

Skin osteoma (osteoma cutis)

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Section: Head & neck imaging

Area of Interest: Soft tissues / Skin

Procedure: Diagnostic procedure

Imaging Technique: Ultrasound

Imaging Technique: CT

Special Focus: Tissue characterisation Case Type:

Clinical Cases

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Patient: 16 years, female

Clinical History:

A teenage girl presenting with hard cutaneous nodules.

Imaging Findings:

A 16-year old female patient with no relevant past medical history presented to the orthodontics department with a small nodule in the right cheek. Clinical examination revealed a bony hard 1.5 cm cutaneous pre-auricular lesion. On further questioning, the patient admitted having a second skin lesion in her right upper arm. Both lesions were asymptomatic and have been present for years. There was no history of previous trauma or acne.

An ultrasound examination of the right arm and right cheek demonstrated cutaneous heavily calcified nodules casting posterior acoustic shadowing (Fig. 1). Computed tomography (CT) of the facial bones showed a 10x10x7 mm well-defined bony nodule in the soft tissues of the right pre-auricular region (Fig. 2). The clinico-radiological diagnosis of skin osteomata was made.

Both nodules were excised under local anaesthetic and histological analysis showed broad sheets of ghost cells surrounded by osteoclast-like giant cells and spicules of bone.

Discussion:

Osteoma cutis (skin osteoma) is a rare benign disease characterised by formation of bone within the skin without pre-existing soft tissue abnormality or calcification [1]. Primary osteoma cutis occurs in isolation or in association with several ossifying syndromes, including Albright hereditary osteodystrophy, fibrodysplasia ossificans progressiva and congenital plaque-like osteomatosis [2-3]. Secondary cutaneous osteomata are much more common and occur as sequelae of trauma to the skin, acne, nevi, epidermoid cysts, venous stasis, scleroderma and dermatomyositis [1, 4].

Patients present with single or multiple hard cutaneous nodules or plaques, which are not progressive or painful, but may cause significant cosmetic deformities. The most commonly affected sites are face, scalp and extremities, in

particular fingers and subungual regions [1, 3]. When several lesions are present, in particular in children, further evaluation for associated syndromes may be warranted.

Diagnosis is based on clinical history, physical examination and blood tests, including calcium and parathyroid hormone levels [1]. Imaging is rarely required, but may be supportive. On ultrasound, osteomata appear as well-defined heavily calcific nodules casting posterior acoustic shadowing, and on computed tomography - bony density nodules of various sizes within the skin or subcutaneous tissues, with no associated soft tissue component. Histological specimen reveals areas of mature bone within the reticular layer of the dermis extending into the subcutaneous tissues. Areas of fat / medullary cavity may also be present, but haematopoietic elements are rare.

Treatment includes surgical or laser excision, dermabrasion or needle extirpation, most commonly under the local anaesthetic [5]. Medical treatment options of oral Etidronate disodium, which inhibits calcium reabsorption, or topical application of trans-retinoic acid, which stimulates de-epithelialization, have also been reported [6].

Differential Diagnosis List: Skin osteomata, Secondary cutaneous / subcutaneous calcification, Tumoral calcinosis

Final Diagnosis: Skin osteomata

References:

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Figure 1

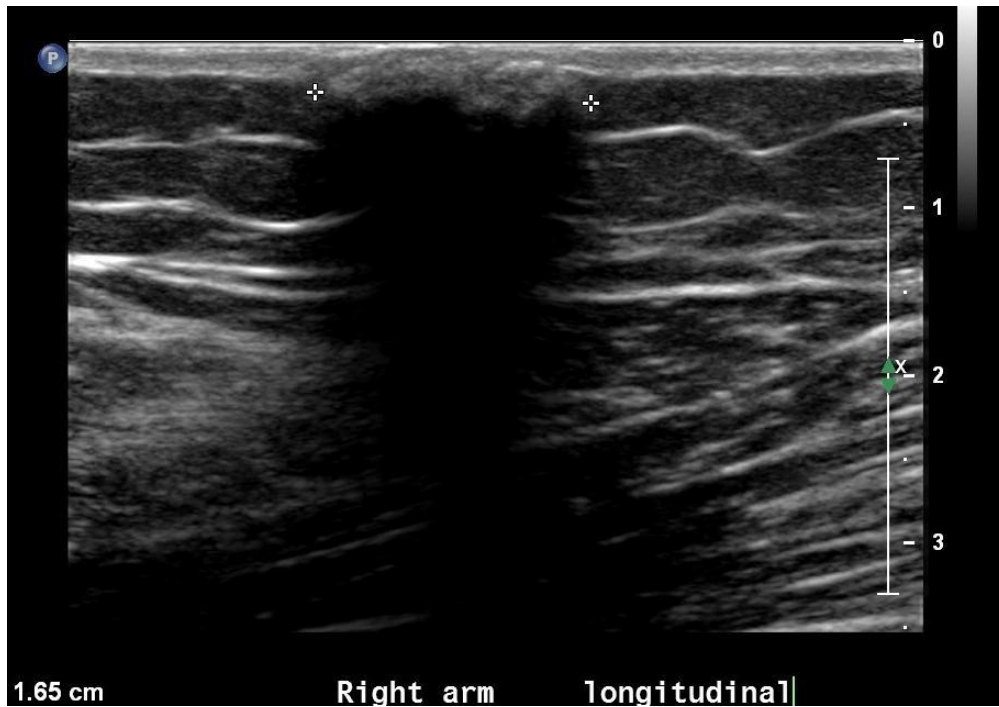
a



Description: Ultrasound images of the right cheek (a) and right upper arm (b) soft tissues demonstrating heavily calcified cutaneous/subcutaneous nodules casting posterior acoustic shadowing.

Origin: Department of Radiology, Queen Elizabeth Hospital Birmingham, Birmingham, UK

b

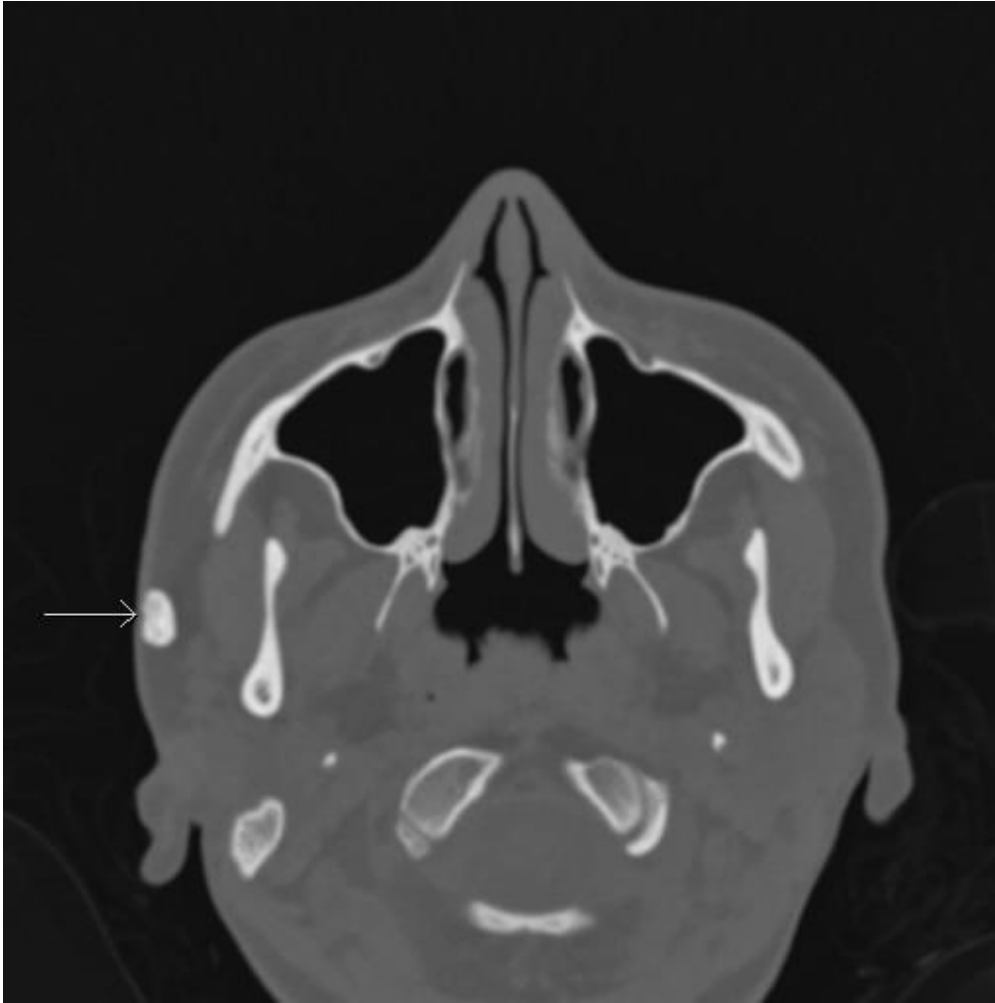


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Figure 2

a



Description: Axial (a) and coronal (b) facial CT images in bone window showing a small lobulated bony nodule in the subcutaneous soft tissues of the right pre-auricular region, abutting the skin surface.

Origin: Department of Radiology, Queen Elizabeth Hospital Birmingham, Birmingham, UK

b



Description: Axial (a) and coronal (b) facial CT images in bone window showing a small lobulated bony nodule in the subcutaneous soft tissues of the right pre-auricular region, abutting the skin surface.

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