Humeral shaft hypertrophic non-union mimicking malignant lesion

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DESCRIPTION

Isolated humeral shaft fractures account for 3–5% of adult fractures, and non-operative management is the mainstay of the treatment with overall good results. Humeral functional bracing is commonly used to provide mechanical stability aiding fracture healing.¹ However, non-union is a recognised complication of these fractures with an estimated prevalence of 5.5%.² Non-union occurs when a fracture has failed to heal in the expected time; hypertrophic non-union is associated with adequate healing response and good vascularity but lacks adequate immobilisation or stability to progress to union.^{2–3}

We present an interesting case of hypertrophic non-union of humeral shaft fracture in a 63-year-old woman. She is fully independent, medically fit and well, right-handed and a non-smoker presented to minor injuries unit with a painful left shoulder

following a simple fall. On examination, she had mild tenderness over her acromioclavicular joint with a good range of motion in her shoulder and had an intact neurovascular status. However, while examining her arm, a completely asymptomatic mass was readily palpable over the middle left humerus with a detectable motion in the mid-humerus. On further questioning, it appeared that she was involved in a road traffic accident and sustained a closed humeral shaft fracture 17 years ago which was treated non-operatively.

Plain radiographs (figure 1) demonstrated a suspicious solitary diaphyseal humeral lesion, sparing the cortices and surrounding soft tissues with an abundance of bone formation. However, the diagnosis of hypertrophic non-union is confirmed on MRI (figure 2). She is fully functional and asymptomatic and no further management is required.

Figure 1 Anteroposterior and lateral plain radiographs of left humerus demonstrating a hypertrophic non-union of humeral shaft fracture.

To cite: Matar HE, Iyengar KP, Toh EM. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-202671

Figure 2 Coronal and sagittal MRIs demonstrating hypertrophic non-union of humeral shaft fracture.

Learning points

- ▶ When performing orthopaedic examination, always consider examining the joint above and below as appropriate.
- ▶ Humeral shaft fractures are common orthopaedic injuries that can often be managed non-operatively with high union rates and generally good functional outcomes.
- ▶ Radiological appearance of fracture non-union can mimic a malignant lesion, and if so further investigations are required.

Acknowledgements The author would like to thank 'Greater Manchester & Oswestry Bone and Soft Tissue Tumour Service' MDT.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Spiguel AR, Steffner RJ. Humeral shaft fractures. *Curr Rev Musculoskelet Med* 2012;5:177–83.
- 2 Cadet ER, Yin B, Schulz B, *et al.* Proximal humerus and humeral shaft nonunions. *J Am Acad Orthop Surg* 2013;21:538–47.
- 3 Walker M, Palumbo B, Badman B, *et al.* shaft fractures: a review. *J Shoulder Elbow Surg* 2011;20:833–44.

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