

Laparoscopic Management of a Large Duodenal Lipoma Presented as Gastric Outlet Obstruction

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ABSTRACT

Lipoma of the duodenum is a rare tumor, with fewer than 230 cases reported to date. A majority of these tumors were managed by endoscopic and open surgical intervention, with published data on one case that was managed by total laparoscopy. We report a case of a 43-year-old woman with signs and symptoms of gastric outlet obstruction who was diagnosed as having a large duodenal lipoma that was managed successfully with laparoscopic excision.

Key Words: Duodenal lipoma, Laparoscopic excision.

INTRODUCTION

Lipomas are common benign tumors of the gastrointestinal tract affecting mostly the colon (64%) followed by the small intestine, with the duodenum accounting for <4%. Fewer than 230 cases of duodenal lipoma have been reported to date.¹ Recently, Chan et al. have published a case series comprising 8 cases of duodenal lipoma.² Duodenal lipomas are generally managed endoscopically and by open surgical techniques in the form of duodenotomy or limited bowel resection. We report the case of a lipoma of the first part of the duodenum that was successfully excised laparoscopically.

CASE REPORT

A 43-year-old woman was admitted with symptoms of postprandial abdominal fullness and nausea and vomiting for the prior 2 months. She had no history of hematemesis or melena. Clinical examination was unremarkable, and her routine blood test results were normal. Esophagogastroduodenoscopy was performed and revealed a round 4 × 3-cm submucosal tumor in the first part of the duodenum with normal mucosa over the surface (**Figure 1**). Endoscopic ultrasonography (EUS) showed extension up to the submucosa (**Figure 2**). Endoscopic biopsy was performed and showed a normal mucosa. Computed tomography of the abdomen revealed a 5 × 5-cm well-defined hypodense lesion in the first part of the duodenum, which was suggestive of a lipoma (**Figure 3**). Laparoscopic excision of the duodenal lipoma was planned. With the patient under general anesthesia and in the supine position with split legs (French position), a pneumoperitoneum was created with a Veress needle at Palmer's point. A 10-mm supraumbilical trocar was inserted for the telescope, and other 10-mm and 5-mm trocars were inserted at bilateral subcostal regions at the midclavicular point. The right lobe of the liver was retracted using a Nathanson's retractor inserted at the right subcostal region at the anterior axillary line. The first part of the duodenum was mobilized, and the lipoma was identified as a small shiny yellow area on the anterior wall of the duodenum (extraluminal naked fat sign) (**Figure 4**). A small longitudinal duodenotomy was performed over it (**Figure 5**). A 5 × 6-cm lipoma was dissected and excised by blunt

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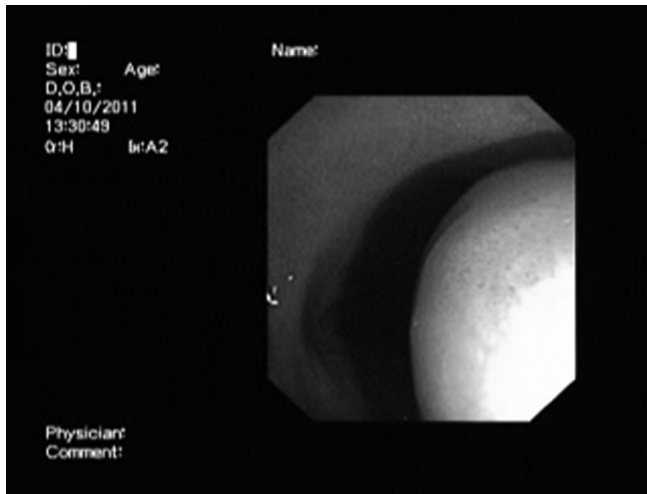


Figure 1. Endoscopic view showing a 4 × 3-cm submucosal tumor with normal mucosa.

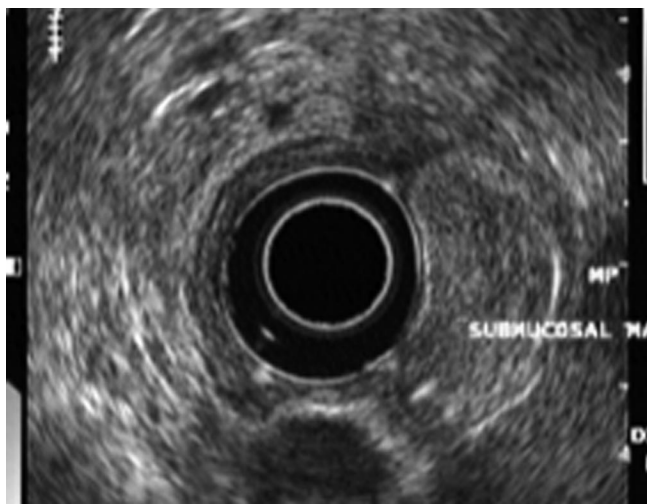


Figure 2. EUS showing a submucosal tumor extending up to the submucosa.

dissection (**Figure 6**). The duodenotomy was closed transversely with a single-layer absorbable suture with live omentopexy. The specimen was extracted by using an endobag placed through the 10-mm subcostal port. The patient's postoperative period remained uneventful, and she was discharged in stable condition on postoperative day 3. The histopathology report confirmed the diagnosis of duodenal lipoma. On follow-up, the patient was noted to be doing well clinically.

DISCUSSION

Lipomas are common gastrointestinal tumors after leiomyomas and adenomas. A study by Mayo et al.³ showed

that out of 4000 cases of benign tumors of the gastrointestinal tract, 164 (4%) were lipomas. The most common tumor site was the colon (64%), followed by the small intestine (26%), the duodenum (4%), the stomach (3%), and the esophagus (2%). In the duodenum, lipomas tend to occur mostly in the second part and are often situated in the submucosal plane, but they can be subserosal and also sessile or pedunculated. Some lipomas appear as an "iceberg" pattern, as it did in our case (**Figure 4**); only a small tip of tumor could be visualized on endoscopy, with the majority of it remaining submucosal or subserosal. These types of lipomas are difficult to manage using endoscopic techniques.

Duodenal lipomas are mostly asymptomatic and are usually diagnosed incidentally on endoscopy. The occurrence of symptoms depends on the size of the tumor. Tumors larger than 4 cm can produce symptoms of abdominal pain and discomfort or cause hypochromic microcytic anemia as a result of ulceration of the mucosa and bleeding, or intestinal obstruction due to intussusception.⁴ Acute hemorrhage is rare, with fewer than 15 reported cases.⁵

Direct visualization at endoscopy will provide clues about the nature of the tumor. However, if a duodenal lipoma is submucosal, a superficial biopsy will not be sufficient, and a deeper biopsy will be needed to provide a definitive diagnosis. Computed tomography of the upper gastrointestinal tract can fairly easily facilitate the preoperative diagnosis of lipoma based on low attenuation signals of 50 to 100 Hounsfield units.⁶ EUS helps to determine the depth of extension.

Lipomas of the duodenum can be excised endoscopically or surgically. Endoscopic excision can be done using the snaring⁷ or unroofing technique. For large and sessile lesions, endoscopic excision may prove to be technically difficult, and this increases the risks of perforation and bleeding.⁸ Surgery is indicated in cases for which endoscopy is not feasible, if there is presence of intussusception, and when the nature of the lesion cannot be determined. Surgical options include duodenotomy or limited bowel resection. The choice of the procedure depends on the patient's condition and the location and size of the tumor. Tumor localization is the key step and can be done by intraoperative endoscopy, where endoscopic transillumination aids in locating the exact site of the lesion or in identifying the "naked fat sign," as was done in our case. The duodenotomy was closed transversely to prevent postoperative stricture formation. Only 1 case of laparoscopic enucleation of duodenal lipoma has been re-

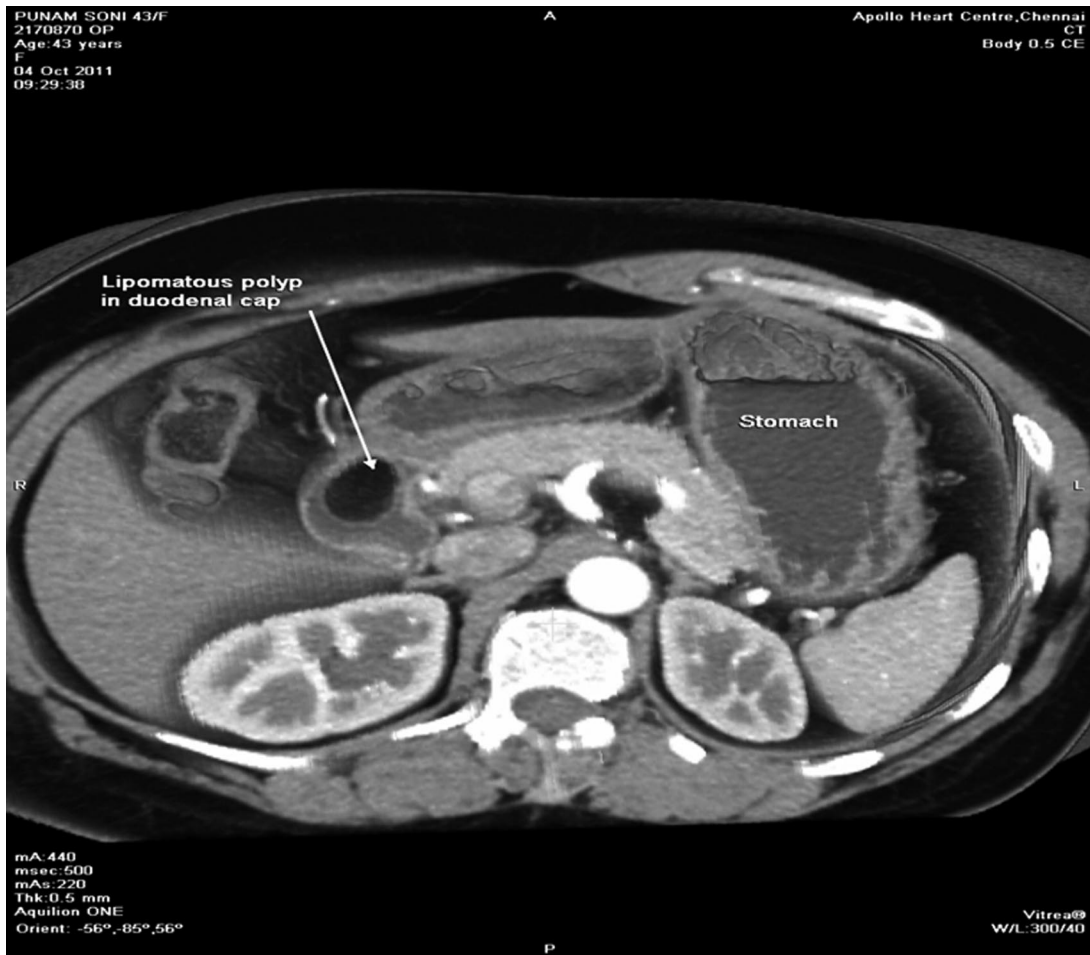


Figure 3. Computed tomography scan showing a well-defined hypodense lesion in the first part of duodenum, suggestive of a lipoma.

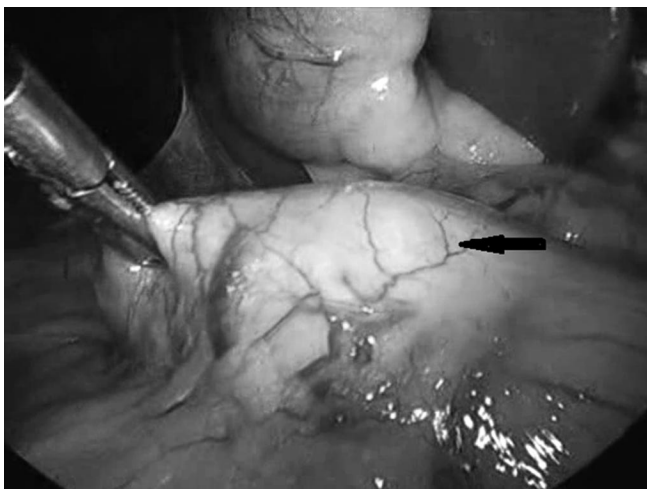


Figure 4. Intraoperative view. The arrow shows a shiny yellowish surface (ie, the “naked fat sign”).

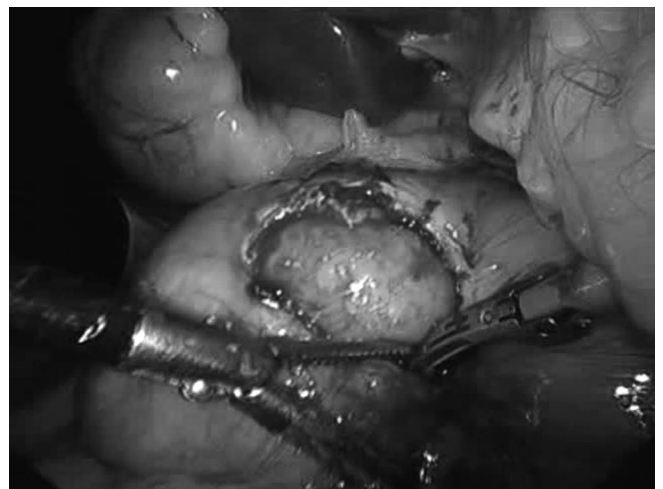


Figure 5. Longitudinal duodenotomy showing a large lipoma (arrow).

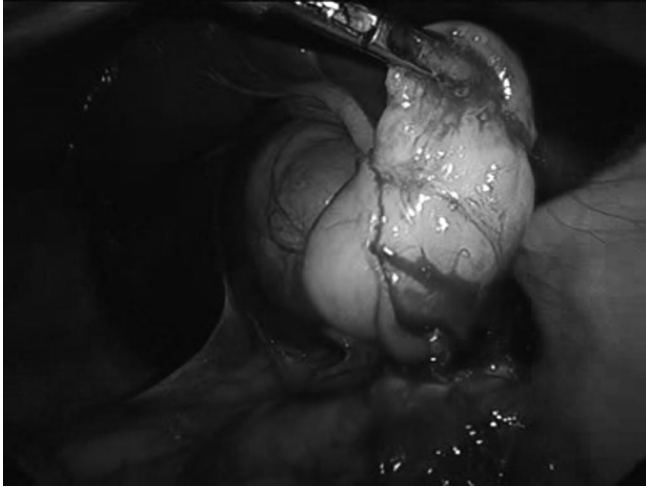


Figure 6. Laparoscopic view of a 5 × 6-cm duodenal lipoma showing an “iceberg” pattern.

ported.⁷ This can be done by hand-assisted or endoscopic-assisted laparoscopic surgery.

CONCLUSION

Duodenal lipomas are uncommon benign tumors. Symptomatic duodenal lipomas warrant treatment. Endoscopic excision is the preferred treatment, but if the size of the lesion precludes endoscopy, surgical excision is the treatment of choice. Laparoscopic excision of duodenal lipoma is a promising minimally invasive approach.

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