

# Laparoscopic enucleation of a duodenal lipoma, with review of the literature

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## ABSTRACT

نذكر هنا حالة للورم الشحمي في الإثني عشر يصيب امرأة تبلغ من العمر 53 عاماً ويسبب لها أعراض تقيؤ وعدم الارتياح في البطن، تم علاجها بإجراء عملية استئصال نواة الورم الشحمي بواسطة منظار البطن. تعتبر الأورام الشحمية التي تصيب الإثني عشر أوراماً نادرة وهي تقل عن 230 حالة تم الإبلاغ عنها في الأدبيات الطبية. معظم هذه الأورام من سجلات التشريح أكثر من الخبرة السريرية. معظم التقارير الحالية عن استئصال هذه الأورام بواسطة منظار البطن أثناء إجراءات العملية الجراحية. على الرغم من قلة تكرار ذلك فقد تم وصفها لمؤشرات محددة. نقدم حالة للورم الشحمي الذي يصيب الإثني عشر وقد تم استئصاله بواسطة منظار البطن مع مراجعة الأدبيات.

We present a case of duodenal lipoma in a 53-year-old lady causing symptoms of vomiting and abdominal discomfort, treated by laparoscopic enucleation. Lipomas of the duodenum are rare tumors with less than 230 cases reported in the literature, most of these are from autopsy records rather than clinical experience. Most recent reports are of endoscopic excision of these tumors while operative procedures, although less frequent, have been described for specific indications. We present a case of a duodenal lipoma excised laparoscopically with a review of the literature.

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Lipomas are a common benign mesenchymal tumor that affects the gastrointestinal (GI) tract, with a variety of clinical presentations that are closely related to the size. Recently with the progress of CT scans, MRI, and endoscopy, more and more cases are being

diagnosed and managed. However, lipomas of the duodenum are very rare, representing less than 5% of all benign GI tumors, with less than 230 cases reported in the literature. Management has been described by endoscopic and operative means, with operative intervention being reserved for select cases with specific indications. The means of operative intervention have been described in both the open technique, usually involving a duodenotomy or segmental resection, as well as recent reports of laparoscopic intraluminal and hand-assisted resections. We present a case of duodenal lipoma managed by total laparoscopic enucleation. Is the first care which was carried out by laparoscopy and literature.

**Case Report.** A 53-year-old lady, who presented to her primary care physician with a 6-month history of epigastric fullness and discomfort, recently worsening and associated with vomiting after ingestion of food. There was no history of hematemesis or melena, and no change in bowel habits. Her past medical history revealed a wide excision and repair of a muco-epidermoid carcinoma of the soft palate 6 years ago, as well as a hysterectomy for dysfunctional uterine bleeding followed by a hernia repair 3 years earlier. Clinical examination of this lady was unremarkable. An upper GI endoscopy was performed and showed a mass at the junction between the first and second part of the duodenum, this mass was deep to the mucosa, and protruding into the lumen of the duodenum (Figure 1). A CT abdomen with contrast was performed and showed a well-defined intramural oval lesion arising from the second part of the duodenum measuring 3 x 4 cm with a density measurement of -60 housefield units (HU) (Figure 2). She was referred to our surgical service for laparoscopic exploration and excision of the lipoma. In the theatre, under general anesthesia, and placed in the semi-lithotomy position, the abdomen was insufflated up to 14 mm hg and 3 ports were inserted, a 10 mm camera port above the umbilicus, a 5 mm port in the right hypochondrium 5 finger breadths below the costal margin at the mid-clavicular line, with a contra-lateral 10 mm port in the left hypochondrium.



**Figure 1** - Endoscopic appearance of duodenal lipoma.



**Figure 3** - Laparoscopic appearance of duodenal lipoma.



**Figure 2** - CT scan appearance of duodenal lipoma.



**Figure 4** - Duodenal lipoma during excision.

The finding was that of a shiny yellow sub-serosal lipoma at the junction of the first and second part of the duodenum (Figures 3 & 4), and the serosa was opened over the lipoma and blunt dissection and enucleation was performed, the lipoma was extending into the musculosa and sub mucosa. The lipoma was delivered within a plastic bag through the umbilical port and the duodenum was repaired with 2/0 dexon stitches in 2 layers. Her post-operative period was uneventful, and she was discharged home 3 days following the surgery. Final histopathological diagnosis was lipoma. She is well and asymptomatic after 36 months of follow up, with a normal endoscopy of the upper GI tract performed 60 days after the procedure.

**Discussion.** Lipomas are mesenchymal tumors commonly affecting the GI tract, they are the third most common benign tumor following leiomyomas and adenomas, and have a predilection for involving

the large bowel more frequently than the small bowel, with duodenal lipomas being very rare. In Botsford's study<sup>1</sup> of clinical and autopsy records, only 5 duodenal lipomas of 115 benign GI tumors were described, while Good's series<sup>2</sup> of 659 cases of tumors of the small intestine had 17 duodenal lipomas. Symptoms are closely related to the size of the tumor, it has been noted by Comfort in 193,<sup>3</sup> that most lipomas causing symptoms tended to be at least 4 cm in size, while the majority were asymptomatic, although his study was not specific for duodenal lipomas and this fact was confirmed later by several case reports of duodenal and GI lipomas.<sup>4</sup> The most common clinical presentation is that of epigastric fullness gradually becoming worse and leading to obstruction, ulceration, and hemorrhage has also been reported due to the stretching of the mucosa,<sup>5</sup> intussusception that is rare due to the relatively fixed anatomical position of the duodenum was first reported

by Knight and Black,<sup>6</sup> and finally pancreatitis, in which McGrath<sup>7</sup> reported a single case of pancreatitis secondary to duodenal lipoma in a 12-year-old boy. Spontaneous expulsion of the lipoma has been reported for GI lipomas,<sup>3</sup> and there are no reported cases of malignant transformation.<sup>8</sup> Lipomas of the duodenum can be divided into sub-mucosal, the more common of the 2, and sub-serosal, as exemplified in our case the lipoma can extend beyond the sub-mucosa in an “ice berg” fashion. This distinction maintains importance in the clinical management, as sub-serosal lipomas are difficult to diagnose and treat endoscopically.<sup>9</sup> Diagnosis can be established by radiological means, endoscopy or finally by operative means. In a contrast study of the upper GI tract, the appearance is that of a smooth, non-ulcerating filling defect of the duodenum, and can occasionally be compressed by fluoroscopy, however this finding is not specific for lipomas. Knight and Black<sup>6</sup> described the preoperative diagnosis of duodenal lipoma with an upper GI contrast study showing an intraluminal mass causing the intussusception. A CT scan of the abdomen can be diagnostic for lipomas, the usual appearance is that of a well-circumscribed hypodense lesion, with a density ranging from -50 to -100 HU.<sup>9</sup> Endoscopy in most cases has become the procedure of choice for diagnosis, either by the appearance of a pedunculated mass of fat, or of a lesion stretching the sub-mucosa, and when the mucosa is uncovered the shiny yellow color of the lipoma becomes apparent “the naked fat sign.”<sup>10</sup> Endoscopic ultrasound has been used to confirm diagnosis of duodenal lipomas,<sup>11</sup> and can also be used for acquiring biopsies. Lipomas of the duodenum can be excised endoscopically or operatively, endoscopic management has been described in both the snaring technique,<sup>12</sup> and the unroofing technique.<sup>13</sup> However, endoscopic management is not always feasible, and incomplete excision is also common in large lesions, although there are no reports of recurrence of symptoms after incomplete excision, this remains a viable concern. Operative management, therefore, is indicated in cases in which endoscopy is not feasible, the nature of the lesion cannot be ascertained or if the clinical presentation dictates it “namely, intussusception.” It also has the added advantage of assuring complete excision of the lipoma, which is not always possible endoscopically. Operative management is mainly divided into 2 procedures, excision of the lipoma via a duodenotomy or a limited bowel resection, the type of procedure is tailored towards the patient’s condition as well as the size and position of the lesion. Laparoscopy has recently been described for the management of GI lipomas,

these are mainly hand-assisted resection en-bloc,<sup>14</sup> or intraluminal.<sup>15</sup> However, we could not find any case reports of laparoscopic excision or enucleation of a duodenal lipoma in the English language. Laparoscopy is a minimally invasive mode of surgical management, and we have found it to be feasible in duodenal lipoma, furthermore, as an operative technique it has the benefit of complete excision with minimal postoperative pain and short hospitalization.

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