

Medial Notch of the Superior Border of the Scapula: A Rare Anatomical Variation Mimicking A Bone Tumour

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SUMMARY

The scapula is a flat, triangular bone overlying the posterior chest wall and forming the posterior aspect of the shoulder girdle. To the best of our knowledge, there is no previous description of a notch of the medial aspect of the superior border of the scapula in the literature. The imaging findings of a supero-medial scapula border notch mimicking a bone tumour are presented in this case report.

KEY WORDS:

Scapula, notch, anatomical variation

INTRODUCTION

The scapula is a flat, triangular bone which forms the posterior aspect of the shoulder girdle, overlying the posterior chest wall¹. While a "clasplike cranial margin of the scapula" has been previously described,^{2,3} to our knowledge, there was no previous description of a notch of the medial aspect of the superior border of the scapula in the literature. The imaging findings of a supero-medial scapula border notch mimicking a bone tumour are presented in this case report.

CASE REPORT

A 64-year-old Chinese man presented with a history of non-traumatic right shoulder pain. Radiographs of the right shoulder were obtained which demonstrated a 1.2 x 1.5 cm osteolytic area with a thin well-defined sclerotic rim at the supero-medial border of the right scapula (Fig 1a). The superior border of the scapula was not seen in this region of increased lucency and there was no expansion of the adjacent bone. There was no radiographic evidence of associated periosteal reaction or an adjacent soft tissue mass. This osteolytic area was not well visualised in the scapula Y view (Fig 1b).

Review of a chest radiograph obtained one year prior to the current presentation demonstrated identical small notches with sclerotic margins in the supero-medial margins of both scapulae. The superior margins of the scapulae however remained well defined with no evidence of an osteolytic region as was demonstrated in the shoulder radiograph. A chest radiograph obtained at the time of presentation demonstrated similar findings to the chest radiograph obtained one year earlier (Fig 2).

In view of the radiographic findings, clinical concern was for a non-aggressive lytic bone tumour such as a simple bone

cyst or an aneurysmal bone cyst. As the scapula is an unusual location for such lesions, magnetic resonance imaging of the right scapula was performed to determine the nature of any bony lesion and to better demonstrate any associated soft tissue component.

T1 and T2 (fat-saturated) weighted images of the scapula did not demonstrate loss of normal marrow signal or marrow oedema in the region of concern (Fig 3). The cortical outline of the scapula was also preserved with no soft tissue mass noted adjacent to the supero-medial border of the scapula. These findings excluded the presence of an underlying bone tumour which was the primary clinical concern. The patient was treated symptomatically and his pain subsequently resolved completely. The cause of pain was thus deemed unlikely to be related to the radiographic finding and possibly due to underlying muscle strain.

DISCUSSION

Anatomical variations and pathological processes related to the suprascapular and spinoglenoid notches have been extensively described^{4,5} due to the risk of suprascapular nerve entrapment at these sites. The closest description of a notch of the supero-medial border of the scapula however was made by Goldenberg in 1967. This was described as a "clasplike cranial margin of the scapula" producing a pseudofoamen^{2,3}. The appearance of this clasplike margin is however different from that seen in our patient as the superior margin of the scapula remains well defined with no suggestion of presence of an osteolytic region.

As illustrated in our case, the radiographic finding of a well-defined osteolytic area in the supero-medial border of the scapula can raise clinical concern for a pathological process, such as a bone tumour. The lack of an adjacent soft tissue mass or marrow signal abnormality on MR imaging in our case however, indicated that the well-defined, apparent osteolytic region seen on radiographs was likely due to underlying notching, possibly an as yet undescribed anatomical variant.

The scapula is ossified from seven or more centres with one ossification centre giving rise to the body, two each giving rise to the coracoid and acromion processes and one each giving rise to the vertebral border and the inferior angle¹. Ossification of the scapula body begins at approximately the second month of foetal life. By the time of birth, a large part of the scapula body, including the scapular spine, is osseous.

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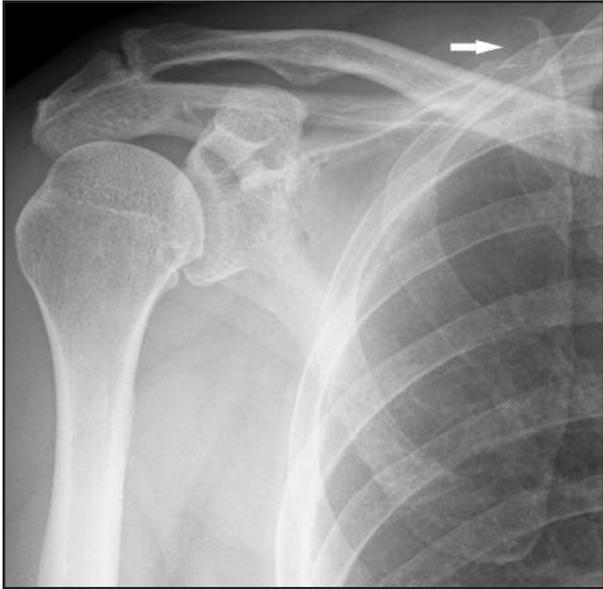


Fig. 1a: Osteolytic area at the supero-medial margin of the right scapula (arrow).



Fig. 1b: Osteolytic area not well visualised in the scapula Y view.



Fig. 2: Chest radiograph showing small notches with sclerotic margins in the supero-medial margins of both scapulae (arrows).



Fig. 3: T1 weighted coronal image of the right scapula (arrow indicates the expected position of the lesion in the supero-medial border of the scapula).

The glenoid cavity, coracoid process, acromion, vertebral border, and inferior angle however remain as cartilaginous centres.

At the age of 15 to 18 months, ossification begins in the middle of the coracoid process which usually fuses with the rest of the scapula by the age of 15. Between the ages of 14 to 20, ossification of the rest of the cartilaginous centres occurs usually in the following order:

1. Root of the coracoid process
2. Base of the acromion
3. Inferior angle and contiguous part of the vertebral border
4. Extremity of the acromion
5. Vertebral border

The base of the acromion is formed by an extension from the spine which subsequently fuses with the two separate acromial ossification centres. Various other epiphyseal centres making up the glenoid cavity and the tip of the coracoid process are joined to the body of the scapula by the age of 25.¹

The presence of a notch at the supero-medial border of the scapula may be related to abnormal fusion of the ossification centres giving rise to the body and vertebral border of the scapula although further studies would be required to validate this hypothesis.

In summary, this case highlights the imaging findings of a notch of the medial aspect of the superior border of the scapula, likely representing a rare anatomical variation.

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