Inflammatory Myofibroblastic Tumor of the Stomach: a rare case report

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ABSTRACT

Inflammatory myofibroblastic tumors are quasineoplastic lesions that may occur in various anatomic locations. Abdominal involvement is reported, but involvement of the gastrointestinal tract remains rare, and usually occurs in children with poor enhancement pattern in computed tomography (CT) scan. We report a case of an inflammatory myofibroblastic tumor located in the stomach. The good enhancement, central ulceration, and exophytic pattern in an abdominal CT scan make it similar to a stromal tumor. The characteristics of image are discussed and the literature is reviewed.

CASE REPORT

A 42-year-old woman had suffered from intermittent attacks of abdominal pain for years and reported tarry stools for 1 week. The woman’s past history was unremarkable, and she usually took painkillers such as nonsteroidal anti-inflammatory drugs (NSAID) on her own. She visited our hospital for treatment. Hemogram showed microcytic anemia with serum hemoglobin of 7.7 g/dl, and stool occult blood was also positive. Esophagogastroduodenoscopy showed a submucosal tumor of approximately 5x7 cm, with surface central ulceration in the anterior wall of the antrum. Biopsy performed but only established gastritis with some inflammatory cells.

Abdominal CT showed a soft tissue mass lesion of 3.5 × 3.7 × 5 cm located at the anterior wall of the stomach. In the precontrast study, the lesion had a well-defined margin and smooth border, and no calcification or high-density bloody content was identified. In the post-contrast study, the tumor showed a significantly strong contrast enhancement with no central necrotic part (Fig. 1). The tumor had an exophytic growth pattern and a smooth outer border; moreover, the tumor did not invade adjacent structure and not cause bowel obstruction. It was suspected to be a submucosal stromal tumor, and the patient underwent surgical biopsy and subtotal gastrectomy. Microscopically, the tumor was composed of spindle cells infiltrated by inflammatory cells.

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An immunohistochemical stain was performed and showed positive for desmin and actin but negative for CD117 and DOG1 (Fig. 2). The tumor was diagnosed as being an inflammatory myofibroblastic tumor. No tumor recurrence was identified in the 1-year follow-up examination.

**DISCUSSION**

A submucosal tumor of the stomach is not an uncommon entity, and many tumors are categorized under this broad category, including benign tumors such as leiomyomas, lipomas, schwannomas, and more aggressive lesions including lymphomas or stromal tumors. As its name implies, the submucosal tumor is typically seen as a bulging mass with intact overlying gastric mucosa. Mucosal ulceration can be seen occasionally because of mass effect and pressure necrosis. Some submucosal lesions have their own characteristic image appearance; for example, lipomas are often found as a central ulcerated tumors with a “bull’s-eye”...
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appearance in barium studies and as a fat density mass in CT studies [2]. Moreover, a well-circumscribed exophytic submucosal mass without GI tract (gastrointestinal tract) obstruction may hint the diagnosis of a stromal tumor [3]. Nonetheless, distinguishing among different types of tumors is still difficult in some cases.

An inflammatory pseudotumor, now known as an inflammatory myofibroblastic tumor (IMFT), is one type of submucosal tumor, and was first described in 1939. Pathologically, the lesion is composed of myofibroblastic cells and intermingled inflammatory cells, and most commonly occurs in the lung and the orbit; however, an IMFT can basically be found throughout the body. Because of its various clinical and imaging appearances, an IMFT was considered a different type of lesion when identified in different parts of the body, and was given a different name accordingly, such as a plasma cell granuloma in the heart, a plasma cell–histiocytoma complex when identified in the lung, and the name inflammatory fibrosarcoma when identified as a malignant lesion in the urinary bladder [1, 4].

These various names, to a certain extent, truly reflect the complex and mysterious nature of IMFTs. Several pathogeneses have been proposed and explored in an attempt to find the true nature of this disease. The generally accepted pathogenesis of IMFT is post-inflammatory changes, including post-traumatic changes, autoimmune mechanisms, or secondary to infections. Bacteria, fungus, and virus infections are all thought to be possible etiologies [5]. Postsurgical complication is also reported [6]. Alternatively, because of its locally aggressive behavior and the possible progression to a true malignant tumor, some consider IMFT a low-grade fibrosarcoma accompanied by inflammatory cell infiltrations. In fact, correct diagnosis is a challenge not only to the radiologist but also to the pathologist, and immunohistochemical stains are frequently needed for a final diagnosis.

Reports of an IMFT with gastrointestinal tract involvement remain rare, although abdominal involvement has been reported in different parts including the kidneys, pancreas, adrenal glands, urinary bladder [7], and so on, and mostly in young girls. When found in the alimentary tract, an IMFT usually has aggressive features such as adjacent wall infiltrations and extraluminal extension. Previous reports have indicated that an IMFT usually shows low or iso-attenuation with poor enhancement in the post-contrast study [1, 8]. In our case, the lesion was discovered in an adult woman, with central ulcer, good enhancement, and an exophytic appearance on the CT scan, which made the tumor resemble a stromal tumor. Final diagnosis by tissue proof yields an inflammatory pseudotumor, reminding us to keep the disease in mind.

CONCLUSION

Clinically and radiologically, inflammatory pseudotumors have various presentations, and can occur in different locations of the body; however, gastrointestinal tract involvement is rare, with most revealing a poor enhancing lesion. This study report on a gastric inflammatory pseudotumor in an adult woman, with central ulcer, good enhancement, and an exophytic appearance on the CT scan, which made the tumor resemble a stromal tumor. Final diagnosis by tissue proof yields an inflammatory pseudotumor, reminding us to keep the disease in mind.

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