Piomatrixoma of the cheek
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Case Type: Clinical Cases
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Patient: 31 years, female

Clinical History:
A 31 year old female patient presented with a one-year history of slowly growing mass on the left preauricular region. She came to our department for evaluation by ultrasonography. Physical examination revealed a 1.5cm sized soft mass in the left preauricular region, mobile and non-fixed to the deep dermal layers.

Imaging Findings:
A 31 year old female, otherwise in good health, was developing a slowly growing mass on the left preauricular region since one year. She was submitted to ultrasonography evaluation in our radiology department. Physical examination revealed protuberant soft mass in the left preauricular region (Fig1). The mass, sized 1.5x1cm, was mobile, not fixed to the deep dermal layers, and painless. The remainder of the examination was unremarkable. Ultrasonography shows a 1.7cm well circumscribed subcutaneous hypoechoic nodule with a hyperechoic internal structure and with several tiny dense spots showing acoustic shadowing.
A MRI of the head and neck was carried out to further evaluate this lesion. MRI showed a tumour with well-defined margins and iso-signal intensity relative to the neck musculature on T1 weighted images (Fig 3). The T2-weighted and fat-suppressed images presented bands of increased signal on the periphery and lower signal in the centre. The mass was completely excised and histological report consistent with a pilomatrixoma.

Discussion:
Pilomatrixoma, also called benign calcifying epithelioma of Malherbe or pilomatricoma, was first described in 1880 by Malherbe and Chemantais, renamed “pilomatrixoma” by Forbes and Helwin in 1961. It is a relatively common benign tumour of the skin appendages composed of cells resembling those of the hair matrix, which undergo ‘mummification’ and may calcify.
Most of these tumours occur in the head and neck region followed by the upper extremities, the trunk, and the lower extremities. Their size generally ranges from 0.5-3cm although pilomatricomas over 10cm in diameter have been reported in the literature. Commonly found in children, these tumours often occur in the 3rd decade of life. There is a slight preponderance in females, and it is occasionally familiar. It usually presents as single soft painless mass or subcutaneous mass, but cases of multiple pilomatricomas have been observed.
Malignant transformation of pilomatrixoma is rare. Pilomatrix carcinoma typically occur in the posterior neck or upper back of middle-aged males. The differential diagnosis includes dermoid and epidermal cysts, sebaceous cyst, ossifying hematoma, brachial remnants, preauricular sinuses, adenopathy, chondroma, degenerating fibroxanthoma, hemangiomas, foreign body reaction, and osteoma cutis. Skin, soft tissue, and metastatic tumours should also be considered. Histologically, pilomatrixoma appears as a well-defined lesion situated in the dermis or subcutaneous fat layer, composed of epithelial cells surrounded by stromal cells.
Epithelial cells with basophilic cytoplasm are seen at the periphery of these tumours, arranged in an arc-like fashion. Basaloid cells are transformed into shadow cells, also known as “ghost” cells, which are more centrally located. These cells have lost their nuclei and are filled with keratin. The transitional cells located between the basophilic and
ghost-cell populations seem to be cells that have undergone apoptosis and are on the way to become ghost cells. Various diagnostic imaging modalities can be used, but they are not all necessary, or often superfluous, or very expensive.

Plain radiographs have limited utility, but they can detect foci of calcification. More information can be obtained using CT that shows the location of the lesion and the relationship with the anatomical structures in a better way. For the increased incidence in young people and female methods that do not make use of ionizing radiation are preferable. Ultrasonography as a relatively fast and noninvasive investigative technique is the method of choice for assessment for the superficial tumours. The ultrasonographic evaluation shows the location, shape, size, margin, echo texture, echogenicity, presence of calcification and presence of a hypoechoic rim; it can be integrated by echo-Doppler. In the majority of patients, sonography offered a significant improvement in order to exclude or confirm the clinical diagnosis of these lesions and contributed to appropriate preoperative assessment and subsequent management of the lesion. MRI can be helpful to better assess the margins and the relationship between the tumour and the anatomical structure.

But the definite diagnosis is usually made on histologic examination of a biopsy or of the excised lesion.

**Differential Diagnosis List:** Pilomatrixoma

**Final Diagnosis:** Pilomatrixoma

**References:**


**Description:** Typical aspect of the preauricular region

**Origin:**
Description: Ultrasonography show a well-defined tumor with hyperechoic internal structure. For better focusing, a polyacrylamide gel pad was utilized. 

Origin:
Description: tiny dense spots showing acoustic shadowing
Origin:
Figure 3

a

Description: T1-weighted axial MRI demonstrating a well-defined tumour

Origin:

b

Description: T2-weighted presented bands of increased signal on the periphery

Origin:
Description: Fat-suppressed image
Origin:

Description: Coronal view
Origin:
Description: The mass appears solid

Origin: