Chondrolipoma of the ankle: a case report

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Abstract

Chondrolipoma is a rare benign mesenchymoma composed of mature cartilage and adipose tissue. Here we present a 33-year-old woman with chondrolipoma of the ankle. She had been aware of a growing, solid mass on the front part of the right ankle for six months. On examination, a elastic hard mass of 3×3 cm, with no adhesion to the skin, but to the base was observed. She underwent the marginal resection of the tumor. No local recurrence has been noted for 5 months postoperatively.

Key words: chondrolipoma, benign mesenchymoma, ankle

Introduction

Chondrolipoma is a rare form of benign mesenchymoma that contains both mature cartilage and adipose tissue. Chondrolipomas can arise at almost any site in the body, but are found particularly in the connective tissue in the skeletal system, breast, pharynx and nasopharynx. To our knowledge, only ten cases of chondrolipoma arising in the limbs have been reported. Here, we reported the first case of chondrolipoma on the ankle, and discussed the etiology of this tumor.

Case report

A 33-year-old women visited our hospital with the complaint of swelling on the front part of the right ankle growing gradually for six months (Figure 1). It was neither tender nor numb, and there was no history of ankle injury or surgery. There was also no relevant medical history or family history. She had been accustomed to sitting on a tatami floor on the dorsum of each foot for tea ceremonies for more than ten years.

On physical examination, an elastic hard mass of 3×3 cm was palpated. The adhesion was not to the skin, but to the base. Joint movement was not impaired. Neither venous dilatation nor pigmentation was observed in the overlying skin.

Fig. 1 Preoperative appearance. Tumor on the right ankle (arrow).

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Her laboratory data were normal. Plain radiographs indicated a subcutaneous tumor located on the anterior aspect of the ankle joint although no calcified spot was observed (Figure 2). MRI (3.0-Tesla) demonstrated a mixture of low and high signal intensity areas on both T1-(TR/TE = 601/8) and T2-weighted images (TR/TE = 3841/80) (Figure 3).

The pathological diagnosis of the tissue obtained from a needle biopsy was benign. We therefore performed marginal resection of the tumor. The extirpated mass was well-circumscribed and hard with surrounding adipose tissue (Figure 4).

Histologically, the hard portion of the tumor was hyaline-type cartilage, showing no mitosis, rare binucleated chondrocytes and no cytological malignancy. Adipose tissue sur-

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**Fig. 2** Lateral plain radiography demonstrated a subcutaneous tumor located on the anterior tibia but no calcification (arrow).

**Fig. 3** a) MRI (3.0-Tesla) demonstrated the mixture of a low signal intensity area in high signal intensity, similar to adipose tissue on the T1-weighted image (TR/TE=601/8) (arrow).

b) T2-weighted image (TR/TE = 3841/80) was similar (arrow).

**Fig. 4** Macroscopic appearance of the resected tumor. The tumor was a well-circumscribed, hard mass with surrounding adipose tissue.
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To our knowledge, 11 patients with chondrolipoma including lipoma with cartilaginous metaplasia or change, including my case, have been reported. The patients ranged in age from 7-83 years with a mean age of 41.2 years, as the previously reported examples. The chondrolipoma was found in all age groups. Seven patients were male and four were female, so an identical male-to-female ratio was not noted. Three lesions of the hand, and two cases each popliteal fossa, thigh, sole, calf one case, the ankle of our case were one.

It has been suggested that mesenchymal stem cells hindered in adipose tissue might show metaplasia into cartilage and bone tissues. Mechanical compression of adipose tissue between bone and a neighboring bone, joint, tendon or periosteum may induce the tendency for the mesenchymal site to produce a chondroid framework, leading to bone cartilaginous metaplasia of an adipose tumor developing in the same region. In this case, because the lesion was on the ankle, cartilaginous metaplasia may have been induced by an iteration wound.

The differential diagnosis included several benign tumors, such as lipoma, mucocele, neuroma, angiolipoma, fibroma and other soft tissue tumors, and malignant tumors such as liposarcoma and leiomyosarcoma. MRI findings of mucocele, neuroma and fibroma were not necessarily identical to liposarcoma, although they could contain vessels and even cartilage, but those of angiolipoma, liposarcoma and leiomyosarcoma could not be differentiated completely. Biopsy was therefore necessary to confirm the diagnosis.

The treatment of choice for a benign mesenchymoma is a simple surgical excision because both local recurrence and malignant transformation are rare.

In conclusion, this is the first report of chondrolipoma arising on the ankle; this tumor should be kept in mind as a potential cause of lesions affecting the limbs.

References