. Though they typically appear in duringr fifth to seventh decades. The average onset age is 60 years. In one report, a case with infantile cutaneous mucinosis is mentioned.[3]

The cysts typically don't cause any symptoms. They could develop over several months or arise suddenly. The clinical manifestation of the cyst itself could appear up to 6 months before the nail starts to groove. At the site of cyst emergence, osteoarthritis of the tiny joints is frequently observed. Cysts may occasionally spontaneously expel their contents, and in a sizable percentage of cases, cysts may even spontaneously vanish. A limited percentage of instances had antecedent trauma that has been reported. Pain is an increasingly prevalent symptom as cysts expand. Patients may also report functional impairment and the appearance of bigger cysts as complaints.[4] Digi-

tal mucous cysts are often single, round-to-oval, dome-shaped, firm-to-fluctuant papulonodules with a diameter of 1–10 mm, with skin thickness varying from extremely thin to fairly thick overlying them. A thick, gelatinous fluid that may be clear or tainted with yellow color makes up the cysts. Cysts that are comparatively larger tend to cause pain.[3]

According to one series, the cysts are more prevalent on the radial than the ulnar aspect of the fingers, and are situated off the midline of the digits. They are often located intradermally on the dorsolateral side of the fingers, between the DIP joint and proximal nail fold.[5] Less frequently, they develop in the digit's pulp, below the nail matrix, or between the proximal nail fold and the nail plate. The middle or index finger of the dominant hand is where cysts are most usually seen; toe involvement is less prevalent. Subungual cysts (cysts under the nail plate) share characteristics that have been categorized in a single series. The lunula is typically stained, more frequently red and less frequently blue.[6] Digital mucous cysts range in hue from clear to flesh. A herpetiform look was described in one case report.[7] Lesions can appear as a single nodule or as multiple nodules. There may be a red lunula and a longitudinal brownish band visible when they are under the nail matrix.[8] When the proximal nail fold is affected by digital mucous cysts, the nail develops longitudinal grooves or depressions. Transverse ridging and weakening of the nail directly above the cyst may also occur along with grooving. Less frequently, the nail is severely damaged. The likelihood of a digital mucous cyst is higher above, than below the nail matrix.[9,10]

A pseudocyst with a fibrous capsule and myxomatous stroma with dispersed fibroblasts is visible under the microscope. It is possible to find a mesothelial lining, but not a complete cyst wall. A collarette of hyperplastic epidermis and compact hyperkeratosis are both seen in the surface epithelium that lies above. The mucinous contents can be easily recognized when stained for acid mucopolysaccharides with colloidal iron or Alcian blue and basophilic with hematoxylin and eosin.[11,12] Differential diagnosis of digital myxiod cyst (see Table 1).

These cysts frequently have no symptoms and don't need to be treated. When treatment is necessary, various levels of medicinal therapies and surgical techniques may be tried. It often reccurs.[1] In a research including 100 patients, surgery had a cure rate of 95%, higher than that of sclerotherapy (77%), cryotherapy (72%), corticosteroid injection (61%), and expression of cyst contents (39%; P.001).[13] our patient was treated with wide surgical excision, and no recurrence was seen during the 9-month follow-up period.

The prognosis for digital mucous cysts is favorable. Recurrence is typical, with the exception of major surgery, which has a high morbidity rate. Digital mucous cysts are typically benign and asymptomatic. Cysts can press against nearby nerve fibers, which can cause pain. The damaged digit can become deformed by larger cysts. Nail malformations can happen.[14-16]

CONCLUSION

Digital myxoid cyst should be kept in mind as a one of differential diagnosis for a cystic lesion on digits, and histopathological examination is the gold standard technique for final diagnosis in such case. Surgical excision is the best curative

Table 1 The clinicopathological challenges of digital myxoid cyst.

Disease	Clinical	Pathology
Superficial acral angiomyxoma	• The majority of tumors present as a solitary, slow growing, painless mass with a gelatinous to firm consistency, and the size may vary between 0.5 and 5cm with a predilection for the periungual and subungual areas of the fingers and toes	• Primarily affects the dermis and subcutis; may also affect the skeletal muscle on the face; is multilobulated, poorly circumscribed; has a myxoid stroma; is Alcian blue positive; is hyaluronidase sensitive; may have acellular mucin pools, scattered bland, stellate, and spindled cells; occasionally multinucleated cells; rare for mitotic figures; Many thin-walled small blood vessels
Giant tumor of tendon sheath	• A soft tissue mass that develops over a period of months to years. It is the second commonest tumor of the hand. Trauma, inflammation, metabolic disease and a neoplastic etiology are considered as etiological factors.	• It is a well-defined nodule that develops in the subcutis or deep dermis and is made up of a population of oval cells embedded in a thin layer of condensed eosinophilic fibrous stroma. There are sporadic multi-nucleated giant cells. Small groups of lipid-rich cells are typically visible. It has a fibro-histiocytic origin and is CD68 and Vimentin positive.
Myxoid neurofibroma	• A benign peripheral nerve sheath tumor that expresses S-100 protein. The face, shoulders, arms, periungual area, and feet are the most typical areas.	• Bundles of elongated cells interspersed with nuclei that are wavy and darkly stained • Mast cells are interspersed, and the amount of mucin and collagen in the stroma varies. Cells with an unclear histogenesis have CD34 positivity, and neural cells have S100 positivity. Monomorphic "comma-shaped nuclei" and divergent differentiation, which may occasionally include melanin-pigmented cells, are also present.

technique.

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