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LETTER /*Musculoskeletal imaging*

Dermoid cyst presenting as an intramuscular mass: CT and MRI features

Keywords Dermoid cyst; Intramuscular tumor; Magnetic resonance imaging (MRI); Tissue characterization

Dear Editor,

A dermoid cyst presenting as an intramuscular mass in the lower back is extremely rare. We report the computed tomography (CT) and magnetic resonance imaging (MRI) features of an intramuscular dermoid cyst in the lower back.

A 67-year-old man was referred for the evaluation of a soft-tissue mass in the left erector spinae muscle of the lower back incidentally detected during screening CT. The patient was asymptomatic. All laboratory results were within the normal range. Unenhanced CT showed an intramuscular mass containing multiple hypoattenuating globules (Fig. 1a). The mass was sharply demarcated and measured 5.5 cm in diameter. MRI revealed multiple globules that were slightly hyperintense on T1-weighted images and hypointense on T2-weighted images compared to the surrounding septum-like structures (Fig. 1b and c). MRI obtained after intravenous administration of gadoteridol at a dose of 0.1 mmol/kg, revealed enhancement of thickened cyst wall and no internal enhancement (Fig. 1d).

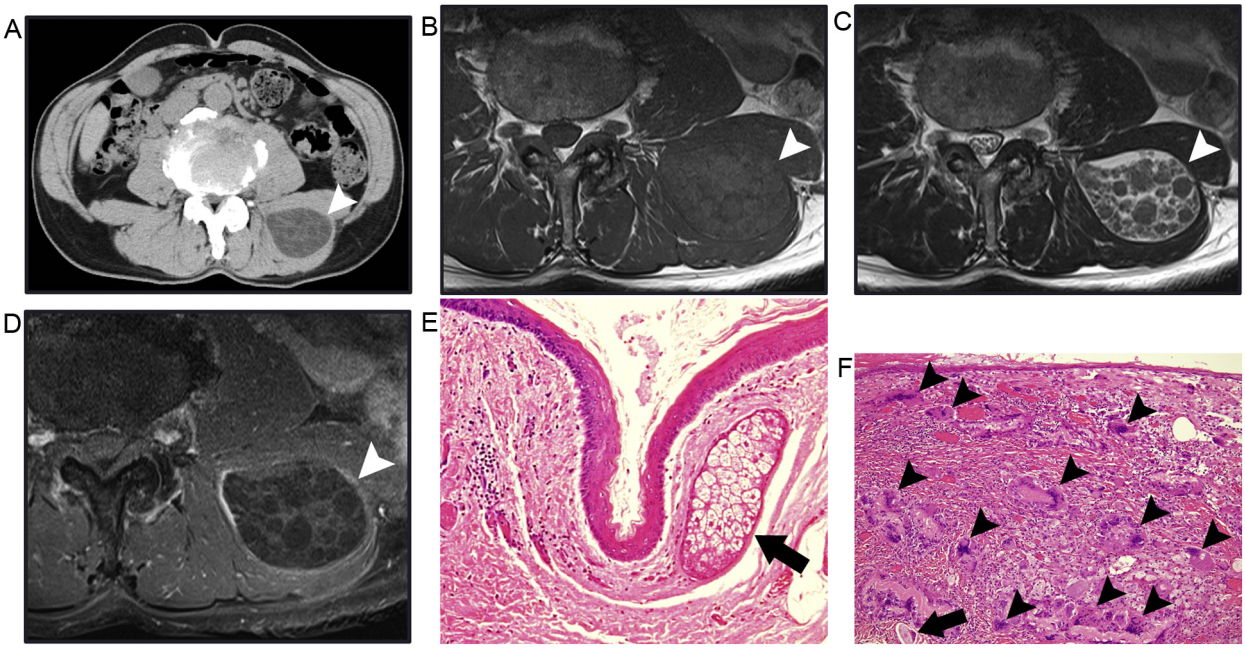

Figure 1. A 67-year-old man with dermoid cyst in the lower back: a: unenhanced computed tomography image in the transverse plane shows an intramuscular mass (arrowhead) containing multiple, hypoattenuating globules with CT values ranging from −3 to −14 HU and septum-like structures that are slightly hyperattenuating relative to the surrounding muscle; b: T1-weighted (TR/TE, 740/10 msec) MR image in the transverse plane shows an intramuscular mass (arrowhead) containing multiple globules that are slightly hyperintense compared to the surrounding fluid; c: T2-weighted (TR/TE, 4770/80 msec) MR image in the transverse plane shows an intramuscular mass (arrowhead) containing multiple globules that are hypointense relative to the surrounding fluid; d: fat-saturated contrast-enhanced T1-weighted (TR/TE, 800/10 msec) MR image in the transverse plane obtained after intravenous administration of gadolinium chelate shows an intramuscular mass (arrowhead) with enhancing peripheral wall. Fatty components in the globules present as hypointense areas by comparison with T1-weighted images on Fig. (b); e: histological analysis (hematoxylin and eosin stain) shows a unilocular cyst lined by a keratinizing squamous epithelium, which contains sebaceous gland in the wall (arrow). No malignant cells and no tissues other than skin components are observed; f: histological examination (hematoxylin and eosin stain) also shows the cyst wall partially replaced by granuloma. Arrowheads indicate foreign body giant cells. Arrow indicates a hair follicle.

Internal globules displayed decreased signal intensity on fat-saturated T1-weighted images compared to T1-weighted images, consistent with fat content (Fig. 1b and d). Based on imaging features, the mass was considered as a cystic tumor containing multiple globules with fatty component. After surgical excision, histopathological analysis revealed a unilocular cyst lined by a keratinizing squamous epithelium, which contained adnexal structures in the wall (Fig. 1e) and was partly replaced by granuloma (Fig. 1f). No malignant cells and no tissues other than skin components were observed. The lesion was diagnosed as a dermoid cyst. No developmental malformations such as skin fistula and spinal abnormalities were identified on imaging. The patient has been regularly followed up without recurrence.

Dermoid cysts are rare congenital lesions that develop as a result of developmental malformation [1]. Dermoid cysts most frequently occur in the orbit, calvarial diploic space, and intracranially [2]. As the neural tube closes last in the caudal part, dermoid cysts, commonly associated with spinal dysraphisms, occur in the lumbo-sacral region in the spine [2]. Intramuscular location of a dermoid cyst is extremely rare, and to the best of our knowledge, this is the first report of an intramuscular dermoid cyst in the lower back in the absence of other developmental malformations. Compared to cystic teratomas originating from primordial germ cells, which are composed of tissues from more than one germ layer, dermoid cysts contain skin appendages from the ectoderm, without tissues originating from other germinal layers [1]. In our patient, we concluded that the soft-tissue mass was a dermoid cyst because tissues other than the ectodermal origin could not be identified at histopathological analysis. The presence of a ''sack-of-marble'' appearance, which refers to aggregations of multiple small globules within a cyst, is pathognomonic for dermoid cyst [3]. This characteristic finding was also observed in our patient. In addition, the lipid materials in a dermoid cyst are derived from sebaceous secretion and not from mesodermal adipose fat [1]. Other intramuscular cystic lesions such as hydatid cyst and mycetoma can be included in the differential diagnosis of this lesion. Further, preoperative imaging is mandatory to analyze the extent of the mass and the presence of other developmental anomalies.

Disclosure of interest

The authors declare that they have no competing interest.

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