Enthesophyte on the radius: a case report

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Abstract

Introduction
Radius is a lateral bone of the forearm. The upper end of the radius consists of head, neck and radial tuberosity. Tendon of the biceps brachi muscle is inserted into the posterior rough part of radial tuberosity. The anterior smooth part of radial tuberosity is separated from the posterior part by bursa. In this case, bony projection from the posterior rough part of radial tuberosity was observed.

Case report
During examination of radii in the osteology lab of King George’s Medical University, three radii (two radii of left hands and one of right hand) out of 100 assorted radii were observed having longitudinal and transverse enthesophytes. The lengths, heights and thicknesses of these longitudinal enthesophytes in the left two radii were 2.2/0.7/0.2 cm, 1.9/0.7/0.4 cm and 2.2/0.6/0.4 cm in one right radius. The lengths, heights and thicknesses of these transverse enthesophytes in the left two radii were 1.1/0.3/0.2 cm, 0.8/0.2/0.2 cm and 0.7/0.1/0.1 cm in one right radius.

Discussion
Enthesophytes may be formed due to overuse of the biceps brachi muscle. This extra bony growth may impinge on the surrounding structures leading to neurovascular complications and restriction of biomechanical movements of forearm.

Enthesophytes also appear on the feet, either along toes or the heels, as well as on the hands. In extreme cases bony spurs have grown along a person’s entire skeletal structure—along the knees, hips, shoulders, ribs, arms and ankles. Such cases are only exhibited with multiple exostoses.

This case describes enthesophytes on the posterior part of radial tuberosity. The bony projection may damage the surrounding structures, causing tendinitis and spasm of the biceps leading to restriction of movements making this study useful to anatomists, radiologists and clinicians. Therefore, this case is reported.

Case report
During routine osteology classes of undergraduate MBBS students, three out of 100 radii were found to have exostosis projecting from the posterior aspect of radial tuberosity. The incidence was 3%. The lengths, heights and thicknesses of these longitudinal enthesophytes (Figure 1) in the left two radii were 2.2/0.7/0.2 cm, 1.9/0.7/0.4 cm and 2.2/0.6/0.4 cm in one right radius.

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Figure 1: Exostosis from the posterior aspect of radial tuberosity of L1, L2 and R1 radius is shown here. L represents the radius of the left side and R represents the right side (HR, head of radius; NR, neck of radius; TE, transverse part of enthesophyte; LE, longitudinal part of enthesophyte).
Enthesophytes seen in adult skeletons include osteophytes and enthesophyte formation. Both osteophyte and enthesophyte can be regarded as skeletal responses to stress. Biceps which cause supination of forearm is responsible for the screwing movement. When this muscle is overused/stressed there may be microtrauma in the tendon which may ultimately ossify giving rise to exostosis as in this case.

- Due to overstretching of the muscle the periosteum may have been elevated exposing underlying osteocytes in the osteogenic layer which might have laid down the bone.
- Enthesophytes can form in response to the inflammation of the enthesis occurring in seronegative spondarthropathies and in response to repetitive strain, as in the spiking of tibial spines seen in footballers. Enthesophytes seen in this study may be due to inflammation of the enthesis of radius occurring in seronegative spondarthropathies.
- Multiple idiopathic enthesophytes are characteristic of DISH. Thus bony projections of radius may be part of DISH.
- The person might be suffering from calcium metabolism disorder which predisposes for calcium deposition in tendon leading to its ossification.
- There may be failure in the remodeling process during endochondral ossification of the radius.

Clinically exostosis may impinge on the tendon of biceps causing tendinitis leading to pain and restriction of biomechanical movements of the forearm. Not only this, the radial artery crosses the biceps tendon near its insertion which is also at risk of being damaged by these bony projections. The volume of exostosis may lead the radiologists. A lot of precaution is taken, when this part of the bone is fractured by external trauma, in managing the treatment of the fracture by orthopaedic surgery.

**Conclusion**

Thus, knowledge of these enthesophytes of radius may be of utmost use to anatomists as a new variant, radiologists for avoiding misinterpretation of radiographs and clinicians for management of pain and restriction of movements around this region.

**References**

5. Singh R. Bony spurs projecting in the joint margin (osteophytosis) and ligament and tendon insertions (enthesophyte formation). The most common types of bony change seen in adult skeletons include osteophytes and enthesophyte formation.