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GASTRIC SCHWANNOMA: A CASE REPORT AND REVIEW OF THE LITERATURE

O. Zamani[1,4], Y. Omor[1,4], A. Jahid [3,4], I.Nassar [1,4], N. Moatassim Billah[1,4].
W.Sabbar [2, 4], E. A. Ratbi [2,4], A.Majbar [2,4], F. Sabbah [2, 4], M. Ahallat [2,4].

[1]Radiology Unit, Ibn Sina University Hospital, Rabat, Morocco.
[2]Surgical Unit C, Ibn Sina University Hospital, Rabat, Morocco.
[3]Pathology Unit, Ibn Sina University Hospital, Rabat. Morocco.
[4]Medical School of Rabat, Mohammed V[th] University Hospital, Rabat, Morocco.

ABSTRACT

Background: Gastrointestinal mesenchymal tumors are a group of tumours originating from the mesenchymal stem cells of the gastrointestinal (GI) tract. Digestive tract schwannomas are rare mesenchyma tumours occurring most frequently in the stomach, and it presents a challenge of differential diagnosis with gastrointestinal stroma tumour (GIST). We report a case of gastric schwannom, of the antro-pyloric region with a literature review.
Case presentation: A 58 years-old female patient admitted for dyspepsia and epigastric pain. At clinical examination, she had a pain in the epigastric area and left upper quadrant with no other clinical findings. Computed tomography showed a gastric tumoural mass located in the antro-pyloric region. Complete surgical excision of the tumor was performed. Pathologic examination revealed a completely excised scwhannoma.
Conclusions: Gastric schwannomas are rare tumors, usually asymptomatic, and present a lot of similarities with GIST. Immunohistochemical studies easily separate schwannoma from GIST, and complete excision is mandatory to avoid recurrences.

Keywords: Schwannoma, Stomach, Mesenchymal tumour.

Corresponding Author:
Dr Wadie Sabbar, MD.
Address: Surgical Unit C. IbnSina University Hospital. Rabat, Morocco
Email: sabbarwadie@gmail.com
Tel: +212672735727

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BACKGROUND

Gastrointestinal mesenchymal tumors represents a group of tumors originating from the mesenchymal stem cells of the gastrointestinal (GI) tract, consisting of the GI stromal tumors (GIST), leiomyomas or leiomyosarcomas and schwannomas. [1,2] Schwannomas, also known as neurinomas, are tumors originating from any nerve having a Schwann cell sheath [2].They are rarely detected in the gastrointestinal tract (GIT) with the most common site being the stomach. These tumors are habitually benign, asymptomatic, with a slow growth, but in some cases bleeding, epigastric pain or a palpable mass may occur [3]. The preoperative diagnosis via endoscopy or imaging studies is a challenging issue due to the difficulty of differentiation from other sub-mucosal tumors.

We herein report a case of gastric schwannoma emphasizing the diagnosis problem with gastric stromal tumors.

CASE PRESENTATION

A 58 years-old female patient admitted in June 2015. She had dyspepsia and occasional epigastric pain that started 12 months ago. Her abdominal examination revealed a pain in the epigastic area and left upper quadrant. There were no other clinical findings. There was no sign of hepatomegaly or splenomegaly. Ultrasonography revealed a mass in the epigastric area. The contrast-enhanced CT of the abdomen showed a well-defined and homogenous-enhanced gastric tumoural mass (49 x 53 x 55 mm in size) which was located in the antro-pyloric region lying

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Case Report
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between the liver and the first portion of the duodenum. No other abdominal organ abnormality was present with no evidence of local invasion or metastatic spread (**Figure-1**). The CT of the chest was unremarkable.

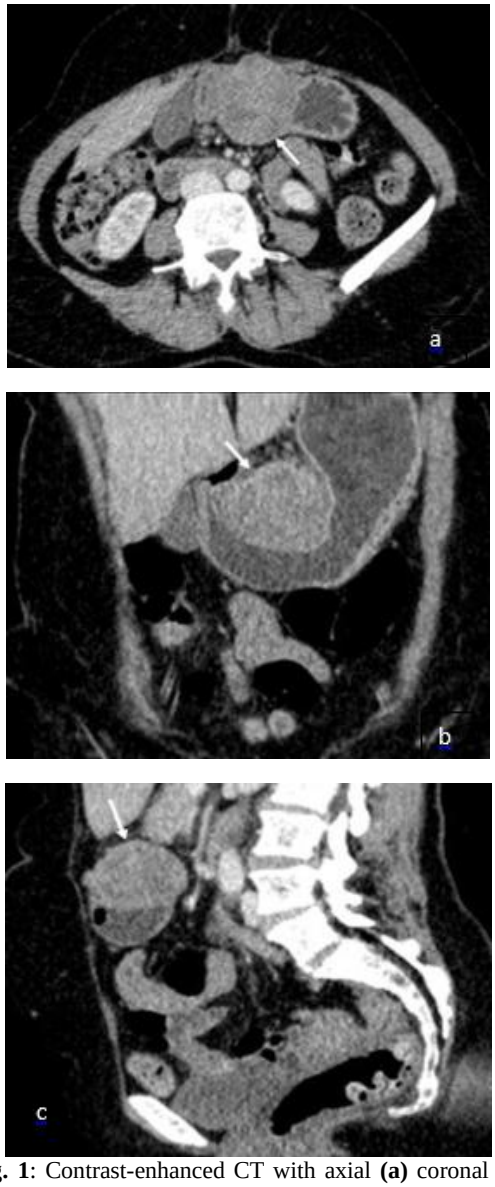

Fig. 1: Contrast-enhanced CT with axial **(a)** coronal **(b)** and sagittal **(c)** reconstructions, shows a discrete lobulated and well limited mass (arrow) in the lesser curvature of stomach which shows both endoluminal and exogastric growth.

The patient underwent a gastroduodenoscopy (EGD), and a sub-mucosal mass lesion was confirmed in the anterior wall of gastric antrum with normal overlying gastric mucosa. Biopsy specimens obtained at the endoscopy yielded only unspecific signs of mild active chronic inflammation with presence of Helicobacter pylori, without evidence of a malignancy. Routine haematology and biochemistry tests were normal. Multidisciplinary (MDT) team meeting opted for partial gastrectomy for suspicion of GIST. The patient was operated by laparotomy. Surgical exploration revealed an exophytic mass along the greater curve in the gastric antrum, with no extension to adjacent organs. The patient underwent a distal gastrectomy with 2 cm tumor-free margins. Postoperative course of the patient was uneventful.

The pathology report revealed a well-circumscribed, firm, whitish-yellow mass with overlying mucosa measuring 6x5 cm. Histology revealed that the tumor comprised spindle cells and was surrounded by lymphoid ring (**Figures -2a, 2b**). Immuno-histochemical staining showed that the tumor was non-reactive for CD 117, actin smooth muscle, anti-Dog 1, anti-H Caldesmone and strongly positive for S-100 protein (**Figure-2c**).Definitive diagnosis was gastric schwannoma.

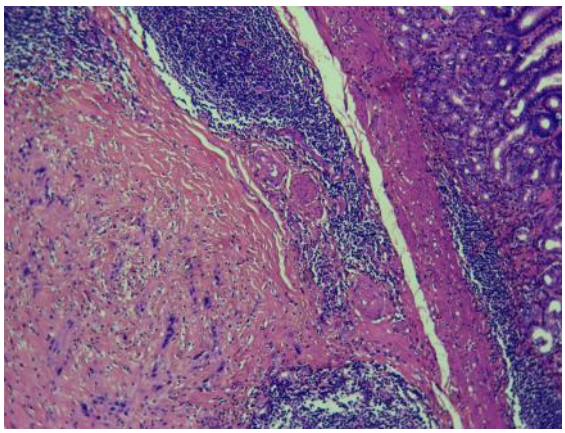

Fig. 2a. Low power view of the tumor with normal body-type gastric mucosa above and the prominent lymphoid cuff between.

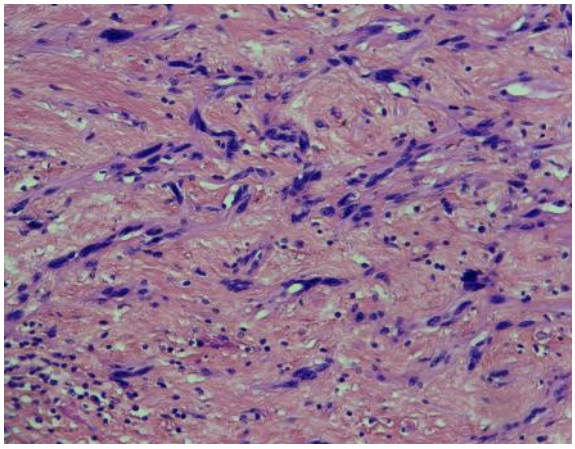

Fig. 2b: High power view of the tumor showing typical features of a spindle cell tumor with no mitotic activity.

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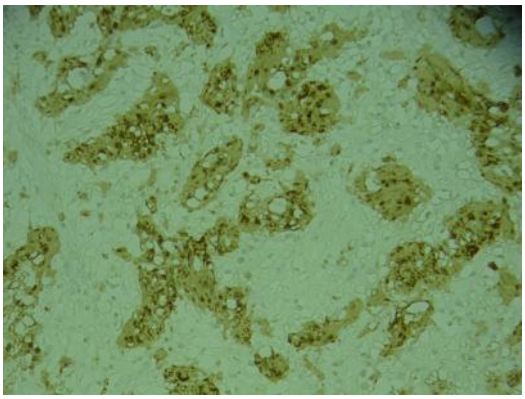

Fig. 2c: S 100 immunohistochemistry: The tumor cells are strongly positive.

DISCUSSION

Schwannomas of the gastrointestinal tract are very rare tumors that arise from the Schwann cells of the neural plexus of the gastrointestinal wall and the stomach is the most common location. The incidence of gastric schwannoma is reported to be about 0,2% of all gastric tumors and 4% of all benign gastric neoplasms [2].

Gastric schwannomas have a slow and exophytic growth, and are habitually asymptomatic. In consideration of this indolent growth pattern, as with our case, these tumors usually discovered incidentally trough cross-sectional imaging or endoscopy.[4,5]

Still, these tumors have the same characteristics of exophytic mass that arise from the gastric wall to the abdominal cavity, as with the other gastric sub-mucosal tumors like gastrointestinal stromal tumors (GIST), leiomyomas, and leiyomyosarcomas [6].

The main differential diagnosis for a sub-mucosal gastric mass is a GIST. The distinction between gastric schwannomas and GISTs is usually difficult before surgery. The imaging studies, like sonography, endoscopy, and CT, can only demonstrate the presence or extent ofinvasion, and none of these diagnostic means have shown any differentiation properties unique to these neoplasms [4, 7].

More of that, until now, all published data make clear that GI schwannomas form a group of benign tumors with excellent prognosis after surgical resection [4,6].

On CT examination, gastric schwannomas show benign features: discrete margins, homogeneous enhancement, no necrosis or cystic changes which may assist in differentiation from GIST that frequently show heterogeneous enhancement due to hemorrhage, necrosis and cystic degenerations [8].

On MRI examination, gastric schwannomas are sharply demarcated, strongly enhanced tumors, having low to medium signal intensity on T1 weighted images, and high signal intensity on T2 weighted images [9].Endoscopic ultrasonography is the best method to diagnose small lesions [10], whereas transabdominal ultrasonography is an alternative method for larger tumours[11].

Endoscopic biopsy does not provide a large diagnostic benefice for these tumors because sub-mucosal abnormalities are rarely discovered in these sub-mucosal tumors [4,5].

Regardless of strong morphological similarities, GI mesenchymal tumors have heterogenous immunophenotyp profile. In the past, gastric schwannomas were included among the GIST category. In 1988, schwannomas became distinct from primary GI tumors for their positivity for S-100 protein immunostaining [5,6, 12]. GISTs also have become a distinct GI cancer diagnostic category when it was discovered that nearly all GIST cells express C-KIT protein [13-16]. Our case fulfilled the immunohistochemical diagnosis for a gastric schwannoma.

Gastric Schwannoma are rare, and often discovered late by reason of their subclinical growth. It's important to include this diagnosis in the differential diagnosis of sub-mucosal gastric tumors.

LIST OF ABBREVIATIONS:

GI: gastrointestinal
GIST: gastrointestinal stromal tumors
CT: computed tomography.
MRI: magnetic resonance imaging.
EGD: esogastroduodenoscopy

CONSENT

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

AUTHORS' CONTRIBUTION

WS and OZ wrote the article.
YO, IN and NMB wrote the radiology part.
WS, EAR, AM and FS contributed to surgery.
AJ contributed to histological examination.
AM, NMB and MA revised critically the manuscript.

COMPETING INTERESTS:

All authors declare that they have no competing interests.

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