Primary adenocarcinoma of the angle of Treitz: A case report
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ABSTRACT

Introduction: Adenocarcinoma of the fourth part of the duodenum is rare, and patients often present with a long history of non-specific symptoms, sometimes with advanced disease.

Case Report: We report the case of a 41-year-old male patient presenting with symptoms of upper gastrointestinal obstruction. Investigations included upper gastrointestinal (GI) endoscopy, barium follow-through, ultrasound, and computed tomography, which indicated gastric outlet obstruction. The precise nature of the lesion was subsequently revealed following diagnostic laparoscopy and laparotomy where an obstructing mass involving the duodenojejunal junction was identified. Segmental resection with a 2 cm safety margin, end to side anastomosis, and feeding jejunostomy was performed, and the lesion was confirmed as adenocarcinoma with free surgical margins. The patient made a good postoperative recovery with one year follow-up oesophagogastroduodenoscopy (OGD) and computed tomography (CT) scan, excluding local or nodal recurrence.

Conclusion: A high index of suspicion coupled with appropriate investigation and early surgical resection is necessary to manage the disease and improve prognosis.

Keywords: Adenocarcinoma, Angle of Treitz, Gastric outlet obstruction

INTRODUCTION

Cancer involving the small intestine accounts for approximately 2% of all gastrointestinal malignancies. Adenocarcinoma involving the fourth part of the duodenum is an exceptionally rare entity. It presents with a range of non-specific symptoms and signs, with pre-operative investigations often failing to characterize the nature of the lesion. We report a case of primary adenocarcinoma of the fourth part of the duodenum and highlight the diagnostic and treatment challenges.

CASE REPORT

A 41-year-old male patient with no significant past medical or surgical history presented to our outpatient department with a 1-year history of progressive abdominal pain and vomiting.

General examination revealed the patient to be underweight and on abdominal examination, there was mild epigastric tenderness with no palpable masses or organomegaly. The patient was previously investigated by upper GI endoscopy, where the scope was passed to the third part of the duodenum. This was essentially
normal apart from three areas of mild gastric ulceration. Abdominal ultrasound and CT scanning showed gastric outlet obstruction and barium meal follow-through revealed marked dilatation of the duodenum, with narrowing the duodenojejunal junction.

A provisional diagnosis of gastric outlet obstruction was made, and a diagnostic laparoscopy followed by laparotomy was performed. A small mass obstructing the duodenojejunal junction was identified with marked dilatation of the duodenum (Figure 1). Segmental resection with a 2 cm safety margin, end to side duodenojejunal anastomosis, and feeding jejunostomy distal to the anastomosis was performed (Figure 2). Histopathological examination of the specimen revealed a moderately differentiated adenocarcinoma involving the fourth part of the duodenum (at duodenojejunal junction) (Figures 3 and 4).

The patient made a good postoperative recovery and oral feeding was commenced five days postoperatively and he was discharged on the seventh postoperative day.

At two months postoperatively the feeding jejunostomy was closed after gastrografin meal follow-through, which showed free passage of contrast with neither leakage nor stricture. One year follow-up OGD and CT scan was negative for local or nodal recurrence.

Figure 1: Intraoperative photo showing a 30 mm obstructing mass at the duodenojejunal junction with proximal duodenal dilatation and venous congestion noted.

Figure 2: Intraoperative photo showing end to side duodenojejunal primary anastomosis.

Figure 3: Hematoxylin and Eosin slide (200× magnification) showing duodenojejunal adenocarcinoma, with mucosal invasion.

Figure 4: Hematoxylin and Eosin slide (200× magnification) showing duodenojejunal adenocarcinoma with groups of malignant epithelial cells invading the submucosa, forming cribriform pattern, there is also evidence of vascular emboli in both the mucosa and submucosa.
DISCUSSION

Adenocarcinoma of the duodenum is a rare entity, representing approximately 0.4% of all gastrointestinal malignancies with about 45% of these arising in the third or fourth parts of the duodenum [1, 2]. While risk factors for developing the condition are not fully understood, patients with familial polyposis and Gardner syndrome are considered to have a higher likelihood of developing duodenal cancer [3, 4].

Early diagnosis and treatment of this malignancy is challenged by the fact that patients may present with a range of non-specific symptoms at a relatively late stage in the disease process. Moreover, preoperative investigation may fail to reveal the lesion. In this particular case, CT scan and ultrasound scan (USS) did not identify the lesion and a false negative OGD resulted from an inability to pass the scope through the entire duodenum. These diagnostic challenges have been previously reported in the literature [1], and for this reason, an extended OGD with supporting barium studies and CT scanning seems to be an appropriate means of investigation.

The mainstay of treatment is surgical resection [5]. There is, however, no consensus on the surgical procedure of choice (local excision, segmental resection, or pancreatocoduodenectomy) [6]. In more advanced disease, palliative procedures may be required such as bypasses, stenting, and feeding jejunostomy. The role of chemotherapy and radiotherapy is not well defined. Studies have not shown adjuvant therapy to improve survival significantly [7, 8].

In this case, segmental resection with end to side anastomosis was successfully performed with temporary feeding jejunostomy. Follow-up at one year with OGD and CT scanning did not reveal any local or nodal recurrence. Given the patient’s age, the clear surgical margins and the fact that the tumor was neither high grade nor showing evidence of spread, we expect a good prognosis and survival.

CONCLUSION

Adenocarcinoma of the fourth part of the duodenum is rare, and patients often present with a long history of non-specific symptoms, sometimes with advanced disease. A high index of suspicion coupled with appropriate investigation and early surgical resection is necessary to manage the disease and improve prognosis. While the cornerstone of treatment is radical surgical resection, prospective studies comparing the different surgical approaches with consideration of the role of chemotherapy are needed to study further the efficacy of the treatment options and their impact on prognosis.

REFERENCES

1. Tocchi A, Mazzoni G, Puma F, et al. Adenocarcinoma of the third and fourth portions of the duodenum. Arch Surg 2003;138(1):80–5.
2. Spira IA, Ghazi A, Wolff WI. Primary adenocarcinoma of the duodenum. Cancer 1977;39(4):1721–6.
3. Yao T, Ida M, Ohsato K, Watanabe H, Omae T. Duodenal lesions in familial polyposis of the colon. Gastroenterology 1977;73(5):1086–92.
4. Schnur PL, David E, Brown PW Jr, Beahrs OH, ReMine WH, Harrison EG Jr. Adenocarcinoma of the duodenum and the Gardner syndrome. JAMA 1973;223(11):1229–32.
5. Markogiannakis H, Theodorou D, Toutouzas KG, Gloustianou G, Katsarakakis S, Bramis I. Adenocarcinoma of the third and fourth portion of the duodenum: A case report and review of the literature. Cases J 2008;1(1):98.
6. Kumar SP, Kumar AP. Carcinoma in the fourth part of the duodenum. Can J Surg 2009;52(3):E69–70.
7. Cunningham JD, Aleali R, Aleali M, Brower ST, Aufses AH. Malignant small bowel neoplasms: Histopathologic determinants of recurrence and survival. Ann Surg 1997;225(3):300–6.
8. Abrahms NA, Halverson A, Fazio VW, Rybicki LA, Goldblum JR. Adenocarcinoma of the small bowel: A study of 37 cases with emphasis on histologic prognostic factors. Dis Colon Rectum 2002;45(11):1496–502.

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Author Contributions

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**Guarantor of Submission**
The corresponding author is the guarantor of submission.

**Source of Support**
None.

**Consent Statement**
Written informed consent was obtained from the patient for publication of this article.

**Conflict of Interest**
Authors declare no conflict of interest.

**Data Availability**
All relevant data are within the paper and its Supporting Information files.

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