

A Rare Duodenal Mass, Brunneroma: Case Report

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ABSTRACT

A 65 years old female patient referred to our clinic was diagnosed with ileus following laparoscopic cholecystectomy. Contrast-enhanced abdominal tomography (CT) had earlier been applied to determine the underlying cause of ileus. A hypodense 52 × 32 mm sized mass was incidentally detected in the first and second sections of duodenum. In upper gastric endoscopy, submucosal located mass was observed in the first section of the duodenum at the posterior wall, which was not blocking the passage of endoscope. Positron emission tomography (PET) CT examination with a standardized

uptake value (SUVmax) of 6 showed a potential malignancy. As the patient's clinical condition worsened, exploratory surgery was planned. Small bowel adhesions and strangulation were detected. Transduodenal biopsy was taken. Pathological examination revealed hyperplastic Brunner's glands, which was considered to be Brunner's Gland Adenoma. Patient was discharged at postoperative day 12 with cure. For diagnosis of BGA, endoscopic ultrasonography and contrasted tomography can be used. In symptomatic cases, transduodenal resection can be performed. In the case of non-symptomatic and incidentally detected duodenal masses, however, PET-CT would be useful. A SUVmax lower than 2.3 suggests a benign mass and a higher value over 5 in PET-CT have a high risk of malignancy. As in this case, gastrointestinal system tumors with a SUVmax greater than 5 is not always related with malignancy. In conclusion, for regular bordered mass images, which are detected at this localization, BGA should be kept in mind for differential diagnosis. Patients with BGA should be followed-up for malignancy and recurrence.

Key words: Brunneroma; Duodenal Mass; Brunner's Gland Adenoma

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INTRODUCTION

Brunner's gland adenoma (BGA) is a rare benign polypoid lesion of duodenum^[1]. It is generally located in the first and second sections of duodenum, and it is mostly asymptomatic and isolated^[2]. The most common manifestations of BGA are obstruction and upper gastrointestinal hemorrhage^[2]. Brunner's gland adenoma was detected incidentally during examinations of the patient who had post-operative ileus; diagnosis, treatment, follow-up of this adenoma was evaluated through the search of literature, and our experience was shared.

CASE REPORT

A 65 years old female patient transferred to General Surgery Polyclinic of Dicle University Hospitals was diagnosed with ileus following laparoscopic cholecystectomy. There was no evidence of ileus before cholecystectomy. Contrast-enhanced abdominal tomography (CT) had earlier been applied to determine the underlying cause of ileus. A hypodense 52 × 32 mm sized mass adjacent to head of pancreas, starting from pylorus and showing extension to the first and second section of duodenum, was detected (Figure 1a and 1b). In the upper gastric endoscopy, submucosal mass was observed in the first section of the duodenum at the posterior wall, which was not blocking the passage of endoscope (Figure 2). Pathological examination of endoscopic biopsy revealed hyperplastic polyp. Positron emission tomography (PET) CT examination showing a heterogeneous (18F)-fluorodeoxyglucose uptake with a standardized uptake value (SUV-max) of 6 revealed a potential malignancy (Figure 3).

As the patient's ileus did not get better, and even clinical condition got worse, exploratory surgery was planned. During the surgery, small bowel adhesions and strangulation were detected at umbilical region beneath the old trocar scar. Ten cm of small intestine was resected, and end-to-end anastomosis was performed. In order to diagnose duodenal mass, transduodenal biopsy was taken. The mass was submucosal located, broad-based, smooth surfaced and yellowish-greyish colored with medium hardness. Biopsy was taken from mucosal membrane with a wide excision while preserving submucosa. Pyloric and duodenal repair was performed with Hainke-Mikulicz pyloroplasty. Pathological examination showed hyperplastic Brunner's glands in submucosal region separated by fibrous septa, extending towards to the luminal surface (Figure 4). There was no capsule development, necrosis, hemorrhage, vascularization and atypic cells in histopathological examination of the mass (Figure 4). It was considered to be BGA. The patient was discharged at postoperative day 12 with cure.

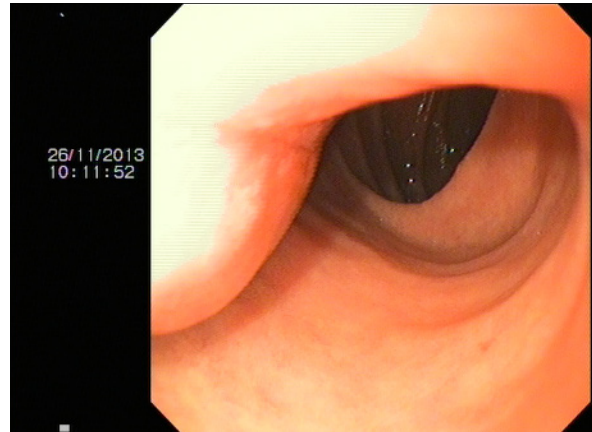


Figure 2 Upper gastric endoscopy; submucosal located mass was observed in the first section of duodenum at the posterior wall which was not blocking the passage of endoscope.

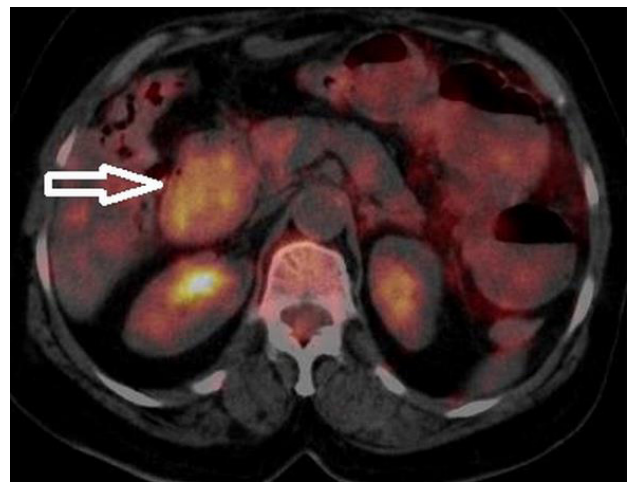


Figure 3 PET-CT axial image; a heterogeneous (18F)-fluorodeoxyglucose uptake of duodenum (arrow) with a standardized uptake value (SUVmax) of 6.



Figure 1 The coronal (a) and axial (b) CT sections of the smoothly contoured, hypodense mass lesion extending from the first section of duodenum (Asterisk) to the second (arrow).

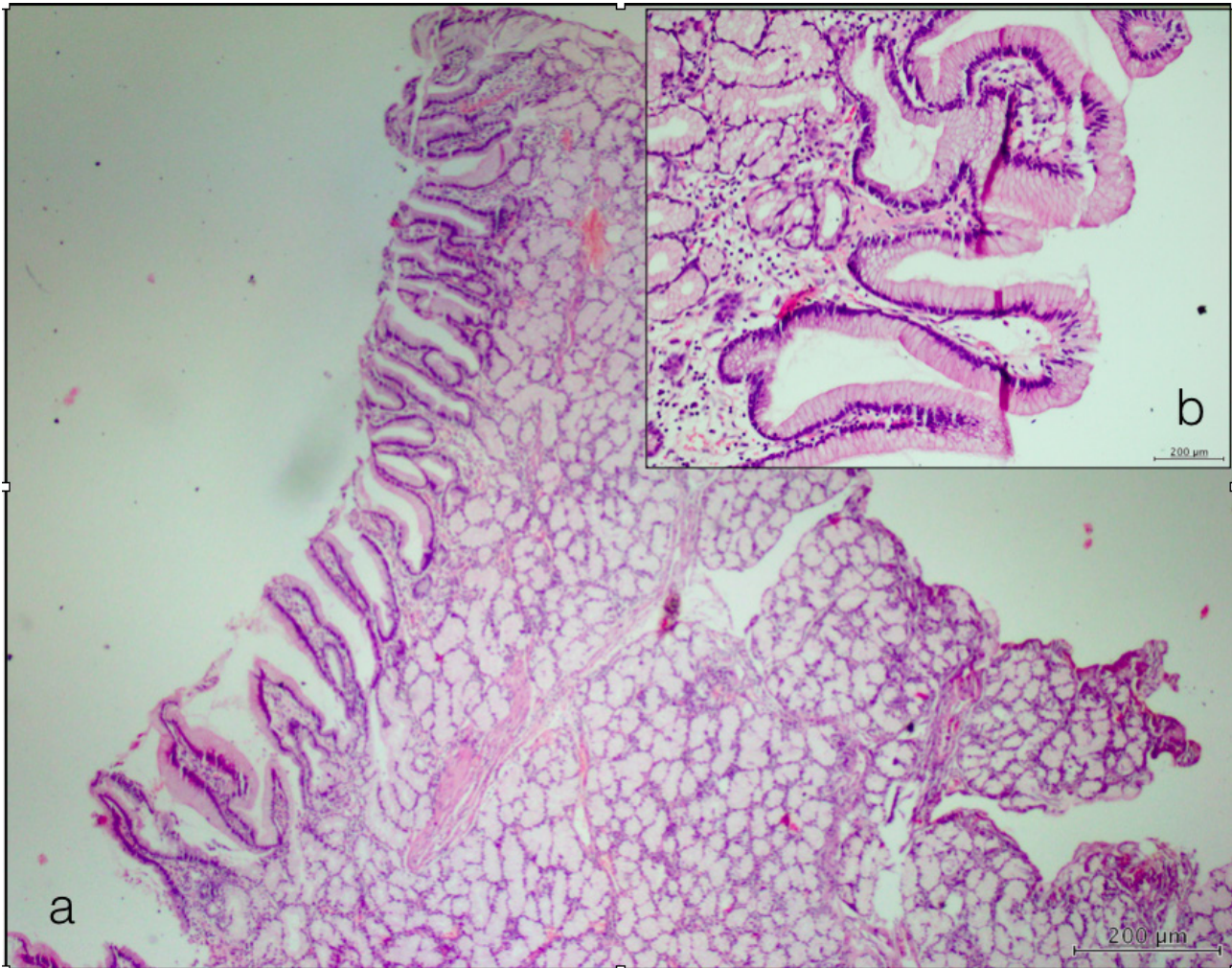


Figure 4 Hematoxylin-Eosin staining of the specimen (a and magnified in b). Photomicrograph of pylorus shows hyperplastic Brunner's glands in submucosal region separated by fibrous septa (a) extending towards to the luminal surface (b).

DISCUSSION

Brunner's glands are mucin-secreting glands, and located in duodenum. Their location starts from pylorus and condense at first and second sections of duodenum. In the third and fourth sections of duodenum, their intensity decrease and in proximal jejunum, where they can rarely be found^[1]. By secreting mucus, pepsinogen and urogastrone, they help to protect the stomach from acidity^[1,2]. Excessive secretion of acid may play role in the pathogenesis of Brunneroma^[1-3]. Other factors are uremia, chronic pancreatitis and *helicobacter pylori*^[4]. Goldman described Brunner's gland hypertrophy, later to be termed Brunneroma, was in fact a spectrum of changes that were neither hyperplastic nor neoplastic but rather proliferative hypertrophy^[5]. In this hypertrophy, there is hyperplastic gland proliferation separated by fibrous septa. If this hypertrophic gland includes mesenchymal elements such as muscles, glands, fat components, and structures comprising the pancreas asinus and ductus, they are classified as hamartoma^[3,5-7]. Although it is known as a benign lesion, there are rare cases that have adenocarcinoma in this gland. However, as these cases are very rare, this debate is still doubtful^[7,8]. Endoscopically, they grow as a polypoid to the lumen at the first and second sections of duodenum, and they are generally 1-3 cm sized masses, which can be seen as mucosa-covered bulge. They are generally asymptomatic and can be detected incidentally. On the other hand, in symptomatic cases, there can be symptoms

such as obstruction, bleeding, and intussusceptions of the upper gastrointestinal system and pancreatitis^[1-6].

For diagnosis, endoscopic ultrasonography and contrasted tomography can be used. Endoscopy helps both diagnosis and treatment. In symptomatic cases, which are not suitable for endoscopic excision, transduodenal resection can be performed^[1-6]. In the case of non-symptomatic and incidentally detected duodenal masses, PET-CT would be useful. A SUVmax lower than 2.3 suggests a benign mass. A SUVmax of over 5 in PET-CT have a high risk of malignancy^[9]. Park et al. reported that gastrointestinal system tumors with a SUVmax greater than 5 were not always related with malignancy^[10]. Similarly, in this case, a SUVmax of 6 did not show a malign mass. Nevertheless, cases with duodenal masses should be followed-up closely for rare malignancy development risk^[8,10].

In our case, transduodenal mass excision was performed with laparotomy due to post-operative ileus. While taking biopsy for diagnosis, submucosal resection was performed, pylorus and duodenum was enlarged with pyloroplasty. When the result of biopsy revealed BGA (Figure 5), the patient was taken to a close follow-up. There was no recurrence in two-year follow-up.

CONCLUSION

Brunner's gland adenoma is a rare lesion of duodenum, and it can be observed at the posterior wall of the first and second sections of

duodenum. For regular bordered mass images, which are detected at this localization, BGA should be kept in mind for differential diagnosis. Patients with BGA should be followed-up for malignancy and recurrence.

CONFLICT OF INTERESTS

The authors declare that they do not have conflict of interests.

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