Cystic Right Lower Quadrant Mass

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Case Presentation

A 48-year-old patient presents for a lumbar spine MRI for low back and hip pain. A 6cm mass was incidentally seen within the right lower quadrant at the level of the cecum (Fig. A-C). On review of systems, the patient reported intermittent right lower quadrant pain over the course of several years. Past medical history was notable for diverticulosis with an episode of diverticulitis in the recent past. Physical examination was noncontributory. Further evaluation with CT including IV and oral contrast was performed. (Fig. D)

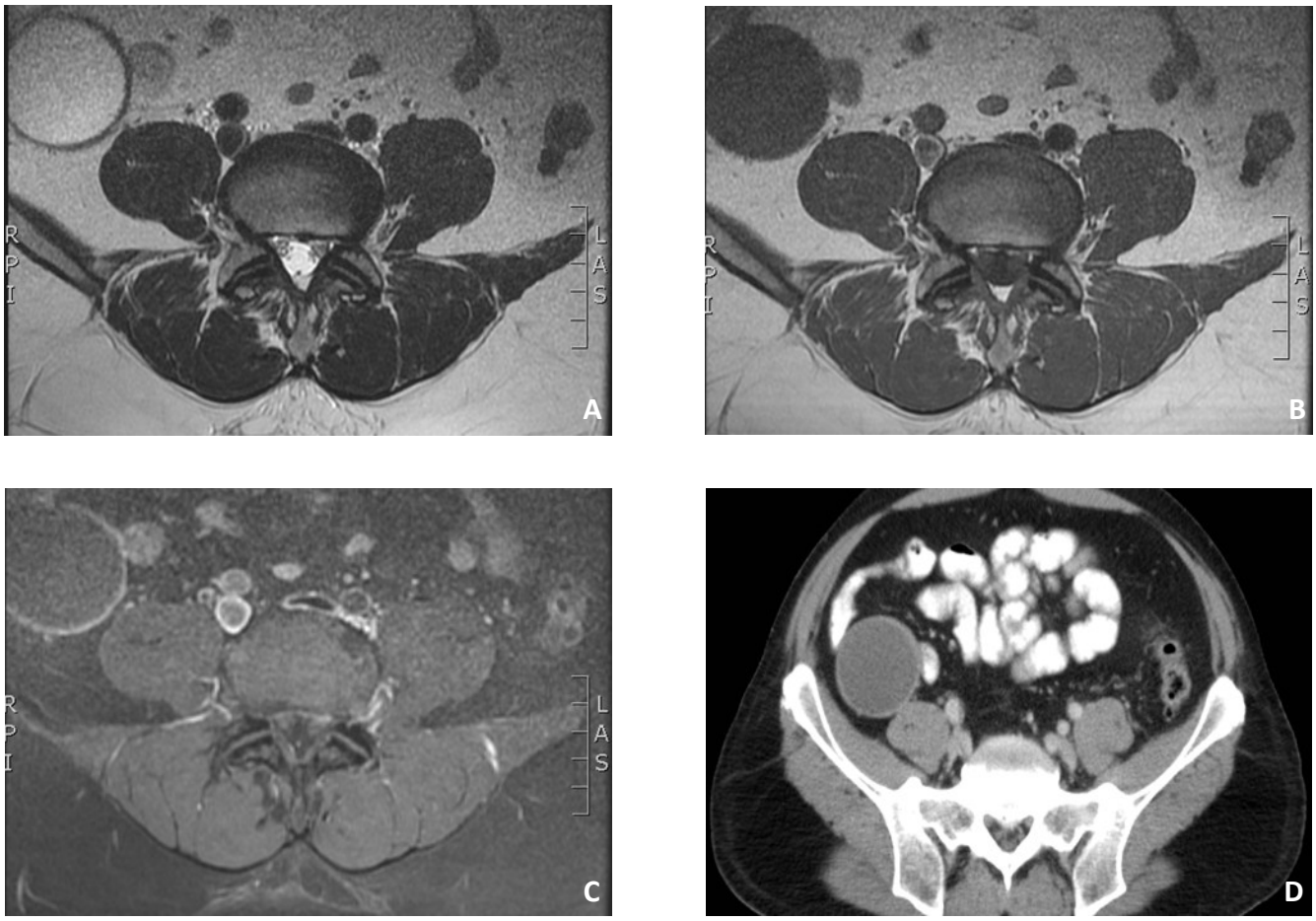

Figure. Axial T2 **(A)**, axial T1 **(B)**, and post contrast fat saturated axial T1 **(C)** images through the level of the cecum demonstrate a fluid signal lesion within the right lower quadrant with thin wall enhancement. Axial post contrast CT image at the same level **(D)** reveals similar findings, as well as a lack of conspicuous mural calcifications or surrounding inflammatory changes.

Key imaging finding

Cystic right lower quadrant lesion.

Differential diagnoses

Mucocele

Acute appendicitis with abscess

Cystic adnexal tumor

Discussion

Cystic right lower quadrant lesions encompass a large differential diagnosis and multiple organ systems, including the genitourinary system in the female patient. Clinical and laboratory findings may narrow the list of differentials; however, CT, MR, and US imaging assist in determining the composition, anatomic origin, and aggressiveness of a lesion. A concise and accurate differential diagnosis is of the utmost importance, guiding the decision for and the extent of surgical intervention. In the case of potential neoplasm, urgency is necessary, as rupture of a malignant lesion involves significant complications with the potential for peritoneal seeding.

Mucocele.

Mucocele of the appendix is a rare entity demonstrated in 0.3% of appendectomy specimens.[1] On average, the diagnosis is made in the sixth decade of life and presents either as an incidentally found right lower quadrant mass or with pain.[1] Complications include torsion, rupture, and, rarely, intussusception.

There are three histologic subtypes of mucoceles, ranging from benign to neoplastic, including simple mucocele, mucinous cystadenoma, and mucinous cystadenocarcinoma. The most common subtype is benign mucinous cystadenoma, which is indistinguishable from a simple mucocele. Differentiation of these two entities is based histologically on mucosal hyperplasia. Mucoceles are mucin-containing cystic lesions with well demarcated thin walls, often demonstrating mural calcifications.

Imaging findings are consistent with fluid signal characteristics on MRI with some variation on T1WI, depending upon extent of mucin content. Malignant mucinous cystadenocarcinoma contains solid and fluid components and demonstrates irregular, thick, nodular walls. Rupture and extravasation of mucinous content may lead to peritoneal seeding and pseudomyxoma peritonei. Preoperative diagnosis is crucial, as a right hemicolectomy is the preferred approach to a mucinous cystadenoma or cystadenocarcinoma to avoid seeding of the peritoneum.

Acute appendicitis.

Appendicitis is a common cause of right lower quadrant pathology and occurs secondary to luminal obstruction and bacterial overgrowth. Patient presentation may vary but characteristically includes generalized abdominal pain which becomes localized to the periumbilical region or McBurney point within the right lower quadrant, as well as vomiting, anorexia, and fever. Laboratory values, such as an elevated white blood cell count and C-reactive protein, may be helpful along with imaging in guiding the diagnosis.[2]

On CT, appendicitis classically presents as an enlarged appendix (greater than 6 millimeters) with thickened enhancing walls, and surrounding mesenteric inflammation.[3] Associated findings include appendicolith, phlegmon, or frank abscess formation.[3] Imaging evaluation may also be performed using ultrasound, especially in pediatric or pregnant patients. Sonographically, the appendix will be dilated and noncompressible with appendicitis. Surrounding fatty inflammation or fluid collections are helpful secondary signs.

Cystic adnexal tumor.

There are many types of adnexal masses, which from benign to malignant, with benign tumors being more common.[4] Simple cystic masses of the adnexa are unlikely to be malignant and may be paratubal, paraovarian, or ovarian in origin.[5] Many women are asymptomatic, and the adnexal cysts are discovered incidentally on imaging for other purposes. Cyst rupture or ovarian torsion may result when adnexal masses become large; symptoms include pelvic pain, nausea, and vomiting.

The primary imaging modality when screening for adnexal masses is US. The US appearance of cystic ad-

nexal masses varies based upon the etiology. Echogenicity, size, vascular flow, nodularity, and septations should all be assessed and commented on when evaluating adnexal lesions. Simple cysts are generally anechoic, have a thin or imperceptible wall, and no internal septations or vascularity.[5] The CT and MR appearance of simple cystic adnexal lesions is that of fluid attenuation or signal and a thin wall that enhances with IV contrast. Complex internal characteristics, solid components, nodularity, and vascularity are suggestive of malignancy.

Diagnosis

Simple mucocele

Summary

US and CT are traditionally the chief imaging modalities used in the work-up and management of patients with appendiceal pathology. In addition, adjunct imaging with MR may be utilized to assist with diagnostic decision making in complicated cases. Generally, imaging is principally used to exclude possible differential diagnoses, as well as to evaluate for malignant characteristics and complications prior to resection. Oftentimes, imaging findings are representative of a specific pathology; awareness of these findings is valuable for making an accurate diagnosis.

References

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