Upsala J Med Sci 111 (2): 257–262, 2006

Osteolipoma Arising Adjacent to the Sternoclavicular Joint. A Case Report

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ABSTRACT

A 45-year-old woman presented with one-year history of a mass on her chest. Computed tomography and magnetic resonance imaging demonstrated a tumour near the sternoclavicular joint. The tumour was diagnosed as osteolipoma histologically after resection. Osteolipoma is a rare tumour and this may be the first report of osteolipoma arising adjacent to the sternoclavicular joint.

INTRODUCTION

Lipomas are the most common soft tissue tumours and they occur in any location of the body [1, 2]. Variants of lipoma have been described according to the type of tissue present: fibrolipoma, myxolipoma, myolipoma, angiolipoma, pleomorphic lipoma [3 ,4], spindle-cell lipoma [5], angiomyolipoma [6], diffuse lipomatosis [7], lipofibromatosis [8]. In contrast to the high incidence of lipomas, metaplastic formation of cartilage and bone is only rarely seen [9]. Lipomas displaying osseous or chondrous structures are referred to as osteolipomas or chondrolipomas respectively [10]. We present a case of solitary osteolipoma arising adjacent to the sternoclavicular joint.

Received 1 July 2005
Accepted 12 July 2005

CASE

A 45-year-old woman was referred to our hospital because of a firm tender mass near the left sternoclavicular joint. She had noticed a mass one year before. The mass had slowly increased in size and become painful. On physical examination, the mass was firm, oval round, smooth, 2.5x1.5cm in size, tender and slightly movable.

Plain radiography showed an ossified mass near the left sternoclavicular joint. Computed tomography revealed an ossified component surrounded by a radiolucent zone close to the sternoclavicular joint. Continuity between a tumor and underlying bone was not found (Fig 1). Magnetic resonance imaging revealed the presence of a mass adjacent to the sternoclavicular joint which had high signal intensity on both T1-weighted and T2-weighted images with focal areas of low signal intensity on both images. Bone scanning with 99m-Tc showed no abnormal findings.

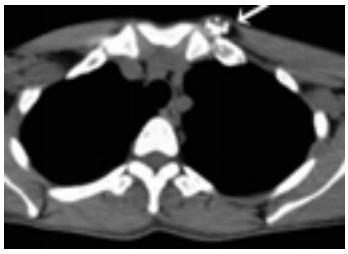

Fig 1. Computed tomography revealing an ossified component surrounded by a radiolucent zone (arrow) close to the sternoclavicular joint. Continuity between a tumour and the underlying bone was not found.

The patient underwent excision of the mass. The mass was excised en bloc and composed of mature osseous component surrounded by mature fatty component (Fig 2). There was no continuity between the mass and the adjacent bone.

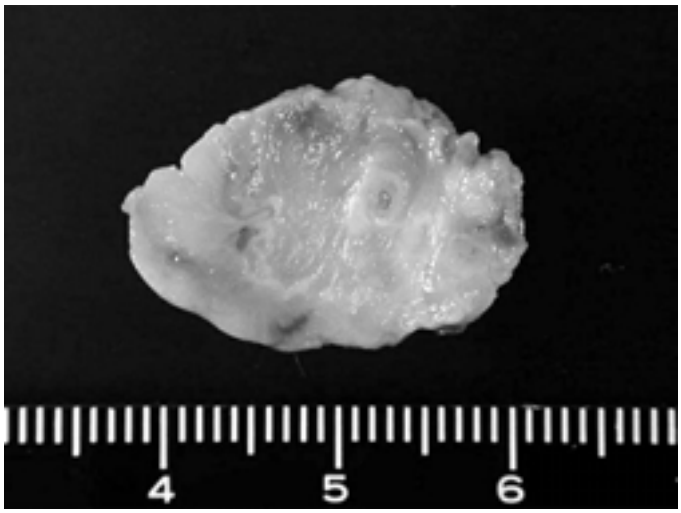

Fig 2. Cut section of the gross specimen showing mature osseous component surrounded by mature fatty component.

Histologically, the major part of the lesion consisted of lobules of mature adipose tissue separated by strands of fibrous connective tissue. The adipocytes were uniform in size and shape. No lipoblasts were observed. Matured lamellar bone islands with bone marrow were dotted. Osteoblastic rimming around the trabecular bones was also observed. There was no nuclear atypia. The tumour was diagnosed as an osteolipoma (Fig 3).

Following surgery, the symptom disappeared and there has been no recurrence of tumour to date.

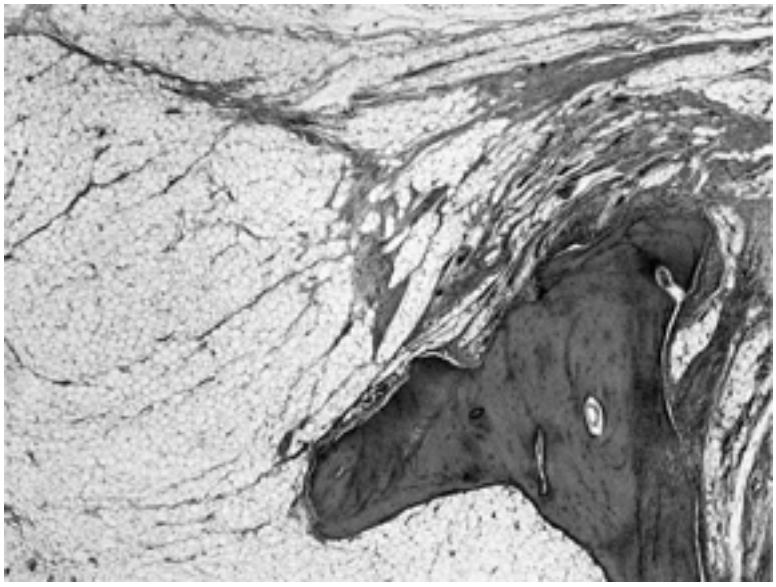

Fig 3. Microphotograph showing that the tumour is composed of lobules of mature adipose tissue separated by strands of fibrous connective tissue and dotted lamellar bone islands with bone marrow (x 20).

DISCUSSION

Lipomas with ossification are very rare variants of lipomas. In a series of 635 lipomas seen over a 5-year period only 6 cases with ossification were found [11 ,12]. In general, osteolipomas are usually located adjacent to the periosteum and are referred to as parosteal lipomas [11]. Osteolipomas independent of bone tissue have been reported [13 ,14]. Some authors differentiate osteolipomas from parosteal lipomas with exostosis [15]. In the present case, on operation there was no continuity between the osteolipoma and clavicle although the tumour location was close to the sternoclavicular joint.

There are two main theories of the pathogenesis of osteolipoma. Most researchers believe that the origin of adipose cells , chondroblasts and osteoblasts is from different

types of undifferentiated mesenchymal cells [4 ,16]. The hypothesis is that the neoplastic transformation occurs in a mixture of several types that later differentiate into lipoblasts, chondroblasts, or osteoblasts and fibroblasts [4 ,16]. Another hypothesis is that only the adipose cells undergo a neoplastic transformation , and that the cartilage and bone is produced by metaplasia of fibroblasts in chondroblasts or osteoblasts [4 ,16]. This case microscopically showed continuity between osseous and adipose tissues. This finding supports the second hypothesis.

Computed tomography is of great value in evaluating the osteolipoma [15]. In fact, it easily revealed the fatty density of the mass and the presence of the osseous elements [17]. In the present case, CT played a very important role in preoperative radiological examination. It clearly demonstrated an ossified component surrounded by a radiolucent zone corresponding to fatty component.

At MRI the tumour showed high signal intensity on T1-weighted and T2-weighted images corresponding to the fatty component with focal areas of low signal intensity on both images corresponding to ossified , calcified or fibrous component. It was difficult to evaluate ossification by MRI. The presence of osseous component to imply osteolipoma was thought to be better evaluated by CT scans.

The preferential sites of osteolipomas are head and neck, followed by extremities [15]. To the best of our knowledge, there has been no report of osteolipoma arising adjacent to the sternoclavicular joint previously. Lipomas with osseous changes have the same prognosis as plain lipomas [10]. Excision is the treatment of choice, and no recurrences have been reported [18].

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