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Review Article

Chondroid lipoma: an update and review☆

Khin Thway, FRCPath*, Rashpal Singh Flora, FRCPath, Cyril Fisher, MD, DSc, FRCPath

Department of Histopathology, Royal Marsden Hospital, London, UK

Abstract Chondroid lipoma is a rare, benign soft tissue tumor with features of both embryonal fat and embryonal cartilage that most often arises in the proximal limb and limb girdles of adult women. Histologically, it comprises nests and cords of rounded cells with granular eosinophilic or multivacuolated, lipid-containing cytoplasm within prominent myxohyaline stroma and may be morphologically confused with some sarcomas. Correct diagnosis is crucial to avoid overtreatment because it does not recur or metastasize, and simple excision is curative. The etiology of chondroid lipoma remains unknown, but it appears genetically distinct, with a reciprocal t(11;16)(q13;p13) translocation identified in an increasing number of cases. We review the literature on chondroid lipoma, discussing tumor histology, immunohistochemistry, ultrastructure, and differential diagnosis, and summarize the molecular genetic features so far known.

Keywords: Chondroid lipoma; Genetics; Pathology; Translocation; Soft tissue tumor

1. Introduction

Chondroid lipoma is an uncommon, benign soft tissue neoplasm with features of both embryonal fat and embryonal cartilage. It was first described in 1993 by Meis and Enzinger [1] who reported 20 cases of a peculiar, benign fatty tumor that occurred predominantly in the extremities and showed adipocytic and cartilaginous features. Although its frequency is rare, its recognition is important because it can be mistaken for morphologically similar sarcomas, particularly myxoid liposarcoma and myxoid chondrosarcoma. Since its first descriptions, the histologic, ultrastructural, and genetic features of chondroid lipoma have been further characterized, and we discuss the literature on this unusual neoplasm.

1.1. Clinical features of chondroid lipoma

Chondroid lipoma usually presents in the third or fourth decade but has a wide age distribution, with 2 studies giving similar age ranges of 16 to 70 years (median, 28 years) [2] and 14 to 70 years (median, 36 years) [1], and occurring rarely in children aged younger than 10 years [3]. Women outnumber men by about 4:1, but no racial predisposition is noted. The tumor presents as a painless, slowly enlarging mass most commonly in the proximal extremities or limb girdles and more rarely on the trunk or head and neck (particularly the oral cavity) [3,4]. Lesions can occur superficially or deeply and have been described in subcutis and superficial fascia and both inter- and intramuscularly. Diagnosis is often difficult radiologically because the features are heterogeneous on imaging studies [5] with calcification and ossification [5]. Chondroid lipoma behaves in a benign manner with no reported cases of local recurrence or metastasis, and simple, complete, surgical excision is curative.

2. Pathologic features of chondroid lipoma

2.1. Macroscopic features

Grossly chondroid lipoma is well circumscribed, lobulated, and frequently encapsulated, with size ranging from 1.5 to 11 cm (median, 4 cm) [1,2]. The cut surface is gelatinous, yellow-tan, gray, or white, and there is occasional hemorrhage.

2.2. Microscopic features

Microscopically, the tumor is circumscribed and lobulated (Figs. 1A and B) with lobules separated by fibrous septa. It

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* Corresponding author. Tel.: +44 207 808 2631; fax: +44 207 808 2578.
E-mail address: khin.thway@rmh.nhs.uk (K. Thway).

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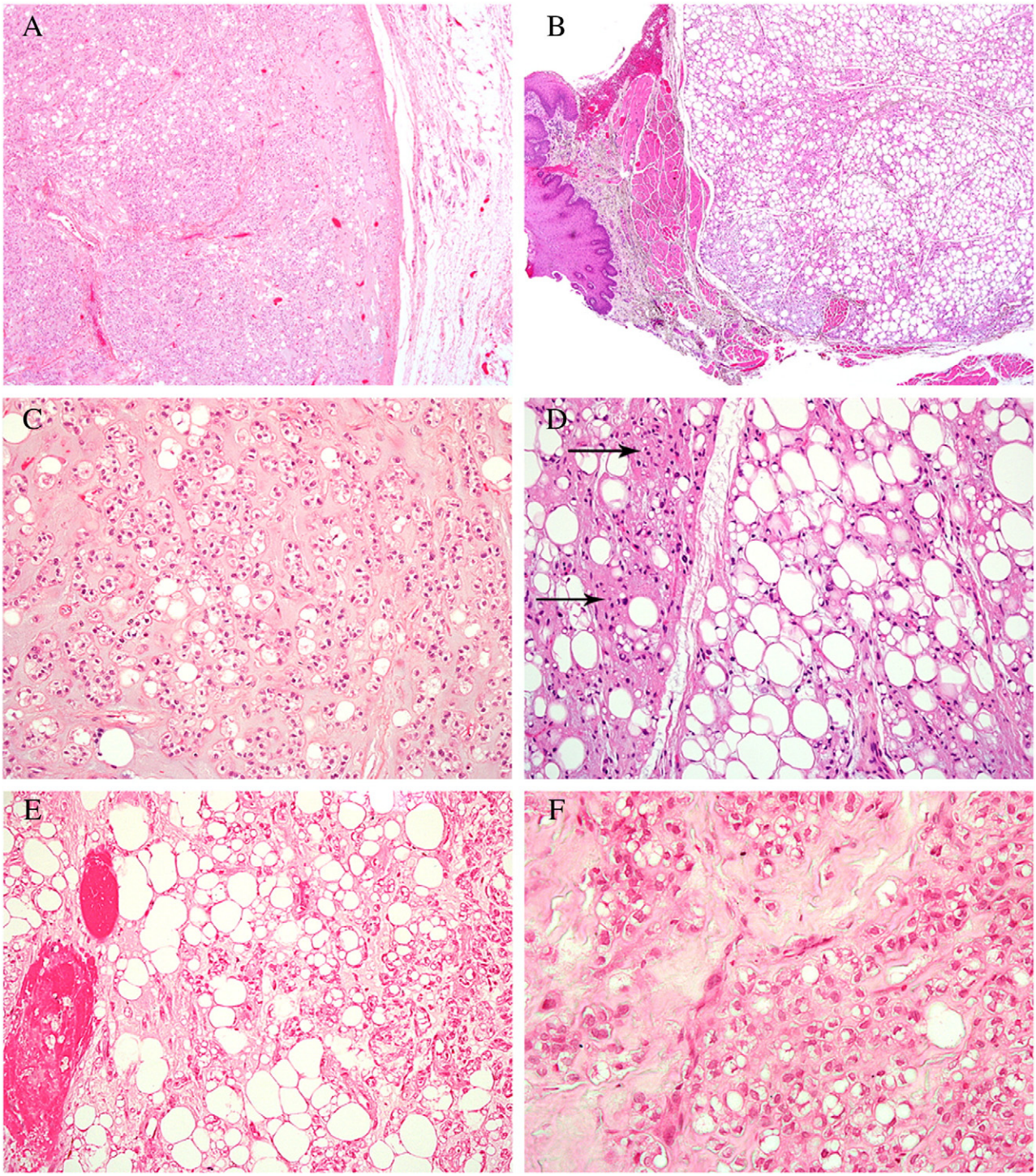

Fig. 1. (A) Chondroid lipoma. Tumors are well circumscribed and lobulated with variable cellularity. This example is present within the subcutis. The intermixed mature fat is discernible at low power, and thick- and thin-walled vessels are interspersed. (B) This tumor is from the tongue, a relatively frequent site of origin within the head and neck. It is a circumscribed and nodular lesion and present within skeletal muscle. The admixture of adipocytes of mature type with smaller cells with eosinophilic cytoplasm is apparent at low power. (C) Nest and cords of rounded cells are present within a chondromyxoid stroma. Many cells are multivacuolated and contain lipid, consistent with lipoblastic differentiation. Mature univacuolated adipocytes are also seen, as are numerous smaller polygonal cells with granular eosinophilic cytoplasm. (D) The amounts of different cells present vary. This lesion has a large number of mature adipocytes as well as fewer numbers of smaller, multivacuolated adipocytes and small polygonal cells with eosinophilic cytoplasm containing glycogen (arrows). No cytologic atypia or mitotic activity is discernible. (E) The presence of small cells with bland ovoid nuclei within a myxoid background can lead to confusion with myxoid liposarcoma, but chondroid lipoma lacks the delicate capillary meshwork seen in the latter. Instead, it contains variable numbers of thick- and thin-walled vessels of varying calibers (left of field). (F) The stroma can show foci of hyalinization (seen here) or sometimes zones of hemorrhage, sclerosis, fibrin deposition, inflammation, or calcification.