



Chest wall mass in a 15-year-old female patient

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Discussion

Diffuse lipomatosis (DL) is a rare disorder compromising diffuse mature adipose tissue overgrowth [1, 2]. The term lipomatosis is used where the fatty lesion involves multiple tissues [3].

In the pediatric age group, this usually presents under the age of 2 and commonly affects the face and neck. However, presentation can also occur in adolescents and, rarely, in adults where the anatomical involvement also includes the limbs and trunk. It is locally infiltrative but when involving the musculoskeletal system, is usually confined to the superficial soft tissues of skin, subcutaneous and muscle layers, but sparing the nerves.

Clinical features depend on the location and size of the lesion but mainly consist of cosmetic deformity and localized mechanical symptoms due to compression of adjacent structures. Rapid growth may occur and cause the clinical concern of a neoplastic process; if biopsy is performed, the histopathology findings are of mature adipose tissue.

Imaging plays an important role in diagnosis. MRI allows high soft tissue resolution to define the complete and homogeneous fatty nature of diffuse lipomatosis, (Fig. 2 a–d) differentiating it from other non-aggressive but more heterogeneous fat-containing lesions (lipoblastoma and angioliipoma amongst others) and also highlighting, if necessary, any potential concerning components requiring biopsy for histopathological evaluation. Thin linear low signal strands within the

fatty lesion of our case most likely represent a combination of fibrous bands and fibers from the intercostal muscles, which is an expected finding where DL involves local musculature.

MRI also allows assessment of involvement of local anatomical structures which can differentiate lipomatosis from other pathologies to be considered in the differential diagnosis. Assessment of the local nerves is important, as there is no neural involvement in lipomatosis. Any fatty or non-fatty neural abnormality would change the potential diagnosis and other pathologies would need to be considered, such as lipomatosis of the nerve, but also potentially include pathologies of neurogenic origin such as neurofibromatosis.

Features on radiographs are typically of focal low-density soft tissue overgrowth (Fig. 1) with potential splaying of adjacent osseous structures, in this case of the ribs, depending on the anatomical location.

In our case, there is the rare association of local osseous overgrowth. On plain radiography, there is focal enlargement of the left 4th rib with a low density surrounding this and splaying of the adjacent 3rd and 5th ribs (Fig. 1). MRI (Fig. 2a–d) demonstrates a large mass of lipomatous signal surrounding the enlarged left 4th rib, which retains normal bone marrow signal.

Osseous overgrowth has been previously noted in relation to lipomatous lesions [4] but they are rare and little has been published, with their overall incidence and the pathogenesis of the lipoma-bone abnormality remaining unclear [5]. Where there is osseous overgrowth by a lipomatous lesion, careful assessment of the bone involved should be undertaken to ensure the changes are not arising from the bone itself. For instance, involvement of the cortex could potentially suggest a parosteal lipoma.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflicts of interest.

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Answer:

Diffuse chest wall lipomatosis with rib osseous overgrowth.