Subungual mass index finger

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Originally described by Fetch in 2001 [1], acral fibromyxoma is defined by the World Health Organization as a benign fibroblastic neoplasm with potential for local recurrence and a marked predilection for the subungual and periungual regions of the hands and feet [2]. Also known as superficial acral fibromyxoma, the lesion arises in the dermis and subcutis as a lobulated mass and may rarely affect other areas of the distal extremities, such as the ankle, leg, heel, or palm [1, 2]. It has been reported in those from the 1st to 9th decades of life, but most frequently diagnosed in middle-aged to mature adults (40–60 years), typically presenting with a slowly growing, well-circumscribed mass [3]. The lesion demonstrates a local recurrence rate of 10–24%, underscoring the importance of complete surgical resection [3, 4] due to its potential for infiltrative growth [2].

There are a limited number of reports detailing the imaging features of acral fibromyxoma. MR imaging characteristically demonstrates a decreased to intermediate signal intensity on T1-weighted images [5–9]. On fluid-sensitive sequences, the lesion signal intensity is more variable, most often showing an intermediate to high signal intensity, reflecting variations in the tumors' fibromyxoid morphology consisting of spindle cells within a myxoid and collagenous (fibrous) stroma [5, 7–9]. Limited reports have described septal and peripheral, as well as delayed central enhancement [5, 9].

From the clinical photographs (Fig. 1) and labeled axial STIR image (Fig. 7), the lesion can be seen below the nail

bed along the posterior and lateral nail fold and inhibiting nail growth adjacent to it. As described in other acral fibromyxomas [5, 6, 8, 9], there is osseous remodeling of the distal phalanx secondary to mass effect on the bone with deep scalloping of the radial cortex and mild scalloping of the dorsal cortex (Fig. 2). There is no periosteal reaction, which is consistent with the patient's history of a slow-growing tumor. Representative photomicrographs of the resected tumor show an unencapsulated nodular lesion (arrows in Fig. 8) in the dermis of acral skin, composed of (Fig. 5b) cytologically bland fibroblasts embedded within the variably collagenous and myxoid stroma, without mitotic activity or necrosis. Immunohistochemistry shows positive brown staining of the lesional cells for CD34 (Fig. 6), but no staining for EMA, SMA, desmin, SOX10, or S100 protein (not shown), excluding a variety of other epithelial, melanocytic, myoepithelial, smooth muscle, and myofibroblastic spindle cell neoplasms. Taken together, the histopathologic findings are diagnostic of superficial acral fibromyxoma.

The general differential diagnosis of subungual and periungual masses would include many benign lesions, such as glomus tumor, subungual exostosis, ganglion cyst, epidermal inclusion cyst, soft tissue chondroma, mucoid cyst, and chronic nail bed infection with metaplastic fibro-osseous tissue. Additionally, one should consider malignancies, such as spindle cell melanoma, spindling squamous cell carcinoma, and acral metastasis either as the first presentation or from pre-existing cancer [10]. Most of these differential considerations are readily dismissed when the clinical presentation and imaging characteristics reflecting lesion morphology are considered; however, there are still limited differential considerations. The most common of these is the mucoid cyst. Most mucoid cysts involving the distal finger arise from osteoarthritic changes at the adjacent interphalangeal joint and are characterized by a connecting pedicle to the interphalangeal joint [10], which can be difficult to identify in many cases. The more heterogeneous increased signal from the myxoid and collagenous (fibrous) stroma in the acral fibromyxoma is a more reliable distinguishing feature, which is well demonstrated in this case. Soft tissue chondroma,

Diagnosis: Acral fibromyxoma

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Fig. 7 Axial STIR image shows the tumor (large asterisk) arising within the dermis deep to the nail bed (small asterisks), deforming the nail plate (white arrow) and ventral nail matrix (black arrows)

Fig. 8 Low-power photomicrograph shows an unencapsulated nodular lesion (arrows) in the dermis of acral skin. Hematoxylin and eosin, 40x

which is a relatively rare lesion, is also most common in the finger with this location accounting for more than half of all cases. Patients present with a slowly growing, lobulated, soft tissue mass involving the fingers, but these are more often associated with periosteum, joint capsule, and tendon sheaths, in contrast to the dermis and subcutis, and mineralization, reported in up to 70% of cases [10].

Typical treatment for an acral fibromyxoma is surgical excision, and this patient has undergone a local excision with intact finger motion with no pain post-operatively. Recognition of a cyst-like mass with a heterogenous collagenous and fluid-like signal on MRI will allow radiologists to suggest the diagnosis of acral fibromyxoma when encountering subungual and periungual growths.

Declarations

Conflict of interest The authors declare no competing interests.

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