



Osteochondroma of Scapula Complicated Long-term Cough in an Adult Female

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Cough caused by scapular osteochondroma has never been reported. This study reports a case of long-term coughing caused by osteochondroma growing over the right scapula. A 44-year-old Asian female presented complaining a persistent cough for 2 months. Physical examination revealed no specific abnormality and clear and symmetrical breathing. A lesion revealed on X-rays, and computer tomography was diagnosed as an osteochondroma of the medial border of the scapula and the tumor caused the rib cage deformity. Following a preoperative examination, the patient underwent open surgery for lesion removal. Histological examination confirmed the clinical diagnosis of osteochondroma. Clinical examination 3 months later demonstrated a healed wound without cough and no recurrence was noted. Cough caused by the mass effect of osteochondroma is rare. The pathophysiology of nonproductive cough might cause by enlarging tumor in the lung field and caused a small part of alveoli atelectasis. Despite its rarity, osteochondroma should be considered in the differential diagnosis of any adult presenting with chronic coughing.

Key words: Osteochondroma, scapula, cough

INTRODUCTION

Osteochondroma is the most common benign tumor of the cartilage and bone.^{1,2} Osteochondroma is a cartilage-capped outgrowth on the external surface of bone.³ Osteochondroma usually grows from childhood to adolescence, and growth ceases once bone maturity is reached, and the epiphyseal plates close. Osteochondroma occurs in 3% of the general population, and in 85-90% of cases is solitary (nonhereditary) while in 10-15% of cases it is multiple (hereditary, autosomal dominant).⁴ Solitary osteochondroma tends to locate over the metaphysis of the long bone, such as the femur and humerus, but has also been reported over the flat bone, like the ventral surface of scapula.^{5,6} Some investigations have described how scapular osteochondroma results in “winged scapular,” but mass effect caused by scapula osteochondroma was never reported.⁷⁻⁹ Here, we report a rare case with scapular osteochondroma complicated with coughing.

CASE REPORT

A 44-year-old Asian female complained of long-term nonproductive cough lasting more than 2 years and became more severe in recent 2 months. She denied chest pain, back pain, fever, rhinorrhea, sore throat, heartburn, and shortness of breath or other symptoms. She also denied being a smoker. She did not receive any pharmacological or physical therapy. No trauma or allergy was noted, and nor was there any relevant family history.

Physical examination identified no specific abnormality together with clear and symmetric breathing. Chest X-ray revealed no obvious lung lesion, through a large radiodense mass was noted over the right scapular area [Figure 1a and b]. The tumor was compressed the rib cage and caused rib cage deformity [Figure 1b]. Whole body bone scan [Figure 1c] and chest computer tomography (CT), [Figure 1d] identified a focal area with increased technetium-99m diphosphonate scintigram uptake over the right scapula compatible with right scapular mass and a large cauliflower-like osteosclerotic lesion exophytic from the inner area of the right scapular body. The transverse view of chest CT also revealed the tumor located closely to the rib cage [Figure 1e]. Surgical intervention was planned based on the preoperative diagnosis of right scapular osteochondroma.

An open surgery was performed under general anesthesia. The incision was made along the medial border of the scapula. The dissection of the trapezius and dentatus muscles exposed the lesion. The tumor compressed the rib cage was

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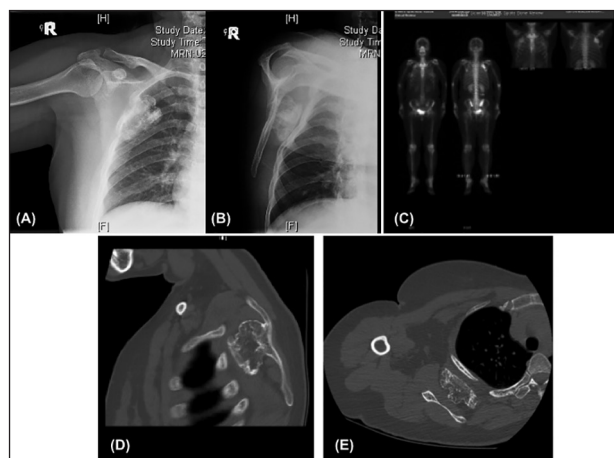


Figure 1: The radiographic study revealed a large bony lesion deforming the medial border of the right scapula. (a) Anteroposterior and (b) lateral view of chest X-ray. The rib cage revealed compression deformity in the third rib. (c) Whole body bone scan revealed an increased technetium-99m diphosphonate scintigram uptake over the right scapula compatible with right scapular mass and a large cauliflower-like osteosclerotic lesion exophytic from the inner area of the right scapular body. (d) Sagittal and (e) transverse view of computer tomographic image revealed the tumor located close and compressed the rib cage

noted. The lesion was then totally excised from the healthy scapular base, removing the entire cartilaginous cap. An approximately, 7 cm × 6 cm × 5 cm bony mass was excised from over the medial aspect of the right scapula [Figure 2a]. The histological investigation confirmed the clinical diagnosis of osteochondroma [Figure 2b].

The patient was discharged 4 days postsurgery. The patient was prescribed oral analgesic with aceclofenac 100 mg twice daily with an arm sling for 2 weeks. A follow-up in the outpatient department was arranged 3 months later and found a healed wound, no cough or local pain, and no recurrence.

DISCUSSION

Osteochondroma is most common benign skeletal tumor,^{1,2} and occurs in 3% of the general population,³ involves the scapular in 3-4% of cases (mostly occurring on the long bone epiphysis of extremities), and is indicated in 14.4% of all scapular tumors.⁸ Ventral surface involvement was most common in all scapular osteochondroma.^{5,10}

The etiologies of long-term cough (lasting more than 8 weeks¹¹) most commonly include asthma induced by allergens, chronic upper airway cough syndrome (postnasal drip), gastroesophageal reflux disease, chronic obstructive pulmonary disease, and even pulmonary tuberculosis.^{12,13} Nevertheless, cough caused by the mass effect of osteochondroma is rare. The pathophysiology of nonproductive cough might cause by enlarging tumor in the lung field and caused a small part of alveoli atelectasis.

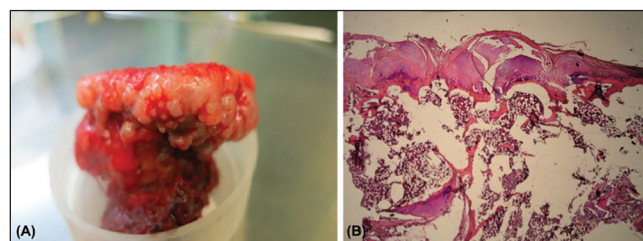


Figure 2: Gross image and histology of the tumor. (a) Excised tumor image. (b) Histological examination confirmed the clinical diagnosis of osteochondroma and revealed a cartilage-capped trabecular bone covered with fibrous perichondrial tissue (×100)

Osteochondroma usually forms from childhood or adolescent and grows slowly. Osteochondroma is an outgrowth of the growth plate that consists of bone and cartilage, resulting in a cartilaginous cap with enchondral bone.^{1,2,4} If the cartilaginous cap is more than 2 cm thick, malignant transformation should be highly suspected. Malignant change is rare being reported in just 1% of cases and is combined with severe pain.² In addition, the growth of osteochondroma in adulthood should be considered malignant as in the present case. However, the mass of the patient in this study was located incidentally after chronic cough had developed for 2 years. The patient did not notice the lesion during maturation or even into middle age.

Osteochondroma is usually painless, but the most common complaints in cases of scapular osteochondroma resulting from mass effect include pain, limited range of motion, impingement mechanism, nerve compression, and friction-related bursitis^{14,15} with swing scapular even being described in some case reports.⁷⁻⁹ However, chronic cough owing to osteochondroma has not been seen in previous studies. We hypothesize that the possible mechanism of cough involved a mass over the ventral side of the scapula compressing and irritating the rib, thus indirectly resulting in limited expansion of the lung, accompanied by a chronic cough.

A plain radiograph is the main diagnostic method, and is usually diagnosed incidentally.⁴ CT scan provides the anatomic characteristic of the lesion and a surgical plan. Magnetic resonance imaging can clarify cartilage growth on the bone surface more easily to rule out malignancy.¹⁶ Most osteochondroma do not need surgery, but in the trunk or in adulthood even symptom-free masses require surgery. The recommended choice of treatment is an open surgery, with no postoperative complications if the glenohumeral joint is reserved.^{5,6,15} Tumor relapse is not common, except where resected tumor margin is involved.⁶

CONCLUSIONS

This case study outlines a rare presentation of chronic cough resulting from osteochondroma growing over the scapula. The

Osteochondroma caused long term cough

case report provides an important differential diagnosis of long-term cough in adulthood.

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