

Posterior Wall Gastric Leiomyoma: Endoscopic Tattooing Facilitates Laparoscopic Resection

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ABSTRACT

Objective: To demonstrate the application of tattooing for the intraoperative localization of posterior wall gastric leiomyoma during laparoscopic resection. The preoperative injection of Indian ink in the tumor-bearing area of the posterior gastric wall eliminates the need to perform anterior wall gastrotomy or intraoperative upper endoscopic tumor localization.

Methods: A patient with posterior wall gastric leiomyoma was marked with Indian ink during preoperative upper endoscopy. The dye was visualized intraoperatively facilitating wedge resection of the tumor-bearing area with the Endo GIA.

Results: The patient had an uneventful surgery and recovery. Complete excision of the tumor was accomplished.

Conclusion: The preoperative endoscopic marking of gastric lesions, facilitates the intraoperative localization and resection of these lesions.

Key Words: Laparoscopy, Gastric leiomyoma, Endoscopic tattoo.

INTRODUCTION

Gastric leiomyomas are the most common benign smooth muscle tumor of the stomach constituting 80% of all gastric smooth muscle tumors.¹ They commonly present with bleeding due to mucosal ulceration.²⁻⁴ The differentiation between leiomyoma and leiomyosarcoma on gross examination is difficult. Surgical resection of these lesions is the treatment of choice.⁵ Biopsy during upper endoscopy is not recommended as it will cause adhesions between the tumor and the mucosa rendering enucleation without entering the stomach impossible.⁶

As laparoscopic surgery gains acceptance, benign lesions may be managed with decreasing difficulty. Patients will probably benefit from the advantages of minimally invasive surgery (i.e., less pain, faster recovery, and early return to work).

Mistakes in determining the segment of the stomach that bears the tumor are less frequent compared to colonoscopy.^{7,8} Without tattooing, intraoperative localization of these tumors during laparoscopy is difficult for many reasons. For the anterior wall tumor, there is submucosal location and the loss of tactile ability. There are additional difficulties when resecting posterior wall tumors. The surgeon must work through the small space the lesser sac provides, and the posterior gastric wall might not easily lend itself to inspection. For laparoscopic colon resection, different methods have been recommended to alleviate identification difficulties (i.e., endoscopic tattooing or intraoperative colonoscopy).^{9,10} For laparoscopic gastric surgery, some authors have recommended the performance of a long anterior wall gastrotomy through which the posterior wall is thoroughly inspected and lesions localized.¹¹ Others have recommended the use of intraoperative upper endoscopy localizing the segment of the stomach that contains the tumor followed by appropriate resection through a smaller anterior gastrotomy.¹² Such techniques usually result in both anterior and posterior gastrotomy, increasing the chance of suture line problems. We believe that preoperative tattooing of gastric lesions makes the process of localization easier and helps avoid multiple gastrostomies, excessive suture lines, and needless delays in completing the resection.

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METHODS

The patient is a sixty-two year old Irish male with strong family history of gastric cancer. His father and two of his siblings died of gastric cancer before the age of sixty. During routine upper endoscopy, a lesion was seen in the posterior wall of the stomach. Using Indian ink, the area around the tumor was injected to facilitate intraoperative localization.

Under general anesthesia the patient was placed in lithotomy position. The peritoneal cavity was entered using a Veress needle through the umbilicus followed by a 10 mm trocar. Routine exploration of the intra-abdominal contents was grossly unremarkable, and there was no sign of metastatic disease. A 12 mm trocar was placed in the mid-clavicular line in the right subcostal area approximately one inch below the costal margin. Another 12 mm trocar was placed in the mirror image site in the left subcostal area.

Utilizing an endo babcock, via the right side trocar, and a Harmonic scalpel, via the left side trocar, the gastrocolic ligament was divided and the lesser sac was entered. The posterior wall of the stomach was inspected for other lesions. The Indian ink marking was visualized and the babcock was applied to its center. Using endo GIA, an elliptical segment of the posterior gastric wall was resected with the Indian ink marking at its center. The specimen was placed in an Endo bag and brought outside the abdomen.

The frozen section revealed benign leiomyoma, and the procedure was concluded. The pathology revealed 0.6 cm benign leiomyoma with tumor-free surgical margins. The patient was started on clear liquids on postoperative day one and was discharged to home on day two to be followed up by annual upper endoscopy.

DISCUSSION

Laparoscopic surgery is rapidly gaining the respect and approval of many surgeons. Even though the use of laparoscopy in some malignant tumors is still under debate, its use in managing benign tumors is quite acceptable. Two methods were described in recent publications to localize posterior-wall gastric leiomyoma. One described the performance of longitudinal anterior wall gastrotomy for localization. The other recommended the use of intraoperative endoscopy in an attempt to limit the size of the anterior gastrotomy to the segment of the stomach that contains the lesion. The resulting anterior and posterior wall suture line will increase the chance of postoperative anastomotic leak. Also these techniques allow the gastric contents to enter the

peritoneal cavity, which might increase the chances of infection. In our patient we used the known technique of tattooing to help localize the tumor. This technique has been used before in colon surgery, with acceptable levels of success.¹⁰ The tattooing method eliminates the need for either intraoperative upper endoscopy or anterior gastrotomy. In actuality, the inside of the stomach is never visualized with no spillage of gastric contents. Rapid recovery in our patient is encouraging, and, in our opinion, this technique could be used for either anterior or posterior wall lesions.

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