ABSTRACT

Introduction: A non-traumatic lesion of the clavicle is infrequent to encounter. Osteomyelitis of the clavicle occurred only 0% in the mixed population and 7% occurred in childhood. Only 2% of skeletal tuberculosis (TB) manifestation occurred at the clavicle. The rarity of this diagnosis should not be ignored upon diagnosing a non-traumatic lesion in the clavicle. Histopathological examination should be done before excluding tuberculosis. A thorough treatment of antituberculous medication and wide surgical excision should be carried out to eradicate the infection.

Methods: We presented a case of a 31-year-old female with one-year history of a painful lump located on the right shoulder. Physical and radiologic findings lead toward neoplastic lesion on the clavicle. Surgical incision and biopsy were carried out. Hence, intraoperative findings appeared to imaged tuberculosis infection instead of neoplastic, which was confirmed by histopathologic examination. Post-operative therapy of antituberculous regiments was initiated, and the patient achieved good functional outcome with reduced appearance of lump and clinical evidence of pain in several months of follow-up.

Results: Current recommendation for TB clavicle is the antituberculous medication. Despite the advances of imaging modalities, TB clavicle remains difficult to diagnose. Multidrug of antitubercular drugs with or without debridement is curative.

Conclusion: With the high index of tuberculosis, clinicians should remain vigilant of tuberculosis infection at unusual sites.

ABSTRAK


Kesimpulan: Dengan semakin tingginya indeks tuberkulosis, klinisi harus tetap waspada terhadap infeksi tuberculosis di tempat yang tidak biasa.

Keywords: Clavicle, tuberculous osteomyelitis, radiology, histopathology, excision

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INTRODUCTION

Clavicle is one of the most unusual presentations of skeletal tuberculosis. Nontraumatic lesions of the clavicle are in fact infrequent to find. According to one study, 37.5% of nontraumatic clavicular lesions are neoplasms, another 37.5% are infections and the remaining 25% represents developmental anomalies. Osteomyelitis of the clavicle is uncommon, with an incidence ranging from 0% overall up to 7% in children. In one case report comprising of four patients, osteomyelitis occurred at the midportion or medial half of the clavicle. However, the infection can affect any portion of the clavicle and extend to the adjacent articulation such as the sternoclavicular joint, which is also uncommon. Sterno-clavicular involvement in septic arthritis is documented around 9% according to one study. Gersekovich, et al, found only one case of tuberculous osteomyelitis out of 10 clavicles in his center for a 6-year period. Because of this rare occurrence, the diagnosis is not suspected and frequently missed.

TB has been known to imitate all types of lesions and without lung involvement; the diagnosis of clavicular tuberculous osteomyelitis may not bring to mind. Clinically, the presentation is atypical and the radiographic picture may show multiple cavities and diffuse thickening similar to pyogenic osteomyelitis. Diagnosis is also rarely suspected before biopsies because tumor occurred more commonly in this location.

Despite the advances of modern surgical techniques and modern antibiotic therapy, clavicular tuberculosis remains difficult to treat. We report a rare case of clavicular tuberculous osteomyelitis in a 31-year-old female which was first suspected as osteogenic tumor. With the high index of tuberculosis, clinicians should remain vigilant of tuberculosis infection at unusual sites.

CASE ILLUSTRATION

A 31-year-old female came with chief complaint of painful lump over the right shoulder for about 1-year duration. The lump was slow growing, with no evident of wound or abscess formation. There was no history of trauma or fever. Due to her on-going pregnancy, she refused x-ray recommendation and was self-treated with over-the-counter analgesics. During the monthly follow-up, the lump was increasingly less in size, but still accompanied with minimal pain. She was referred to oncologist but refused the suggestion to do surgical biopsy.

One year after the first onset, she presented at our center with a non-tender lump at the size of 2x2x2 cm surrounded by minimal area of hyperemia. Range of motion and neurologic function of the upper extremities were preserved. Haematologic investigations showed a raised in total leucocyte count and ESR. (Figure 1)

Figure 1. Clavicle X-ray. Thickening of soft tissue was seen on the right clavicle

There was no abnormality shown from the chest x-ray. However, there was evidence of soft tissue thickening over the right clavicle.

Figure 2. 3D CT showing ballooning of the medial site right clavicle with cortex thinning, suggestive of osteochondroma.

Three-dimensional computed tomography (3D-CT) examination showed ballooning of the medial end of the right clavicle, adjacent to the sternoclavicular junction with thinning of cortex which was presumed as a bony lesion suggestive of osteochondroma with differential diagnosis of ossifying fibrous dysplasia/GCT/aneurysmal bone cyst. (Figure 2)

The patient underwent excisional biopsy. Intraoperative
findings suggested infection instead of benign bone lesion. Histopathological examination showed tuberculosis granulation tissue, caseous necrosis and epitheloid cell granulomas, which are typical of a tuberculous infection. Hence, antituberculous medications were initiated. Two months postoperative, the lump appeared to be decreased in size, and there was no pain and disturbance in patient’s range of motion. Antituberculous medication was continued and the patient was routinely followed-up every month for signs of healing. (Figure 3)

Figure 3. Two months after surgery. Lump and surgical incision site scar was observed.

DISCUSSION

Clavicle is an uncommon site of skeletal TB which constitute of around 1-2% from all skeletal TB. Primary osteomyelitis of clavicle usually occurs in children. The infection is diaphyseal and caused by haematogenous spread. Staphylococcus aureus is the most common causative organism. However, anaerobic and mixed infections are also common. Osteomyelitis in adults, as seen in this case, is usually due to secondary infections. This can occur as a complication of head and neck surgery or subclavian vein catheterization. However, in our case, the patient did not have any history of head and neck procedure previously. Hence, we suspected the infection was disseminated hematogenously due to lowered immune response during patients’ pregnancy or due to reactivation of latent tuberculous infection during childhood.

Osteomyelitis of the clavicle can resemble a neoplastic process on radiograph; therefore, biopsy may be necessary to confirm the diagnosis. Due to the rarity of osteomyelitis on the clavicle and the similar clinical presentation of neoplasm, we first suspected the mass was due to neoplasm. In a study of 17 patients with non-traumatic lesions of the clavicle, Gerscovich found two cases of osteomyelitis from previous malignancy suspected patients. Moreover, according to Dugg et al, the tubercular presentation in clavicle is usually atypical, leading to diagnostic confusion and delay in appropriate therapy. A study by Tuli and Sinha found only seven cases of clavicle involvement out of 1074 osteoarticular TB cases.

Radiological findings of acute or subacute osteomyelitis include soft tissue swelling, periosteal reaction, cortical irregularity and demineralization. In chronic osteomyelitis, there may be thick irregular bone, sclerotic bone interspersed with radioluencies and elevated periosteum. All of these characteristics could not exclude the diagnosis of neoplasm. Radiological findings alone in TB clavicle could not determine the diagnosis. X-ray and CT-scan imaging of four patient were leading to the diagnosis of benign neoplasm. The poor visualization of clavicular medial end in plain radiographs hinders an early detection. In our patient, the affected site was on the medial end of the right clavicle, adjacent to the sternoclavicular junction. This location is in accordance with a study by Gerscovich et al, comprising of four patients, which found that osteomyelitis is commonly occurred at the midportion or medial half of the clavicle.

After the surgical incisional biopsy was done, the result was taken for histopathologic examination. The result revealed tuberculosis granulation tissue, caseous necrosis and epitheloid cell granulomas indicating tubercular infection. Previously, wide surgical debridement is the mainstay of the treatment in the chronic conditions. A large part of clavicle can be excised without loss of function. Before advent of the era of modern antituberculous drugs, those surgical measures have been used. Modern medical therapy with multidrug antitubercular drugs today remains the mainstay of the treatment of clavicular tuberculosis. Isoniazid, rifampicin, ethambutol and pyrazinamide are given for 2 months followed by isoniazid and rifampicin for the next 10 months. The duration of therapy should extend minimum of 1 year. Surgical intervention is required when there is an impending abscess burst, when the diagnosis is uncertain (to obtain material for examination), or when the disease is unresponsive to medical management.

Radiological resolution is usually achieved after 4 months from the start of antitubercular therapy and at 1
year following therapy completion, CT-scan examination showed no residual lesion.\textsuperscript{11}

\textbf{CONCLUSION}

Despite the advances of imaging modalities, TB clavicle remains difficult to diagnose. With the high index of tuberculosis in the developing countries, clinicians should remain vigilant of tuberculosis infection at unusual sites. Multidrug antitubercular drugs with or without debridement is curative.

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\textbf{Consent}

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

\textbf{REFERENCES}