PTERYGIUM OF FINGERNAILS DUE TO OSTEOARTHRITIS OF DISTAL INTERPHALANGEAL JOINTS

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ABSTRACT

Pterygium is an uncommon nail disorder in which the distal nail bed adheres to the ventral surface of the nail plate with obliteration of the distal nail groove. Pterygium is almost pathognomonic for lichen planus of the nail; however, it can be seen in nail-patella syndrome and in other destructive conditions such as trauma, peripheral vascular disease, Raynaud’s phenomenon, radiotherapy, infection, stroke, and immunobullous disease. Nail involvement associated with primary interphalangeal osteoarthritis of the hand, including leukonychia and longitudinal nail ridge are reported, and osteoarthritis of distal interphalangeal joints may be associated with pterygium, too. Here we presented a 67-year-old female patient with nail alterations at right hand, and pain at distal interphalangeal joints. She reported onset of changes of the fingernails for the past 1 year. She had any systemic disorder. Physical examination of the right hand revealed the diagnosis of pterygium at thumb, index, and ring fingernails. She had Heberden’s nodes. The patient had no evidence of lichen planus, and connective tissue diseases. Hand roentgenogram showed osteoarthritis of distal interphalangeal joints. We thought that the most probable reason of the pterygium in our patient was the osteoarthritis of the distal interphalangeal joints which interfered with local blood flow.

INTRODUCTION

There are many nail deformities commonly present in the physiatry clinics. Knowing the nail anatomy supported with careful inspection of the nails at routine clinical visits can reveal undetected disorders (Tucker JR, 2015). Some benign and common disorders such as onychomycosis or paronychia may be recognized, and treated easily by the physiatrists, but for various conditions such as lichen planus, melanonychia, longitudinal ridges, isolated Beau lines, clubbing, pterygium and onycholysis referral to an appropriate specialist should be preferred.

Pterygium (Pterygium inversum unguis: PIU) is an uncommon nail disorder in which the distal nail bed adheres to the ventral surface of the nail plate with obliteration of the distal nail groove, and it was first described by Caputo and Prandi in 1973 (Caputo R et al., 1973). It can be congenital, acquired, or idiopathic. The exact origin is still speculative (Vadmal M et al., 2005). Pterygium is almost pathognomonic for lichen planus of the nail. It can, however, be seen in nail-patella syndrome and in other destructive conditions such as trauma, peripheral vascular disease, Raynaud’s phenomenon, radiotherapy, infection, stroke, and immunobullous disease (Vadmal M et al., 2005; Zaias N, 1980; Pierre M, 1981; Burge SM et al., 1985; Shawan SS et al., 1990; Holzberg M, 2006).

Osteoarthritis is a common age-related disease characterized by progressive joint destruction, loss of function, and joint failure. Osteophyte formation, cartilage loss, and joint space narrowing are seen (Kellgren JH et al., 1952; Jackson DG et al., 1957). New bone formation in nodal osteoarthritis is also a feature of advanced osteoarthritis. Nodal osteoarthritis of hands may present with painful joint swelling, or Heberden’s nodes that are associated with ossification and radiographic features of...
osteoarthritis (Baboolal TG et al., 2014; Rees F et al., 2012; Thaper A, 2005). Nail involvement associated with primary interphalangeal osteoarthritis of the hand, including leukonychia and longitudinal nail ridge are reported (Cutolo M et al., 1990) and osteoarthritis of distal interphalangeal joints may be associated with pterygium, too.

Here we presented a female patient in whom pterygium of right thumb, index, and ring fingernails developed with any reasonable cause except osteoarthritis of distal interphalangeal joints.

Case

The patient, a 67-year-old, right handed female, was referred to our physiatry clinic for nail alterations at right hand, and pain at distal interphalangeal joints. The patient reported onset of slowly progressive changes of the fingernails of the right hand for the past 1 year. There was no history for bleeding, or any sensory disturbances of the right hand. She had any systemic disorder such as hypertension, hyperlipidemia, or diabetes mellitus. Physical examination of the right hand revealed the diagnosis of pterygium at thumb, index, and ring fingernails (Fig 1). She had Heberden’s nodes. She had no sign or symptom for central or peripheral nerve compression, or damage. There was no family history of a similar nail abnormality, or a rheumatologic disease. The fingernails of the uninvolved hand were normal. The patient had no evidence of skin, or mucosal involvement of lichen planus, or psoriasis. Results of all laboratory tests such as sedimentation, CRP, and hemogram were normal. There was no sign or symptom for connective tissue diseases including systemic lupus erythematosus, subacute cutaneous lupus, scleroderma, and calcinosis, Raynaud’s phenomenon, esophageal involvement, sclerodactyly, and telangiectasia (CREST) syndrome. Hand roentgenogram showed self evident osteoarthritis, especially at distal interphalangeal joints (Fig 2). After consulting the patient to dermatology clinic we applied an analgesic treatment with acetaminophen.

Fig 1. Pterygium at right thumb, index, and ring fingernails, and Heberden’s nodes.

Fig 2. Osteoarthritis of distal interphalangeal joints.

DISCUSSION

Similar to our patient, the majority of the cases of pterygium are seen in women between the ages of 20 and 70 years (Vadmal M et al., 2005). Also the fingernails are reported to be affected more commonly than the toes (Vadmal M et al., 2005). Our patient had no involvement of toes. Most of the reported patients had pterygium in both hands (Vadmal M et al., 2005). Unilateral pterygium like in our patient was reported rarely (Vadmal M et al., 2005; Morimoto SS et al., 1988). She was right handed, and this may leaded to one sided complaints. Pterygium can affect few nails of both hands as we saw in our case (Vadmal M et al., 2005). Connective tissue diseases were common in previously reported cases (Vadmal M et al., 2005; Patterson JW, 1977; Caputo R et al., 1993), but any of the examination findings, or the results of laboratory tests of our patient indicated connective tissue diseases. Contrast to our patient the most common complaint is pain or bleeding of the digit that occurred chiefly while nail clipping (Vadmal M et al., 2005; Baek JH et al., 2014).

Pterygium is strongly associated with lichen planus, and may present as the only manifestation. It occurs as a shortening of the cul-de-sac under the proximal nail fold with associated thinning of the nail plate until the proximal nail fold fuses to the matrix and proximal nail bed dividing the nail plate into two lateral sections. When the lichenoid infiltrate enlarges to encompass the proximal nail fold, the matrix, and the nail bed, pterygium can occur (Caputo R et al., 1973). Lichen planus can appear at any age, but most cases occur between 30 and 60 years of age (Usatine RP et al., 2011). Approximately 10% of patients with lichen planus present with scalp and nail variants (Usatine RP et al., 2011). Our patient had no other evidence of skin or mucosal involvement of lichen planus, or psoriasis.

Skin changes and nail involvement, due to either central or peripheral nerve compression or damage, are also well recognized, and were reported in other destructive conditions such as trauma, peripheral vascular disease, Raynaud’s phenomenon, radiotherapy, infection, immunobullous disease, and primary interphalangeal osteoarthritis of the hand (Ross JK et al., 1987; Aratari E et al., 1984).
Ulcerative and mutilating CTS can occasionally produce sclerodactyilia with ulcerative lesions on distal fingers, nail dystrophy and acroosteolysis as a consequence of mechanical compression of the autonomic fibers of the median nerve. The clinical picture includes Raynaud’s phenomenon in some patients (Romaní J et al., 1997). Reported nail changes in peripheral nerve lesions include transverse furrows, pigmented streaks, hyperkeratosis of the eponychium, nail shortening, fragility, and yellow discoloration (Diba VC et al., 2003). Depending on the severity of nerve damage, nail changes vary from Beau’s lines to onychomadesis, and necrosis (Tosti A et al., 2006). We found no symptom or finding for central or peripheral nerve compression or damage in our patient.

Distal ischemia and altered blood flow result in recurrent ulceration and scarring, which leads to hyperkeratosis of the stratum corneum, and pterygium formation. This has been hypothesized as the probable pathologic mechanism for pterygium (Patterson JW, 1977; Caputo R et al., 1993). Pterygium is a distinctive sign of scleroderma related to impaired peripheral perfusion (Caputo R et al., 1993). As well as the patients with connective diseases similar mechanism has been considered in patients with leprosy which results in scarring and thermal injuries by the loss of sensation and impaired peripheral circulation (Patki AK, 1990).

Nail involvement associated with primary interphalangeal osteoarthritis of the hand, including leukonychia, and longitudinal nail ridge are reported (Cutolo M et al., 1990). Osteoarthritic changes of the distal interphalangeal joints may cause nail lesions by exerting direct pressure on the nail matrix or by interfering with local blood flow. Moreover, inflammation of the Heberden’s nodes is often present and seems to participate in the development of nail alteration (Cutolo M et al., 1990). Cimmino had found an increased risk of nail changes associated with osteoarthritis of the hand (Cimmino MA et al., 1994). We thought that the most probable reason of the pterygium in our patient was the osteoarthrosis of the distal interphalangeal joints which interfered with local blood flow. Pterygium does not have an exact treatment modality, but in case of pterygium due to lichen planus treatment with steroids either systemic or intra-matricial is required (Grover C et al., 2005; Dehesa L et al., 2012; Grover C et al., 2015). We consulted the patient to dermatology clinic and started only analgesic treatment with acetaminophen.

In conclusion, pterygium is uncommon nail disorders which must be keep in mind, and one should take into account the osteoarthrosis of distal interphalangeal joints as an unusual cause of pterygium.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

REFERENCES


