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Case Report

Splenic metastasis from neuroendocrine tumor of the stomach: A case report ☆,☆☆

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ABSTRACT

Splenic metastasis is extremely rare, and neuroendocrine tumor of the stomach represents one of the rarest primary sources. The present study aimed to describe a rare case of an endocrine tumor of the stomach revealed by a splenic metastasis.

We report a rare case of a 40 -year-old who presented a pain in her left hypochondriac, associated to sensation of heaviness. Abdominal ultrasound showed splenomegaly with a large lobulated hyperechoic mass associated to splenic vein thrombosis. A magnetic resonance imaging (MRI) confirming the splenomegaly, containing a large lobulated and heterogeneous mass occupying the almost totality of this organ and invading the venous system. The histological study of this splenic mass demonstrated to secondary splenic location of a grade 1 neuroendocrine tumor. As part of an investigation for a primary tumor, fibro scopy was performed and revealed an ulcerating-bourging fundic process with a histological study in favor of a grade 1 neuroendocrine tumor.

Introduction

The spleen is a rare location of metastasis from solid tumors. The most frequent primary tumors causing splenic metastases are melanoma, breast cancer, ovary, lung and Colo-rectal carcinoma respectively by order of decreasing frequency. Among the uncommon primary sources of splenic metastases there is neuroendocrine tumor. We report a rare case of an endocrine tumor of the stomach revealed by a splenic metastasis.

Case report

A 40-year-old woman, with fourteen months of pain in her left hypochondriac, associated to sensation of heaviness. A

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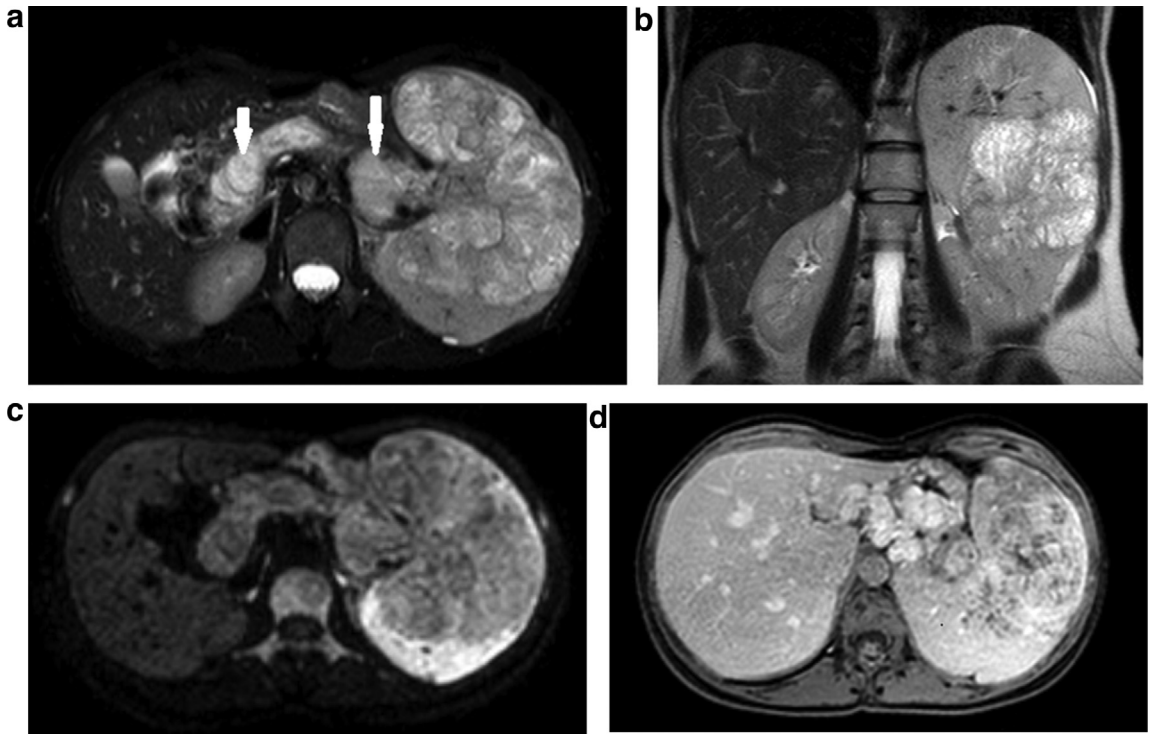

Fig. 1 – Abdominal MRI showing splenomegaly containing a voluminous lobulated mass, hyperintense on T2 FAT SAT axial (A) and coronal (B) images, hypointense on diffusion (C), intensely enhanced after gadolinum (D) with areas of necrosis, associated with thrombosis of splenic and splenomesenteric veins (white arrow)

palpable and painful abdominal mass was noted on examination in the same region. Abdominal ultrasound showed splenomegaly with a large lobulated hyperechoic mass (13 cm dimension) associated to splenic vein thrombosis. Abdominal Computed tomography (CT) scan could not be performed because of the patient's allergy to iodine. A magnetic resonance imaging (MRI) was accomplished confirming the splenomegaly, which measured about 13 cm in longitudinal splenic axis, containing a large lobulated and heterogeneous mass occupying the almost totality of this organ and invading the venous system (splenic vein and splenomesenteric vein confluence). The rest of abdominal structures were without abnormality. An ultrasound guided percutaneous biopsy of the mass concluded to secondary splenic location of a grade 1 neuroendocrine tumor. (Fig. 2) Among the explorations carried out in search of a primary tumor, a fibro scopy with biopsy that has objectified an ulcerative-bourgeoning fundi process with a histological study in favor of a grade 1 neuroendocrine tumor. The patient underwent a spleno-pancreatectomy with partial gastrectomy.

Discussion

Neuroendocrine tumors of the gastroenteropancreatic system are rare and originate from a diffuse endocrine system located in the gastrointestinal tract and the pancreas with extremely variable clinical manifestations [1]. Neuroendocrine tumors (NETs) of the stomach comprise less than 1% of gastric neoplasms [2].

Gastrointestinal neuroendocrine tumors have a higher risk of developing metastasis, which are present in approximately 50 to 65% of patients at diagnosis [3]. With the availability of new treatment modalities, long-term survival has been noted, even in patients with metastases.

Solitary splenic metastases are very unusual. The pathogenesis of metastases in the spleen may be related to an arterial origin, but it may be from tumor thrombi in the splenic vein [4].

Although the spleen is the most vascular organ in the body, it is an infrequent site of tumor metastasis. The reasons for the low incidence of splenic metastases are not understood. There are mechanical factors that can limit the implantation of cells (angle of the splenic artery and contraction of the organ) and also microenvironmental factors (absence of afferent lymphatics and local anti-tumor activity) that inhibit the growth of metastatic cells. [5]. In a recent study including 6,137 patients with metastases malignant tumors, only 59 (0.96%) have splenic involvement [6].

Splenic metastasis of solid tumors is most often seen with extensive multivisceral metastatic disease from breast, lung, ovarian, gastric, and melanoma [7].

Despite an extensive search of the literature including multiple databases (keywords "spleen", "metastasis", "neuroendocrine"), there are no reports of patients with metastases to the spleen from neuroendocrine tumors (NETs) of the stomach.

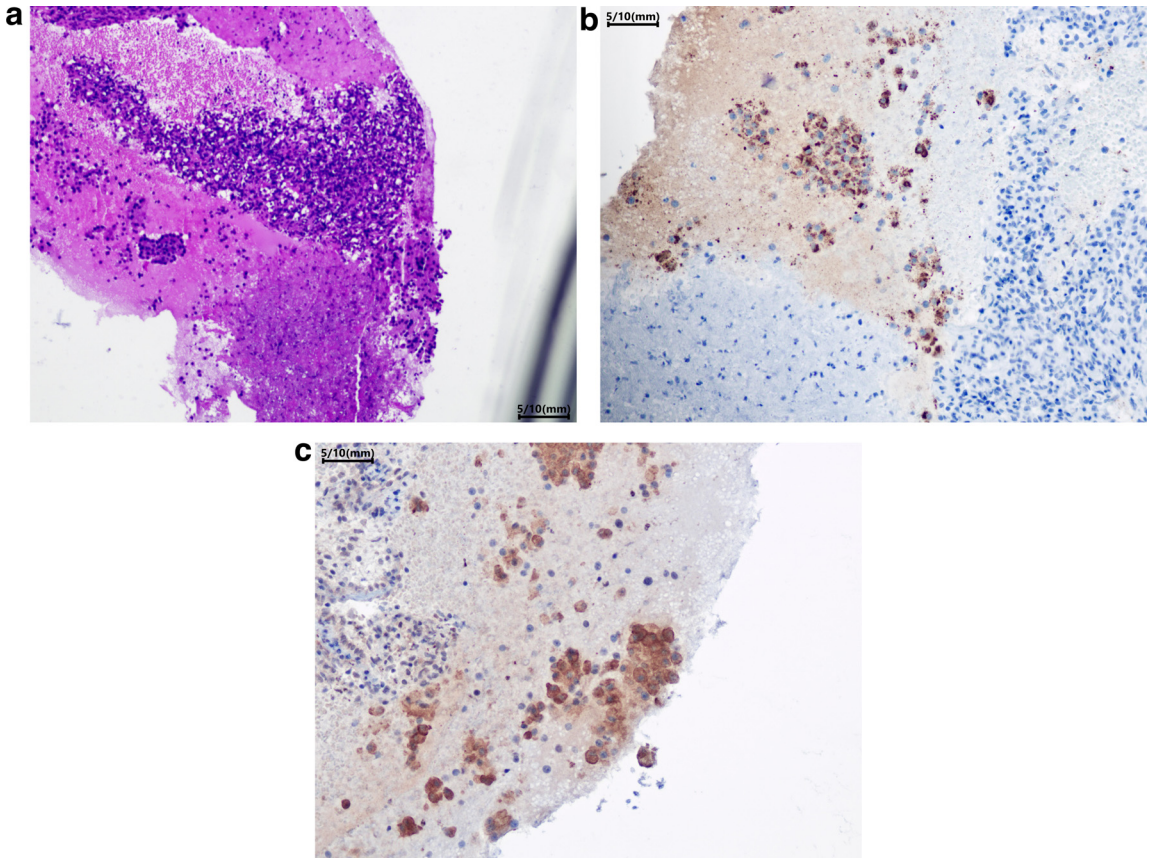

Fig. 2 – (A) Carcinomatous tumor proliferation made of cell cords and trabeculae showing a neuroendocrine architecture (HE x 100) (B) Positive cytoplasmic staining of tumor cells by anti-chromogranin antibody (IHCx100). (C) Diffuse positive labelling of tumor cells with anti-synaptophysin antibody (IHC X100)

In a study of unusual locations of metastases of neuroendocrine tumors, no metastatic lesions to the spleen were reported [8].Metastases to the spleen have been reported for bronchial carcinoid tumors [6]. The spleen has been reported to be involved with neuroendocrine tumors of the pancreas, including a tumor thrombus in the splenic vein without a mass in the spleen [9] and as a splenic mass from direct extension and gastric varices [10].

In most of the cases, splenic metastases are diagnosed incidentally in asymptomatic patients. However, splenic metastases, especially the isolated ones, may also occur in association with non-specific clinical manifestations, such as fatigue, weight loss and fever; anemia or thrombocytopenia caused by hypersplenism; pain in the left upper abdominal quadrant; splenomegaly or spontaneous splenic rupture [11],[12]. Symptomatic lesions are more frequently reported in women and in younger patients, and the mean maximum size of the lesions in these patients is usually larger than in asymptomatic patients [11].

Imaging has an important role in localizing the primary tumor and identifying metastatic sites, CT and MRI findings are often characterized as hyper vascular, solid, enhanced mass lesion. Contrast-enhanced CT and MRI are the key imaging modalities. Arterial encasement is more readily visible on the arterial phase, and venous involvement (superior mesenteric vein, portal vein, and splenic vein) is better evaluated in the portal venous phase. Although uncommon, enhancing tumor thrombus in the splenic, mesenteric or portal vein is highly specific for NET.

Splenectomy for splenic secondary lesions is indicated in cases of painful splenomegaly and in cases of isolated metastasis to the spleen. It also can be done to prevent complications such as thrombosis of the splenic vein or a splenic rupture [3].

Conclusion

According to the literature reviewed, splenic metastasis are rare from (NETs) of the stomach. Imaging plays an important role in the diagnostic approach of the tumor, evaluating the relationship of the tumor with vascular structures, especially the invasion of the splenic, mesenteric or portal veins, which is specific to NETs. And also, in carrying out biopsies for a possible histological study.

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