E-VIDEO

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Robotic resection of a giant gastrointestinal stromal tumor (gist): a path we dared to take

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HIGHLIGHTS

- Gastrointestinal stromal tumors (GIST) are rare mesenchymal tumors that most commonly occur in the stomach, small intestine and colon.
- Surgical R0 resection is the primary approach for localized GIST, but tumors larger than 10 cm are usually treated by open surgery
- This case demonstrates the safety and feasibility of robotic resection of a giant gastric GIST.
- The use of the robotic platform resulted in minimal blood loss and favorable postoperative outcomes with maximum organ preservation.

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Gastrointestinal stromal tumors (GIST) are rare mesenchymal tumors (0.1% to 3% of malignant GI tumors)[1]. They are most commonly found in the stomach (>60%), small intestine (25–30%) and colon (5–15%)[2,3]. Surgical resection is the primary approach for localized GIST[1-3]. Surgical R0 resection of GIST without metastases is the only promising treatment for a permanent cure[1-3]. GIST larger than 10 cm are usually treated by open surgery, while minimally invasive procedures are indicated for small GIST[4].

This video demonstrates a robotic resection of a giant gastric GIST. A 48-year-old man presented with a large abdominal mass discovered during a routine ultrasound examination. Further imaging revealed a voluminous tumor measuring 20 by 18 centimeters in the upper left quadrant, displacing adjacent structures such as the transverse colon, pancreas and spleen (FIGURE 1). An endoscopic ultrasound biopsy confirmed the diagnosis of GIST). The patient was treated with imatinib for 18 months and responded well. A multidisciplinary team recommended surgical resection. A robotic approach was proposed and consent was obtained (E-VIDEO).

The robotic surgery was performed using the da Vinci Xi robotic platform (Intuitive Surgical Inc., Sunnyvale, CA). The surgery began with the opening of the retrocavity, exposing the pancreas and distal stomach. Dissection and separation of the large gastric curvature from the tumor was performed with a stapler, and subsequent separation was facilitated by an umbilical tape. A continuous 4-0 Prolene suture was placed to ensure proper closure (FIGURE 2). The tumor was then separated from the tail of the pancreas, and the spleen and splenic vessels were carefully dissected out. The transverse colon was separated from the tumor. The robotic resection of the large gastrointestinal tumor was successfully completed with an operation time of 350 minutes and an estimated blood loss of 110 ml, without the need for trans-

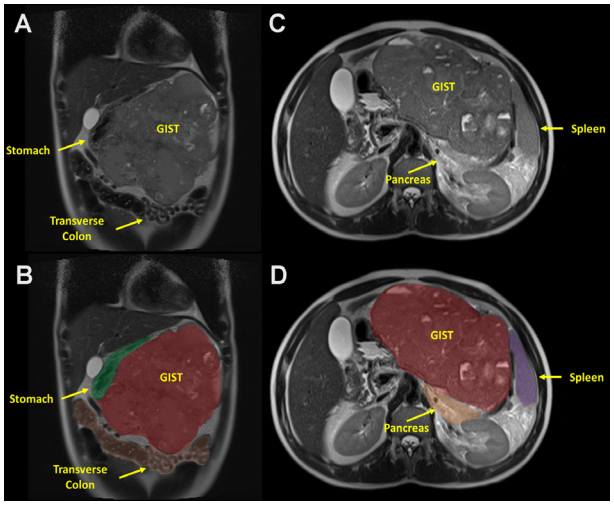

FIGURE 1. Giant exophytic gastric GIST. A) Preoperative MRI shows a large gastric GIST displacing the transverse colon. B) As in A with highlighted anatomical structures. C) Preoperative MRI shows a large gastric GIST displacing the distal pancreas and spleen. D) As in C with highlighted anatomical structures.

fusion. The surgical specimen is placed in a plastic bag and removed via the extension of the trocar incision. Postoperative recovery was uneventful and the patient was discharged on postoperative day 4. No pancreatic leak was observed and the drain was removed on postoperative day 5. Pathologic examination confirmed a T3N0 GIST. Two years after surgery, the patient remains disease free. This case highlights the safety and feasibility of robotic resection of large gastrointestinal tumors with minimal blood loss and favorable postoperative outcomes. In conclusion, robotic resection is a viable option for the treatment of large gastrointestinal tumors as it offers precise dissection and favorable perioperative outcomes. This video demonstrates the key steps (E-VIDEO) required to perform this complex procedure.

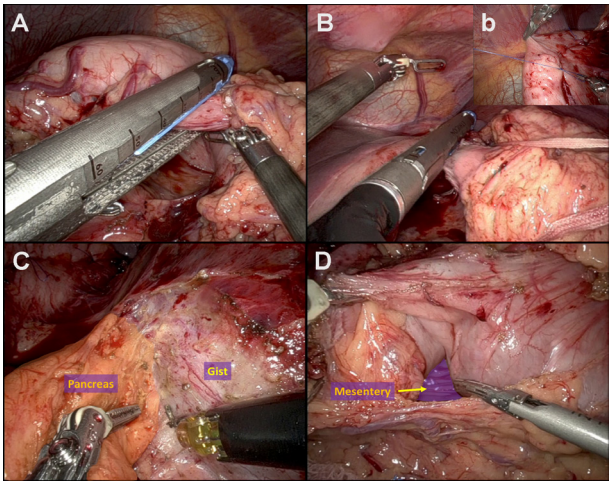

FIGURE 2. Robotic resection of a giant GIST. A) The intraoperative view shows the division of the large gastric curvature with the stapler. B) Intraoperative view: completion of the gastric division with a further stapler suture. (B) Reinforcement suture of the staple suture with 4-0 Prolene. C) The intraoperative view shows the dissection of the pancreatic tail from the tumor (GIST). D) The intraoperative view shows the interruption of the mesentery of the transverse colon.

Authors' contribution

Machado MA, Mattos BH and Makdissi FF carried out the operative procedure. Epstein MG and Nobre AL edited the video. Epstein MG, Lobo Filho MM, Nobre ALM and Makdissi FF supervised and commented on the manuscript. All authors discussed the results and contributed to the final manuscript.

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