Three rare cases of benign mixed tumour of the skin displaying mature bone and cartilage elements

Kieran P Shotton
Ali Al-Omari

Abstract

Mixed tumour of the skin is a rare adnexal tumour of sweat gland origin, which can be benign or malignant. Histologically, it is defined by the presence of epithelial, myoepithelial and mesenchymal elements. The latter can take several forms, but both bone formation and cartilage formation are independently rare features. We present three rare cases of mixed tumour of the skin. Two of these displayed both mature bone and cartilaginous mesenchymal elements, while the third displayed mature bone formation without cartilage.

Keywords Bone; cartilage; chondroid syringoma; dermatopathology; histopathology; mesenchymal; mixed tumour of skin

Introduction

Mixed tumour of the skin, also known as chondroid syringoma, is the cutaneous analogue of pleomorphic adenoma.[1,2] Mixed tumours are rare adnexal tumours of apocrine/eccrine origin, which can be benign[1,4] or malignant.[1,5] Clinically, they are more common on the head and neck and extremities. They occur in a wide age range but have a predilection for middle aged men.[1] They do not have distinctive clinical features and definitive diagnosis requires histopathology.[2] Histologically, they are characterised by the presence of epithelial, myoepithelial and mesenchymal elements. The latter may variably comprise mucinous, chondroid, osseous, adipocytic or fibrotic components.[1] We present three rare cases of mixed tumour of the skin. Cases 1 and 2 displayed both mature bone and cartilaginous mesenchymal elements, while case 3 displayed mature bone formation without cartilage.

Clinical details

Case 1

A 63-year-old woman presented with a lesion on her parietal scalp, which was suspected clinically to be a pilar cyst.

Kieran P Shotton *MBChB BMedSci Histopathology Speciality Trainee, Histopathology Department, Royal Hallamshire Hospital, Sheffield Teaching Hospitals, UK. Conflicts of interest: none declared.*

Ali Al-Omari *MBChB FRCPath MSc (Genomics) CCST Consultant Histopathologist, Sheffield Teaching Hospitals, UK. Conflicts of interest: none declared.*

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Case 2

A 37-year-old male presented with a cystic nodule on their vertex. Clinically this was thought to be a calcified pilar cyst.

Case 3

An 81-year-old male presented with a recurrent cyst of the left medial eyebrow.

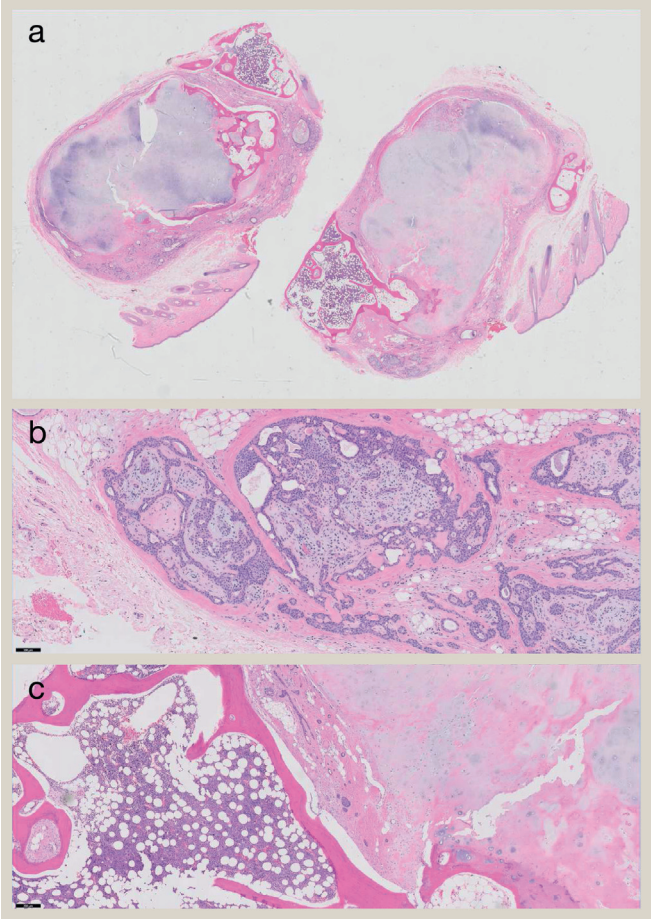

Figure 1 (Case 1) (**a**) Low power image showing dermal lesion with heterogenous elements. Bone and cartilage formation can be appreciated at this power. (**b**) bland mixed myoepithelial and epithelial proliferation with duct formation and myxoid stroma, typical of mixed tumour. (**c**) Mature bone and cartilage formation within the lesion.

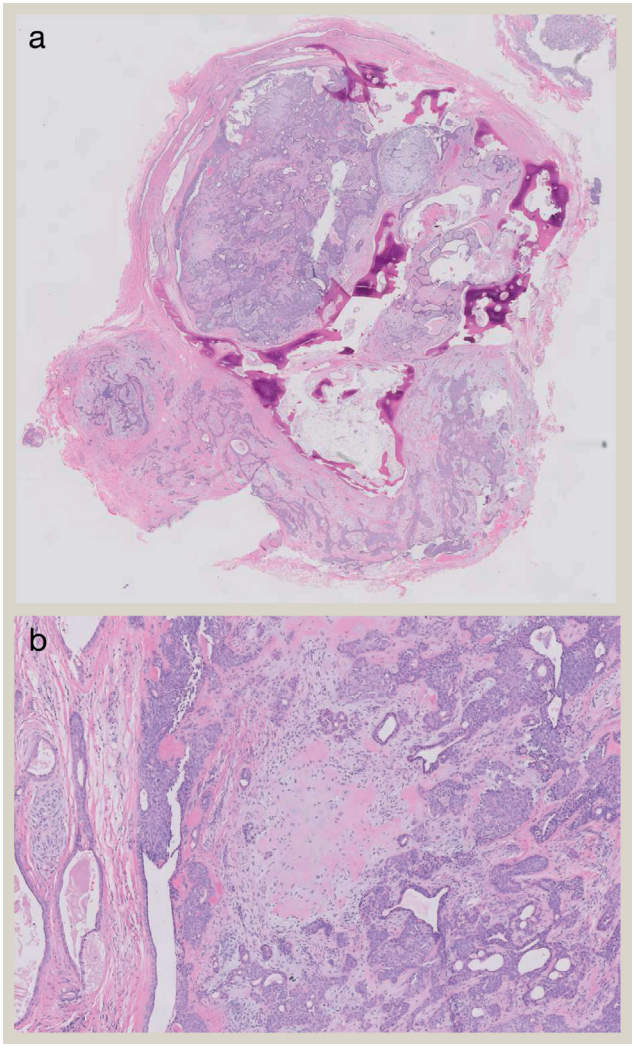

Figure 2 (Case 2) (**a**) Low power magnification showing nodular lesion with features of chondroid syringoma and extensive mature bone formation. (**b**) High power magnification of chondroid stroma within lesion.

Histopathological findings

Case 1

Macroscopic assessment revealed an ellipse of skin bearing a 14 mm nodule. Histology showed a dermal lesion comprised of slit like spaces lined by cuboidal cells with focal apocrine change. Larger solid and duct-forming islands of mixed bland epithelial and myoepithelial cells with myxoid and fibrous stroma were seen. There was extensive mature bone formation with haematopoiesis alongside mature cartilage (Figure 1). No atypical features or mitoses were seen, supporting a diagnosis of benign mixed tumour.

Case 2

Macroscopic examination revealed a firm, white 16 mm cystic nodule. Microscopically, this was a nodular lesion showing slit like spaces lined by cuboidal cells with focal apocrine change and interconnecting basaloid areas, with some duct formation. Chondroid stroma and mature bone tissue were present (Figure 2). No atypical features or mitoses were seen, supporting a diagnosis of benign mixed tumour.

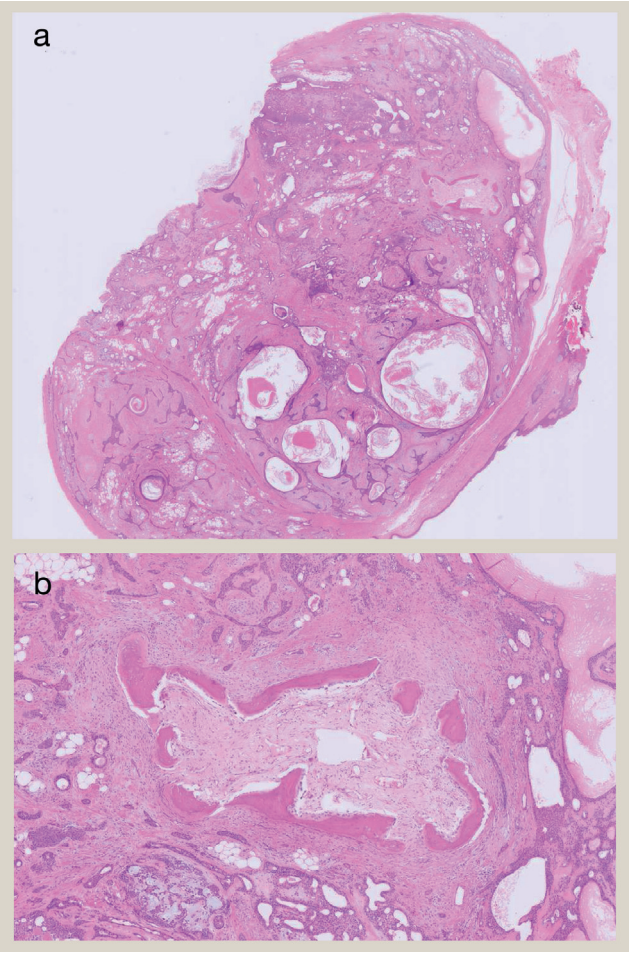

Figure 3 (Case 3) (**a**) Low power image showing dermal lesion with characteristic features of chondroid syringoma. (**b**) Mature bone within the lesion.

Case 3

Macroscopic examination revealed a 20 mm intact cystic structure. Microscopically, there was a nodular lesion with multiple cystically dilated keratin containing areas interconnected by basaloid cell proliferation. Mature bone formation was seen (Figure 3). No atypical features or mitoses were seen, supporting a diagnosis of benign mixed tumour.

Discussion

Mixed tumours can contain heterogenous mesenchymal elements. Cartilage and extensive bone formation are independently rare features.[2] For example, in a retrospective analysis of 21 cases of mixed tumour of the skin, one study found only 5 contained cartilaginous elements.[3] Case 3 is one of few reported examples of mixed tumour with mature bone elements.[2,3] Extensive mature bone alongside mature cartilage formation is rarer still, and to the author's knowledge, cases 1 and 2 are first reported cases of mixed tumour demonstrating both elements in one tumour. ◆

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Practice points

- Mixed tumour of the skin is a benign sweat gland derived adnexal tumour consisting of epithelial, myoepithelial and mesenchymal elements
- Mixed tumour of the skin is the cutaneous analogue of pleomorphic adenoma
- Differentiation of mesenchymal elements is variable and both mature bone and cartilage formation are independently rare features

Self-assessment

1. Benign mixed tumour of the skin is the cutaneous analogue of which salivary gland tumour?

a. Warthin's tumour
b. Pleomorphic adenoma
c. Salivary duct carcinoma
d. Acinic cell carcinoma
e. Carcinoma ex pleomorphic adenoma

Correct answer: (b).

2. Which of the following statements regarding mixed tumours of the skin is true?

a. They never undergo malignant transformation
b. They have a predilection for middle aged men
c. Diagnosis requires the presence of mature bone or cartilage
d. They have distinctive clinical characteristics
e. They occur most commonly on the trunk

Correct answer: (b).

3. Which of the following morphological features would be least suggestive of mixed tumour of the skin?

a. Myoepithelial component
b. Mature bone formation
c. Myxoid stroma
d. Small round blue cell morphology
e. Slit like spaces lined by bland cuboidal epithelium

Correct answer: (d).