

A painful subungual nodule: subungual exostosis

Ağrılı subungual bir nodül: Subungual ekzostoz

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Subungual ekzostoz selim, gelişimi sıklıkla edinsel olan ve ayak distal falanks dorsal medial yüzde görülen ağrılı soliter bir tümördür. Sağ ayak başparmağında iki yıldır var olan kitle ve ağrı şikayetiyle başvuran 16 yaşındaki erkek hastada, yapılan radyolojik ve histopatolojik incelemeler sonucu subungual ekzostoz tanısı kondu. Tümör, falanks kortikal yüzeyinden zemini ile birlikte tümüyle çıkarıldı. Hastanın 11 aylık izleminde nüks gözlenmedi. Subungual ekzostozun klinik olarak diğer benign kemik tümörleri ve lezyonlarıyla ve epidermoid karsinom gibi malign tümörlerle karışabileceği unutulmamalıdır.

Anahtar sözcükler: Ekzostoz/cerrahi/radyografi; tınak hastalıkları/tanı/cerrahi; deri neoplazmları/tanı; ayak parmağı/cerrahi.

Subungual exostosis is an acquired, benign, often painful, and nearly always solitary bone tumor usually occurring in the dorsal medial aspect of the phalanges. An eighteen-year-old male patient presented with a progressively enlarging mass and pain that developed over two years in the distal medial aspect of the right first toe. Conventional radiographs, computed tomography, and histopathologic findings showed subungual exostosis. Complete removal of the tumor was performed including its base of in the cortex of the phalanx. No recurrence was observed during a follow-up of 11 months. It was emphasized that clinical presentation of subungual exostosis may resemble other benign or malignant bone tumors.

Key words: Exostoses/surgery/radiography; nail diseases/diagnosis/surgery; skin neoplasms/diagnosis; toes/surgery.

Subungual exostosis (SE) is a benign osteochondral tumour located in the distal phalanges. It was described by Dupuytren in 1817 and most commonly (80%) involves the dorsomedial side of the big toe, but may also be seen in the other toes.^[1-4]

The early clinical appearance is a pinky white subungual nodule at the free margin of the nail plate.^[5,6] As it grows, elevation at the nail plate, ulceration or subungual hyperkeratosis may occur.^[6] The patient with subungual exostosis whom we present in this report also had elevation of the nail plate. Commonly misdiagnosed, this tumour is evaluated

in terms of its clinical, radiological and histopathological features.

Case report

A sixteen year-old male patient referred with a lump and pain on his right big toe. This complaint was present for two years and in the past year, the pressure sensation in the nail and pain had progressively increased. Family history was featureless.

Physical examination revealed a fixed, hard and painful subungual nodule at the free margin of the right big toe with a hyperkeratotic, pinky white surface

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and no evidence of erythema or purulent discharge (Şekil 1). Radiographically there was a calcified lesion which was continuous with the phalangeal cortical surface in the distal dorsal aspect of the big toe (Figure 2a). CT revealed a pedunculated tumour on the dorsal surface of the phalanx (Figure 2b).

Excisional biopsy was performed under digital block anesthesia. The nail plate was resected partially and the tumour was excised completely from the cortex. Histopathological findings consisted of fibrocartilage proliferation accompanied by typical spindle cells and trabecular bony structure, surrounded by fibrous cartilage (Figure 3).

Clinical or radiological recurrence was not observed after 11 months of follow-up.

Discussion

Trauma, chronic irritation and chronic infections are considered as the causative factors for subungual exostosis.^[1,7] The disease is generally acquired, excluding multiple exostosis and multiple exostosis with mental retardation syndromes^[4] which are hereditary and diagnosed in childhood. Some hereditary syndromes may become symptomatic in the adult ages; thus, the presented case may also be considered as a form of hereditary exostosis in terms of age. However the solitary nature of the exostosis, absence of mental retardation are in favor of an acquired etiology for sub-

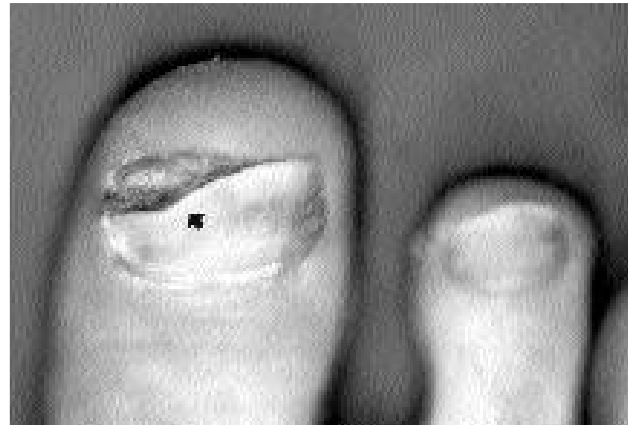


Figure 1. Clinically, nodular appearance of the subungual exostosis.

ungual exostosis. The most commonly affected age groups are adolescents and young adults.^[2] Symptoms of our patient have first appeared in the childhood years, when the disease is less frequent. There are no significant gender differences; however the incidence is somewhat higher in women.^[1,4]

Clinically in the early stages the tumour may appear as a punky white, subungual, pigmented brownish or hemangiomatous mass.^[6] As it grows, secondary paronychia infection due to local tissue enduration and onycholysis may be seen. Paronychia is noted in 14% of the patients.^[1] The two-year duration of symptoms in our patient hint that referral was



Figure 2.(a) Radiographic appearance (b) CT shows the pedunculated tumour on the dorsal surface.

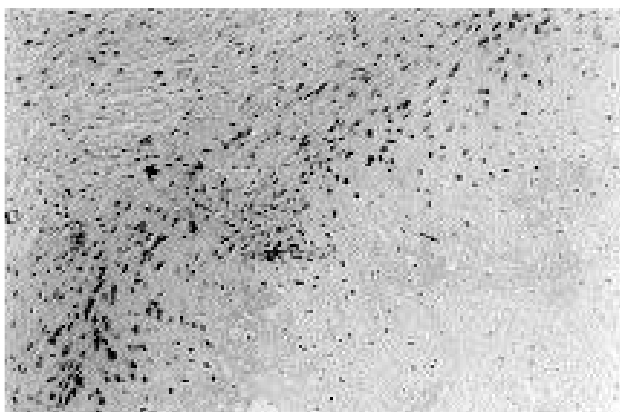


Figure 3. Histopathological appearance of subungual exostosis. Trabecular bony structure surrounded by fibrous cartilage (H-E x 200, thick arrow indicates fibrous tissue and thin arrow the transition zone to bone structure).

made when the lesion showed serious symptoms. This may be the reason why subungual exostosis is diagnosed with large sizes. Usually the patients are asymptomatic until pain due to mechanical irritation or secondary infection develop, sometimes pain may occur during walking.^[8]

Subungual exostosis histopathologically consists of normal appearing trabecular structure with a fibrocartilaginous cap. The appearance may demonstrate variation in time. The lesion initially is in the form of fibrous tissue proliferation accompanied by cartilage metaplasia. Fibrosis, focal calcification and cartilage metaplasia may be encountered adjacent to the nail bed in this early stage.^[1] As maturation of the subungual exostosis develops, the cartilaginous cap is replaced with trabecular bone and becomes thinner.^[5] Multinucleated chondrocytes, pleomorphic nuclei and a prominent cellular structure is noted in the cartilaginous cap and this appearance may be confused with chondrosarcoma. However, the trabecular bone of subungual exostosis demonstrates regular maturation.^[1]

Subungual exostosis radiographically appears as an osteocartilaginous mass on the dorsal surface of the distal phalanx.^[9] In mature lesions the trabecular structure is seen the basilar area of the exostosis.^[1] Destructive changes or periosteal reactions do not occur in the cortical surface of the distal phalanx in subungual exostosis.^[6] It is probably not true neoplasms; however, it causes an inflammatory hyperplasia of the cancellous bone in contact with the periosteum.^[1]

Differential diagnosis includes subungual verrucae, pyogenic granuloma, glomus tumour, periungual Koenen tumour of tuberous sclerosis, keratoacanthoma, epidermoid carcinoma and melanoma.^[3,9,10] In the presented case, subungual keratoacanthoma was the first lesion to be considered in the differential. However, the long history together with the radiographic and histopathological findings proved the diagnosis of subungual exostosis. Radiographic findings are usually helpful in differentiating exostosis from subungual osteochondroma or subungual enchondroma.^[10]

The main differential diagnosis includes subungual osteochondroma. Being the most common benign bone tumour (40%), subungual location of an osteochondroma is quite rare.^[1] Subungual osteochondroma is located along the epiphyseal plate or more proximal to the plate, contains a cap of hyalin cartilage, is seen in earlier ages (10-25 years) and has a congenital presentation as compared to subungual exostosis.^[10] All osteochondromas carry a malignant transformation risk of 1%.^[11] Malignant transformation has not been reported for subungual exostosis.

Surgical excision is the treatment of choice for subungual exostosis. A delay in treatment results in nail elevation, pain and secondary periungual infection. Incomplete surgical resection may cause local recurrence.^[1,2] Sometimes radiographic recurrences may occur without clinical symptoms.^[2] Many surgical techniques have been described in the literature for subungual exostosis.^[1-4,9] Total or partial nail bed resection may cause debilitation hypersensitivity, nail deformities, delay in return to daily activities with difficulty in wearing shoes and unacceptable cosmetic outcome. Total excision with a thin area also resected on the nail plate was performed for our patient. Integrity of the nail plate and phalangeal covering were preserved; thus return to normal daily activity was possible in short time with a good cosmetic outcome. Clinical or radiographic recurrence was not seen after 11 months of follow-up.

In conclusion, many benign and malignant subungual tumours like osteochondroma and enchondroma should be considered in the differential diagnosis of a lesion suspected to be subungual exostosis. Diagnosis may be missed in these tumours, causing recurrence after insufficient treatment.

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