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Editorial

Nether and Hind-Subungual Exostoses

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Subungual exostoses emerges as an exceptionally discerned, benign lesion composed of osteoid and cartilaginous tissue. Tumefaction arises from distal phalangeal bone and is preponderantly confined beneath the nailbed.

Subungual exostoses is an osteocartilaginous lesion arising within distal phalanx wherein contiguity between tumour stalk and medullary cavity of native bone appears absent. Initially scripted in 1847, the alternative nomenclature of Dupuytren's exostosis is not recommended.

Neoplasm commonly occurs within adolescents or young adults wherein >50% tumours arise within subjects <18 years. Average age of disease emergence is 25.7 years. An equivalent gender predilection is encountered with male to female proportion of 1:1 [1,2].

Subungual exostoses commonly implicates the toes wherein ~80% lesions occur within the first or great toe. Proximal phalanges or fingers are exceptionally involved [1,2].

Of obscure aetiology, preceding trauma or infection may contribute to disease emergence. Neoplasm depicts chromosomal translocation t(X;6)(q24-q26;q15-q25), wherein the aforesaid genetic rearrangement appears indicative of a true neoplastic process [2,3].

Subungual exostoses persistently delineates chromosomal translocation t(X;6)(q24-26;q15-q25), a feature which is concurrent with enhanced expression of insulin receptor substrate 4(IRS4) gene. Nevertheless, genetic fusion partners are inadequately defined although COL12A1 appears to be comprehensively implicated within disease pathogenesis [2,3].

Commonly, clinical symptoms as bone pain of significant duration are observed in ~77% subjects. Besides, tumour mass or swelling confined to the nail may be discerned. Implicated nail may demonstrate erythema and deformity of the nailbed. Lesion is gradually progressive and evolves within an extended period over months to years [2,3].

Grossly, tumefaction is comprised of an admixture of miniature bony and cartilaginous fragments [3,4].

Upon microscopy, fibrocartilaginous tissue is peripheral and superimposed upon a stalk comprised of trabecular bone adherent with subjacent bone. Lesion appears non contiguous with medullary cavity of parent bone. Quantifiable cartilaginous tissue appears proportionate to age of the lesion [3,4].

Preliminary stage depicts cellular chondroid tissue commingled with proliferating fibrous tissue. Lesion is confined to the nailbed and appears non contiguous to subjacent phalangeal bone [4,5].

Superimposed cartilaginous cap is hyper-cellular and displays atypia of chondrocytes along with occasional mitotic figures. Constituent cartilaginous matrix may undergo endochondral ossification within a significant duration [4,5].

Delayed stage demonstrates a lesion comprised of irregular trabecular bone with osteoblastic rimming and an attenuated to absent cartilaginous cap [5,6].

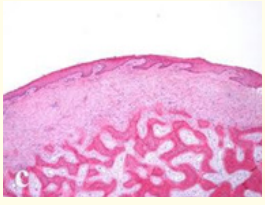

Figure 1: Subungual exostoses depicting trabeculae of woven bone with superimposed cap of cartilaginous matrix. Few chondrocytes are atypical. Contiguity with subjacent medullary cavity appears absent [10].

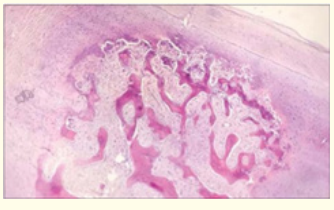

Figure 2: Subungual exostoses delineating trabeculae of woven bone circumscribed by cartilaginous matrix. Few chondrocytes are atypical. Contiguity with subjacent medullary cavity appears absent [11].

Table 1: Grading of bone tumours [4,5].

Grade I
Low grade central osteosarcoma
Clear cell chondrosarcoma
Grade I chondrosarcoma
Parosteal osteosarcoma
Adamantinoma
Grade II
Periosteal osteosarcoma
Grade II chondrosarcoma
Grade III
Conventional osteosarcoma
Telangiectatic osteosarcoma
Small cell osteosarcoma
Secondary osteosarcoma
High grade surface osteosarcoma
Malignant giant cell tumour
Ewing sarcoma
Grade III chondrosarcoma
Mesenchymal chondrosarcoma

Subungual exostoses requires segregation from neoplasms as osteochondroma, florid reactive periostitis or bizarre parosteal osteochondromatous proliferation [6,7].

Subungual exostoses may be appropriately discerned by cogent radiological examination with concordant histopathological investigations [7,8].

Upon histological evaluation, surgical tissue samples obtained from lesion periphery may be limited or misinterpreted as a malignant cartilaginous neoplasm [8,9].

Upon radiography, a pedunculated radiopaque tumefaction appears to adhere upon dorsomedial aspect of distal phalanx. Tumour progression is minimal and neoplasm expounds a nonaggressive biological course. Lesion is commonly confined to distal phalanx wherein contiguity between tumefaction and subjacent medullary cavity appears absent.

T2 weighted magnetic resonance imaging (MRI) displays hyperintense images wherein the lesion expounds a distinct fibrocartilaginous cap [8,9].

Neoplasm may be aptly subjected to comprehensive marginal surgical extermination. Besides, surgical manoeuvers associated with minimal trauma to the nailbed may be beneficially and optimally employed. Subungual exostoses emerges as a benign neoplasm wherein localized tumour reoccurrence may emerge following inadequate surgical excision, as encountered in ~4% instances. Notwithstanding, malignant metamorphosis or distant metastasis remain undocumented [8,9].

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10. Image 1 Courtesy: Europe PMC.

11. Image 2 Courtesy: Dermatology online.