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Abdominal Imaging / Imagerie abdominale

The Abdominal Wall Lumps and Bumps: Cross-Sectional Imaging Spectrum

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Abstract

This article focuses on the cross-sectional imaging spectrum of abnormalities that affect the abdominal wall, with emphasis on magnetic resonance imaging (MRI). Cross-sectional imaging is valuable for diagnosing and evaluating the extent of abdominal-wall masses. With the increasing use of MRI, it is often possible to reach a diagnosis or narrow the differential diagnosis, thereby guiding effective management. Neoplastic and non-neoplastic pathologies will be illustrated, and the distinctive imaging characteristics of these entities will be highlighted.

Résumé

Cet article traite principalement de l'éventail des anomalies relevées par imagerie axiale qui touchent la paroi abdominale, tout en portant une attention particulière à l'imagerie par résonance magnétique (IRM). L'imagerie axiale permet de diagnostiquer les masses de la paroi abdominale et d'en évaluer l'ampleur. L'IRM étant de plus en plus utilisée, il est souvent possible d'établir un diagnostic ou de préciser les diagnostics différentiels afin d'orienter la prise en charge. Les pathologies néoplasiques et non néoplasiques seront présentées, et les caractéristiques d'imagerie distinctes de celles-ci seront mises en évidence.

Key Words: Abdominal wall; Computed tomography; Magnetic resonance imaging

Cross-sectional imaging clearly demonstrates the anatomy of the abdominal wall and provides valuable information when pathology is suspected in this region or in the adjacent peritoneum. Cross-sectional imaging can help differentiate the neoplastic from the non-neoplastic lesion, the surgical from nonsurgical pathologies, and the incidental abdominal-wall findings from lesions with clinical significance. The most common abdominal-wall ''mass'' is a hernia. The type of abdominal-wall hernias, hernia repairs, or the complications of hernia repairs is an elaborate topic on its own and will not be covered in our pictorial essay. The current pictorial essay is a comprehensive review of the benign and malignant neoplasms, infectious, inflammatory, foreign bodies, and tumour-like conditions of the anterior abdominal wall.

Tumour-Like Lesions

Abdominal-Wall Endometriosis

Abdominal-wall endometriosis is defined as endometrial tissue that is superficial to the peritoneum. It is a common site of extrapelvic endometriosis that usually develops in a surgical abdominal scar after procedures that violate the uterine cavity, such as caesarean section. Abdominal-wall endometriomas complicate 0.03%-1% of cesarean sections and are usually the only manifestation of endometriosis in the body with no associated pelvic endometriosis. The typical presentation is a female patient with cyclical pain from a mass in scar tissue [1]. It presents as a solid mass that are iso- to mildly hyperintense on T1W and T2W, with or without small foci of high signal intensity that correlates

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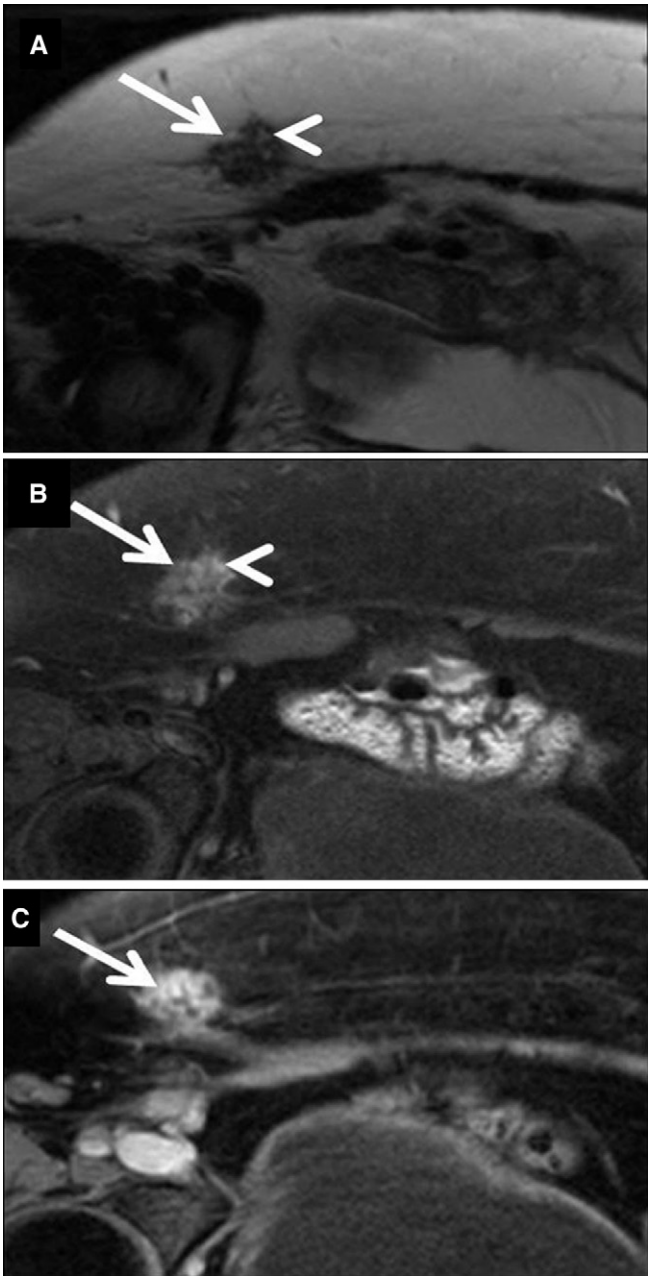

Figure 1. Abdominal-wall endometriosis in a 24-year-old woman with a history of caesarean section who presented with continuing cyclical pain symptoms. (A) Axial T2W, (B) fat-suppressed TIW, and (C) postcontrast magnetic resonance imaging, revealing a spiculated mass (arrows) in the region of the surgical scar, which is isointense compared with muscle on T2W, mildly hyperintense on T1W, and showing moderate contrast enhancement. A few foci of T1W and T2W hyperintensities (arrowheads) are seen, which represent foci of hemorrhage.

with small hemorrhages (Figure 1). Mild-to-moderate contrast enhancement is present. Wide surgical excision is the treatment of choice.

Desmoid Tumours

Desmoid tumours belong to a group of disorders called fibromatoses, which are characterized by fibroblastic proliferation, without evidence of inflammation or definite

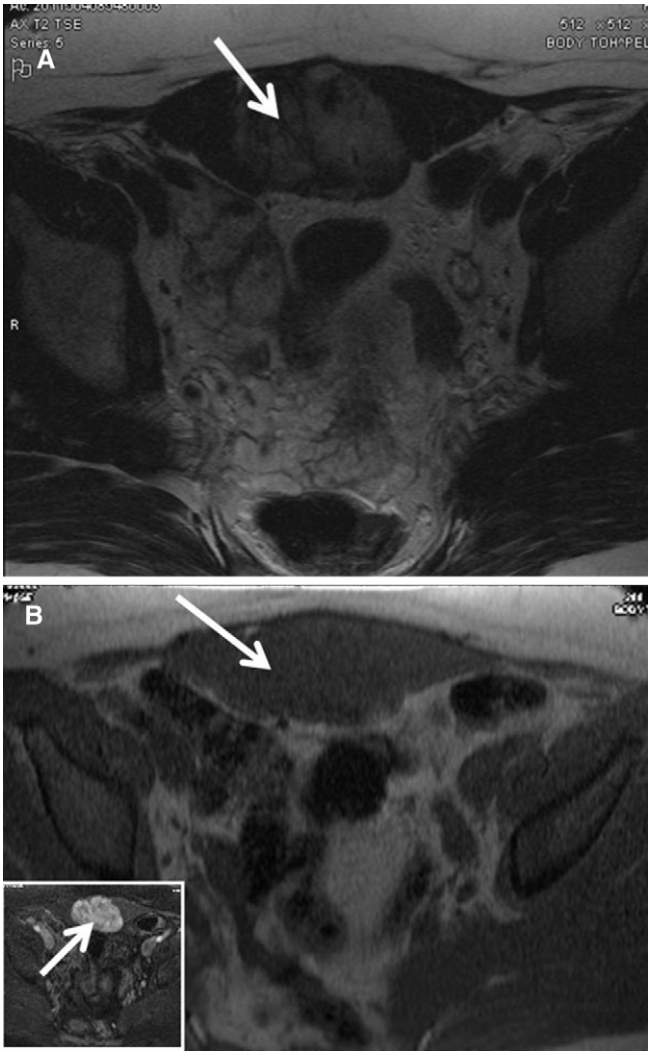

Figure 2. Anterior abdominal-wall desmoid in a 36-year-old woman, 6 months postpartum. (A) Axial T2W and (B) T1W magnetic resonance imaging (MRI), revealing a mass lesion (arrows) in the right rectus, which is hyperintense on T2W and isointense on T1W. Foci of low signal intensity on T2W represent collagen deposition. (B, inset) Contrast-enhanced MRI, revealing intense enhancement.

neoplasia. Typically, these tumours occur in young, gravid women or, more frequently, during the first year after childbirth [2]. There also is an association with previous surgery, trauma, estrogen therapy, familial adenomatosis polyposis, and Gardner syndrome. They arise from musculoaponeurotic structures of the abdominal wall, especially the rectus and internal oblique muscles and their fascial coverings. These tumours usually do not cross the midline. A desmoid tumour does not metastasize but can invade locally and can recur. The imaging appearance on magnetic resonance imaging (MRI) depends on the stage of pathologic evolution. Stage 1 is characterized by abundant spindle cells with few areas of collagen and manifests on MRI as low signal on T1W, high signal on T2W, and homogeneous contrast enhancement. In stage 2, increasing central and peripheral collagen deposition leads to band-like low signal intensities on T2W, with these areas showing decreased