Giant gastrointestinal stromal tumour of the stomach: a case report with surgical treatment

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ABSTRACT

We report a case of giant gastrointestinal stromal tumour of the stomach in a 71-year-old woman, with emphasis on its going through surgical resection. The physical examination and radiological findings revealed that a giant mass occupied most of the abdominal cavity. The patient underwent an en-block resection of the mass, partial resection of the distal stomach and Billroth II gastrojejunostomy. The pathological diagnosis was gastrointestinal stromal tumour. The patient had a long-term disease-free survival. We emphasise that complete surgical resection is the only effective radical treatment approach for giant gastrointestinal stroma of the stomach. In some cases, we still have the opportunity for resection of these tumours because of their expansive growth, even though the lesions are very large.

KEYWORDS

Gastrointestinal stromal tumours – Surgery – Gastric resection – Stomach

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Introduction

Gastrointestinal stromal tumours (GISTs) account for 85% of all mesenchymal neoplasms affecting the gastrointestinal tract and 60% to 70% of GISTs occur in the stomach.^{1,2} In symptomatic patients, GISTs present with gastrointestinal bleeding, abdominal pain, palpable mass or bowel obstruction when they reach a significant size. To date, surgical resection is considered the most effective treatment approach of GISTs.

We describe a relatively rare case of a very large GIST of the stomach. To the best of our knowledge, it is the largest GIST of the stomach reported in the literature. The tumour was completely resected with partial distal stomach and characterised with pathological diagnosis.

Case history

A 71-year-old woman was admitted for evaluation of abdominal distension. She had haematemesis, melaena and jaundice but no acute abdominal pain. Physical examination indicated that the patient had a notable abdominal bulge. Routine blood tests indicated a haemoglobin of 75 g/l and other routine parameters were normal. The tumour markers, including carcinoembryonic antigen, carbohydrate antigen 125, alphafetoprotein and carbohydrate antigen 19-9, were within the normal range. A total alimentary tract barium series demonstrated that the gastrointestinal tract had no obstruction but the stomach and transverse colon were prominently compressed and shifted (Fig 1). Enhanced

computed tomography (CT) of the abdomen revealed that a giant mass occupied a majority of the abdominal cavity (Fig 2). In the arterial phase, the tumour was not obvious. We could not identify the exact source of the tumour as it was too large.

An exploratory laparotomy was performed and revealed a giant mass deriving from the back wall of the stomach, which was thick-walled and almost filled the abdominal cavity. The mass was covered with the omentum and squeezed the organs around it. However, there was no infiltration between the mass and its peripheral organs and major vessels, except for the stomach. There was no metastasis. The giant mass, the lesser omentum and the distal partial stomach were resected, then a Billroth II gastrojejunostomy was performed to reconstruct the digestive tract.

Pathological findings

Macroscopically, a giant sack-like tumour measured approximately 30 × 30 × 25 cm in diameter and weighed 11 kg, which included 6000 ml of liquid in the interior of the tumour. The tumour had a relatively smooth capsuled wall with an irregular thickness of 3–8 cm. The inner surface of the lesion was granular (Fig 3). There was a quantity of jelly-like substance, necrotic tissues and brown liquid in this sack-like tumour. Microscopically, the histological features characterised by fascicles of spindle cells with a mitotic count of more than five mitoses per 50 high-power fields (Fig 4). Immunohistochemical analysis revealed the sample to be CD117 negative, CD34 positive, cytokeratin negative, vimentin positive, smooth muscle antibody negative and S-

Figure 1 A barium series demonstrating the gastrointestinal tract was compressed and shifted

Figure 2 Enhanced computed tomography reveals a giant mass occupied a majority of the abdominal cavity

100 negative. The margin of the stomach was negative. The final diagnosis was giant GIST of the stomach.

The patient was discharged 14 days after surgery with no apparent complications. She did not accept any additional adjuvant treatment including imatinib and was advised to attend for follow-up. To date, the patient has appeared to be disease free for five years.

Discussion

GISTs are relatively rare mesenchymal neoplasms that arise in the wall of the gastrointestinal tract. They can give no symptoms when they are small. However, giant GISTs may cause abdominal pain, abdominal distension, obstruction of digestive tract and compression of surrounding structures. Physical examination reveals a palpable mass in the abdomen when the GISTs are giant. In our case, the patient had

Figure 3 The inner surface of the lesion was granular

severe abdominal distension and an obvious palpable abdominal mass. Enhanced CT and gastrointestinal barium series revealed the position of the mass, its volume, density and relationship with surrounding organs. There are two similar cases of giant GIST of the stomach described in literature.^{3,4} These giant GISTs had some common characteristics: a huge tumour with no lethal emergent status, expanding growth, relatively clear border, inhomogeneous cystic and solid elements. Consideration of these traits will be of benefit for diagnosis of future cases.

Surgery is the most important radical therapy for patients with GIST with no evidence of metastasis. In our case, we judged that surgery was the only method of removing the tumours and relieving the symptoms. Intraoperatively, we found that the tumour was pedunculated and growing from the back wall of the stomach. There was no tissue infiltration between the tumour and the liver, spleen, pancreas, transverse colon and important vessels. Surgical resection was therefore relatively more straightforward than preoperative expectations. Although the tumour was giant, we completed the goal of the operation: total gross resection with a negative microscopic margin (R0 resection), which we considered was the most important factor for ensuring long-term survival.

We performed immunohistochemical staining to confirm the diagnosis. Studies have demonstrated that approximately 95% of GISTs are positive for CD117.⁵ In our case, the tumour had no detectable CD117 expression but was CD34 positive, which indicated that this case belongs in a small subtype of GIST. Tumour size and mitotic count are usually recognised as the most important prognostic factors in GIST. The diameter of the resected tumour was giant and the mitotic index was more than five mitoses per 50 high-power fields. The tumour was considered as high risk of malignant potential and had a poor prognosis. Therefore,

Figure 4 Haematoxylin and eosin stain showing the fascicles of spindle cells (scale bar: 10 μ m)

we advised the patient to take imatinib, which was the most effective postoperative adjuvant drug. However, the patient refused to take any adjuvant drug. Luckily, to date, the patient has had no evidence of tumour recurrence and has had a good quality of life, which demonstrates that radical surgical resection of the tumour plays a key part in long-term survival.

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