Case Report

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Ultrasonographic Findings of a Chondrolipoma Arising from the Left Supraclavicular Region: A Case Report

좌측 쇄골 상부에서 발생한 연골 지방종의 초음파 소견: 증례 보고

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Chondrolipomas, which are lipomas with chondroid metaplasia, are rare benign soft tissue tumors with no relevant epidemiological reports or radiological information. A limited number of lipomas with osteo/chondroid differentiation have been reported in the literature between 1960 and 2008. Moreover, only few studies have described the radiologic findings of chondrolipomas. Herein, we present a case of chrondrolipoma arising from the left supraclavicular region in a 77-year-old female.

Index terms Chondroma; Pathology; Ultrasound; Soft Tissue Neoplasms

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INTRODUCTION

Chondrolipomas, named as lipomas with chondroid metaplasia or lipomas with cartilaginous changes in other literature, are extremely rare; chondroid metaplasia mainly occurs in large long-standing lipomas (1). The indistinct etiology of chondroid changes in lipomas has been discussed, and most researchers have indicated that they originate from different types of undifferentiated mesenchymal cells (2). Chondrolipomas occur mostly within the head and neck region and the upper half of the body (3), including the submandibular region, the tongue, the subcutaneous region of the chest wall, the scapular region, intracranial interhemispheric region, the mandibular region and the infratentorial region. They rarely occur within the lower half of the body (4). Only a few studies have described the radiologic finding of chondrolipoma. Therefore, we present a case of chondrolipoma in a 77-year-old female with a focus on ultrasonographic findings.

CASE REPORT

A 77-year-old female presented with palpable masses in both supraclavicular regions. The left supraclavicular mass was larger than the right, which showed progressive growth for recent 4–5 years. She had no history of trauma.

The overlying skin was normal. On palpation. soft movable masses of approximate sizes of 7–8 cm and 4 cm were detected within the left and right supraclavicular regions, respectively. Radiography showed no calcification within the corresponding area.

Subsequent ultrasonography showed an oval-shaped, heterogeneous hyperechoic solid mass with an internal small round hypoechoic area and multifocal linear hypoechoic strands within the subcutaneous layer of the left supraclavicular region. The margin of the mass was indistinct from normal subcutaneous fat. The size of the mass was approximately 7 cm × 3 cm × 8 cm. A color Doppler study revealed slightly increased vascularity within the superficial portion of the tumor (Fig. 1A-C). Another smaller mass located within the right supraclavicular region showed typical ultrasonographic findings of subcutaneous lipoma.

Surgical excision was performed, and the left supraclavicular mass was pathologically confirmed as a chrondrolipoma (Fig. 1D, E).

DISCUSSION

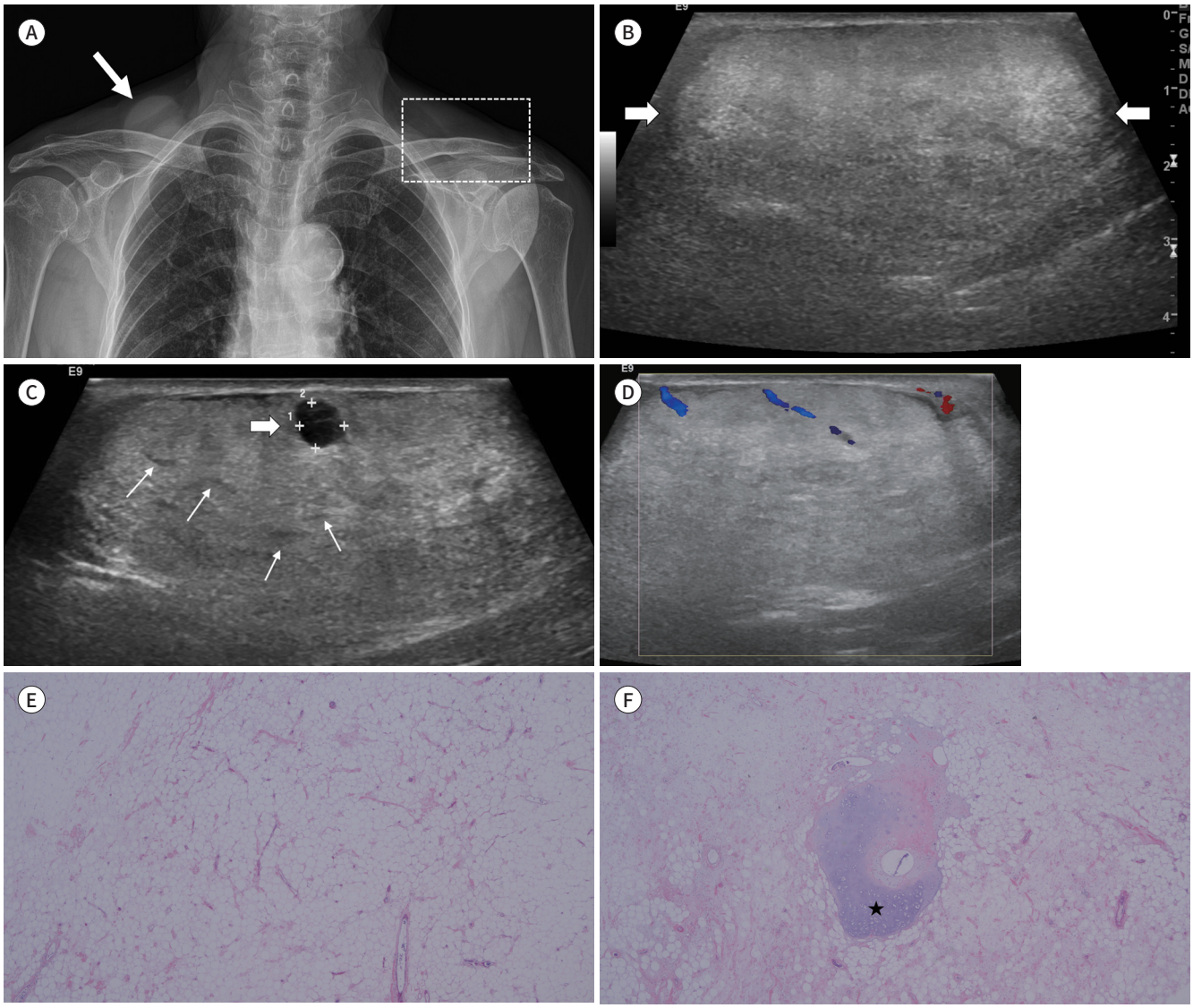
The term “osteochondrolipoma” was coined by Rau et al. (4). The tumor is a rare benign tumor, which is a variant of a lipoma that shows osseous and cartilaginous differentiation (5). The presence of cartilaginous tissue within the tumor is a rare finding (6); chondroid lipoma and chondrolipoma, which is a lipoma with chondroid metaplasia, are the main variants characterized by chondroid tissue formation, and they should be distinguished. Chondrolipomas, unlike chondroid lipomas, are characterized by the absence of lipoblasts and a myxoid matrix and a clear separation between the cartilaginous tissue and the fatty component (6).

A chondroid lipoma occurs mainly within the head and neck region, and frequently in the 60–70 years age group, the tumor usually presents clinically as a painless firm palpable mass with large size (about 1.5–5 cm) on the literature review, and it was included in the World Health Organization (WHO) classification of soft tissue tumors in 2002.

As with many tumors, the etiology of lipomas remains unknown; chronic irritation, trauma, and spontaneous development have been indicated. The indistinct etiology of osseous and chondroid changes within lipomas has been discussed. Piattelli et al. (2) provided two hypotheses for the origin of chondroblasts and osteoblasts. They suggested that neoplastic transformation occurs in multipotential undifferentiated mesenchymal cells that later differentiate into lipoblasts, chondroblasts, osteoblasts, and fibroblasts. Another hypothesis is that only the adipose cells undergo neoplastic transformations, and cartilage and bone are produced by the differentiation of undifferentiated mesenchymal cells of the stroma in chondroblasts or osteoblasts.

Previous reports revealed that osteochondrolipoma could be mobile and non-adherent to the bone or muscle (5) or firmly attached to the bone (4). Occasionally, osteochondrolipomas present as cysts within the popliteal region (7).

Fig. 1. A 77-year-old female presented with palpable masses in both the supraclavicular regions.
A. No radiographically detectable mass is noted in the left supraclavicular region (dotted box). A soft tissue mass is incidentally noted in the right clavicular region, which was pathologically confirmed as a lipoma (arrow).
B. A large oval-shaped heterogeneous hyperechoic solid mass (arrows) is shown within the subcutaneous tissue of the left supraclavicular region. The margin of the mass is relatively indistinct from that of normal subcutaneous tissue.
C. The tumor contains an eccentric round hypoechoic component (thick arrow) and multifocal hypoechoic strands (thin arrows).
D. Color Doppler study reveals mildly increased vascularity within the superficial portion of the tumor.
E. Tumor is composed of mature adipocytes (haematoxylin and eosin stain, × 20).
F. Photomicrograph shows true hyaline cartilage. A pathological diagnosis of chondrolipoma (lipoma with chondroid metaplasia) was made. The image also shows a chondroid matrix of the hyaline cartilage (star) (haematoxylin and eosin stain, × 20).



Only a few studies have described the radiologic finding of chondrolipoma. It is reported that well-defined homogeneous hypoechoic lesion on ultrasound, fat-containing mass with intracystic/chondroid change and peripheral calcification on MR image.

Although the information of sonographic finding for this rare tumor is limited, The previously reported case of chondrolipoma displayed largely benign characteristics on ultra-

sound, which showed an elliptically shaped tumor with a well-marginated border, whose greatest dimension paralleled the skin. The lesion did not display any internal vascularity or cystic spaces. Neither heterogeneity nor homogeneity of a lesion has been demonstrated to be a good predictor of histology (7).

Differential diagnosis for the lesion in this case includes fat containing tumor such as lipoma, lipoblastoma and liposarcoma. Chondrolipoma can be distinguished from the lipoma in the points of well circumscribed nonadipose tissue of hypoehoic area, and hypoechoic strands within the tumor, in contrast to echogenic strands in lipoma. With prevalent age, lipoblastoma can be distinguished from chondrolipoma; lipoblastoma predominantly occurs in infants and young age while the chondrolipoma predominantly in old age. Liposarcoma has feasures suggestive of malignancy including the presence of thick septa, nodular and/or globular nonadipose mass like areas, and relatively smaller percentage of fat composition as compared with chondolipoma (8, 9).

Our case showed a heterogeneous hyperechoic solid mass with an internal round eccentric cystic component and multifocal linear hypoechoic strands. The margin of the tumor was relatively indistinct from the normal subcutaneous tissue. A color Doppler study showed mildly increased vascularity within the superficial portion of the tumor. The tumor was confined to the subcutaneous layer without evidence of invading the underlying muscle. The tumor was relatively large; the longest diameter was up to 8 cm.

When we encounter a non-specific echogenic solid tumor with hypoechoic lesion (due possibly to cartilage portion) or calcification (not shown in our case) especially within the head and neck areas, a chondrolipoma should be included as a differential diagnosis, although its incidence is low.

Limitation of our study is that we could not correlate the hypoechoic component of the tumor with pathology due to retrospective study. However, considering the shape, size and echogenicity of the lesion, it is presumed that the hyaline cartilage component was seen as a hypoechoic area on ultrasound. And we need more cases of chondrolipoma whether this tumor has hypoechoic component constantly or not.

The treatment of choice for this tumor is complete surgical excision, and recurrence has not been reported yet (3).

In conclusion, our case showed a large echogenic mass with well circumscribed hypoechoic area presumed as hyaline cartilage, multiple hypoechoic strands, and partial indistinct margin. These sonographic findings from our case may support the diagnosis of this rare tumor.

Author Contributions

Conceptualization, P.N.H.; data curation, all authors; formal analysis, P.N.H.; project administration, P.N.H.; resources, all authors; supervision, P.N.H.; visualization, P.N.H.; writing—original draft, P.N.H.; and writing—review & editing, P.N.H.

Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

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좌측 쇄골 상부에서 발생한 연골 지방종의 초음파 소견: 증례 보고

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연골 지방종은 연골모양 화생을 가진 지방종으로 드문 양성 연부조직 종양이며, 아직까지 이 종양에 대한 충분한 역학 조사나 영상의학적 보고가 없다. 1960년부터 2008년까지 골성/연골성 분화를 가진 지방종은 몇몇의 연구에서만 발표되었으며, 그중에 이 종양에 대한 영상학적 소견을 기술한 것은 매우 소수였다. 이에 77세 여성의 쇄골 상부에서 발생한 연골 지방종의 증례를 보고하고자 한다.

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