CERASUS JOURNAL OF MEDICINE

CASE REPORT

Brunner gland adenoma : A rare case presenting with upper gastrointestinal bleeding

İlkay Çınar[1]
Gökhan Aydın[2]

1. *Giresun University, Medical School, Department of Pathology, Giresun*
2. *Giresun University, Medical School, Department of Gastroenterology,Giresun*

Received: 11 August 2025
Accepted: 15 September 2025
Published: 28 October 2025

Corresponding Author: Ilkay Cinar, Giresun University, Medical School, Department of Pathology
Giresun University, Faculty of Medicine
E-mail address: a.ilkaycinar@gmail.com

Abstract

Introduction: Brunner gland adenoma (BGA) is a rare benign duodenal tumor, accounting for about 1% of all duodenal neoplasms. Although often asymptomatic, it can occasionally cause gastrointestinal bleeding, obstruction, or dyspeptic symptoms.

Case Presentation: We describe a 58-year-old female presenting with with fatigue, nausea, vomiting, and melena. She had a history of coronary artery disease and was receiving daily acetylsalicylic acid. Endoscopy revealed a 1.8 × 1.6 × 1 cm pedunculated polyp in the duodenal bulb causing partial obstruction. Endoscopic polypectomy was performed successfully, and histopathology confirmed Brunner gland adenoma without evidence of dysplasia or malignancy.

Discussion: BGA should be considered in the differential diagnosis of duodenal polyps. Despite their benign nature, these lesions can mimic malignancy and produce significant symptoms. Endoscopic resection is the treatment of choice for small lesions, while surgery may be required for large or broad-based tumors. Careful follow-up is necessary to detect recurrence or complications.

Keywords: Brunner gland adenoma, duodenal polyp, gastrointestinal bleeding, endoscopic polypectomy, benign duodenal tumor

You may cite this article as: Çınar İ, Aydın G. Brunner gland adenoma : A rare case presenting with upper gastrointestinal bleeding. *Cerasus J Med.* 2025;2(3):168-172. doi:10.70058/cjm.1761284

Introduction

The Brunner glands are named after the Swiss anatomist Johann Conrad Brunner, who studied the pancreas and duodenum. These glands are primarily located in the submucosa of the proximal duodenum and secrete a bicarbonate-rich mucus that lubricates the duodenum, neutralizes stomach acid, and maintains an alkaline environment. In rare cases, they can also be found in the proximal jejunum [1]

Excessive proliferation of the Brunner glands can lead to rare benign lesions known as Brunner gland adenomas or hamartomas. Brunner gland adenoma (BGA) is an uncommon benign tumor, detected in only 0.01–0.07% of patients undergoing routine esophagogastroduodenoscopy . Its overall incidence ranges from 5% to 10%, accounting for approximately 1% of all duodenal tumors [2,3]. While these tumors are often asymptomatic, they may occasionally cause gastrointestinal bleeding, duodenal obstruction, or abdominal pain [3].

Case Report

A 58-year-old female patient presented to the emergency department with a 10-day history of fatigue, nausea, vomiting, and melena. She had a history of coronary artery disease and was on daily acetylsalicylic acid (81 mg) and proton pump inhibitors.

The patient was diagnosed with active gastrointestinal bleeding and was initiated on medical treatment following a consultation with the gastroenterology department. An upper gastrointestinal endoscopy was performed, which revealed no bleeding focus in the gastric mucosa or the second part of the duodenum. However, a pedunculated polyp measuring 1.8 × 1.6 × 1 cm was identified in the duodenal bulb. The polyp had an irregular, clotted surface and obstructed more than half of the luminal space (Figures 1, 2).

Figure 1. Endoscopic view of a pedunculated polyp in the duodenal bulb, elevated using an endoscopic forceps. The lesion has a smooth, lobulated surface and partially obstructs the lumen

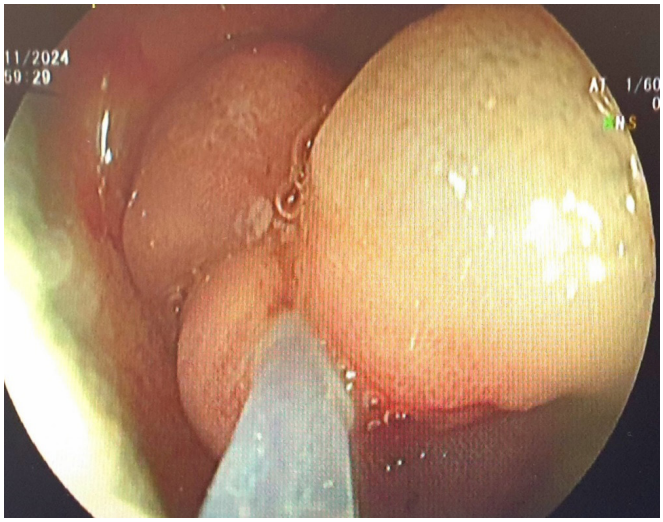
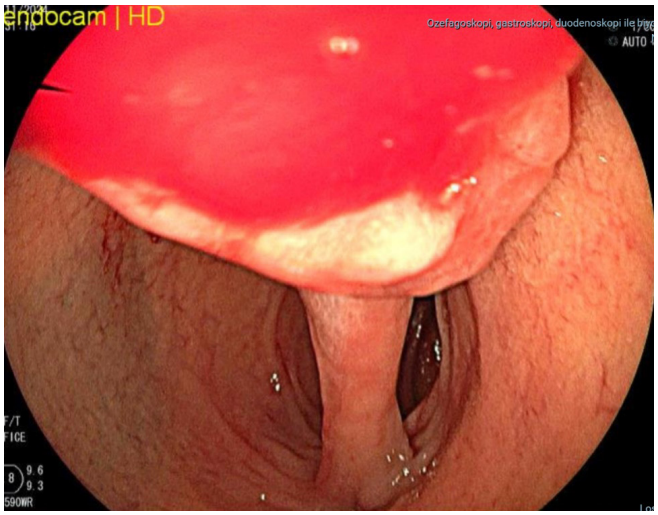


Figure 2. Endoscopic view of a large pedunculated lesion in the duodenal bulb, elevated using an endoscopic forceps.



(Figures 1, 2).

Sclerotherapy was applied, and total polypectomy was successfully performed. The excised specimen was sent for pathological examination.

Histopathological analysis revealed a lobular lesion composed of Brunner glands, muscle tissue elements, and adipose tissue within the submucosa

(Figures 3, 4).

Figure 3. Histopathological view of Brunner gland adenoma composed of numerous Brunner glands within the duodenal mucosa. Fibrous bands and adipose tissue are observed between the glandular structures. Hematoxylin and Eosin stain, 10×100 magnification.

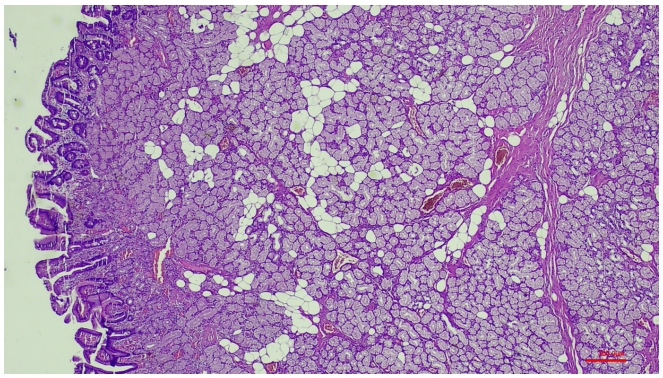
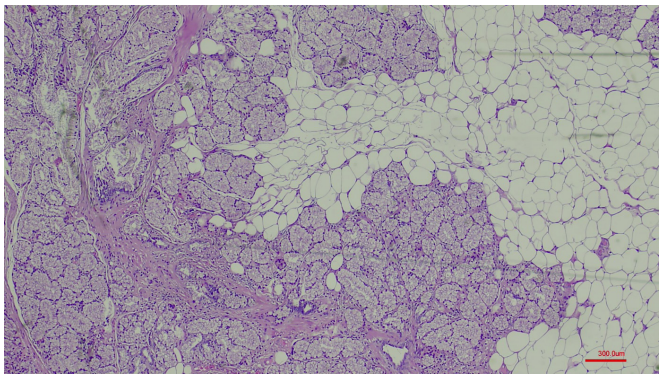


Figure 4. Histopathological view showing normal-appearing Brunner glands along with adipose tissue. Hematoxylin and Eosin stain, 10×100 magnification.



These findings were consistent with BGA. No malignancy or atypia was observed.

Discussion

BGAs are extremely rare benign lesions of the gastrointestinal tract. They are typically asymptomatic and are often detected incidentally. However, depending on the size of the polyp, they may cause gastrointestinal bleeding, duodenal obstruction, or dyspeptic symptoms in some cases [4]. The most common site of involvement is the junction between the first and second parts of the duodenum [5]. BGAs can be vary in size, but only a few exceed 5 cm. While they are usually asymptomatic, when symptoms do occur, they tend to be nonspecific [6,7]. In our case, a 1.8 cm polyp localized in the duodenal bulb resulted in gastrointestinal bleeding.

Pathogenesis

The exact etiology of Brunner's gland adenomas remains unclear. Several hypotheses have been proposed regarding their pathogenesis, suggesting that peptic mucosal damage, *Helicobacter pylori* infection, chronic pancreatitis, and alterations in gastric acid secretion may play a role [8,9,10]. In our case, *H. pylori* was not detected, and there was no history of chronic pancreatitis.

Histomorphological Findings

Brunner gland adenoma is diagnosed through pathological examination and results from the proliferation of normal-appearing Brunner glands. These glands are arranged in lobules separated by fibroconnective tissue. Additionally, some stromal components, such as associated ducts and adipose tissue, may be present [11]. BGA is not considered a true neoplasm; rather, it is most likely a hamartomatous lesion, ıt ıs also called Brunner gland hamartoma. In some cases, foveolar metaplasia with dysplastic changes may be observed. Although the risk of malignancy is extremely low, dysplasia has been reported in some broad-based lesions [12,13]. In our case, no dysplasia was detected.

Differential Diagnosis

Brunner's gland adenomas are often not well-defined on imaging studies, and their diagnosis relies primarily on histopathological examination. During endoscopic evaluation, they typically appear as pedunculated or broad-based polypoid lesions. In cases where the polyp is large and ulcerated, its macroscopic features may raise suspicion for malignancy. Reports in the literature describe cases where Brunner's gland adenomas were misinterpreted as malignant lesions, leading to pancreaticoduodenectomy [14,15,16]. Benign tumors of the duodenum include leiomyoma, adenoma, lipoma, BGA, hemangioma, and nodular lymphoid hyperplasia. The differential diagnosis also includes neuroendocrine tumors, such as carcinoid, ganglioneuroma, gastrinoma, somatostatinoma, and VIPoma [17].

Treatment

Endoscopic polypectomy is recommended as the first-line treatment for Brunner gland adenomas [18]. In most cases, symptoms resolve completely after lesion removal, and additional surgery is not required. However, different treatment approaches may be considered depending on lesion size. Surgical excision is advised for lesions larger than 5 cm or those with a

broad base [19,20].Marou et al. reported cases where large polyps, too large to pass through the pylorus, were successfully removed via the anal route [21]. Lesions exceeding 2 cm have been associated with a higher risk of complications; thus, excision is recommended even for asymptomatic cases. Symptomatic lesions should be excised regardless of size.

Endoscopic polypectomy remains the first-line treatment for small or pedunculated lesions. Surgical excision is reserved for cases where the tumor is too large, snaring has failed, or there is suspicion of extraluminal extension, necessitating a more invasive approach [12]. The present case, a 1.8 cm pedunculated polyp was successfully removed via endoscopic polypectomy, and the patient was discharged without complications. The recurrence rate of Brunner gland adenomas is low, but this rate may be higher for broad-based lesions [7].

Conclusion

Brunner gland adenomas should be considered in the differential diagnosis of duodenal masses detected during endoscopic examinations to prevent unnecessary or excessive treatment. Although they are often benign, these lesions can cause clinical symptoms, including significant upper gastrointestinal bleeding, and may be mistaken for malignancies. Endoscopic polypectomy is a safe and effective treatment for these lesions. However, histopathological examination is essential for large or symptomatic lesions, and patients should be carefully followed up to monitor for recurrence or potential complications.

Funding: There is no institution or person supporting this study.

Conflict of Interest: None of the authors have a conflict of interest.

Authors' contribution: Surgical and Medical Practices: G.A, Concept: I.Ç, Design: I.Ç. , G.A, Data Collection or Processing: I.Ç. , G.A, Analysis or Interpretation: I.Ç. , G.A, Literature Search: I.Ç, Writing: I.Ç.

Ethical Declaration: NA.

References

1. Patel ND, Levy AD, Mehrotra AK, Sobin LH. Brunner's gland hyperplasia and hamartoma: Imaging features with clinicopathologic correlation. AJR Am J Roentgenol. 2006; 187:715–22.

2. Zhu M, Li H, Wu Y, An Y, Wang Y, Ye C, et al. Brunner's gland hamartoma of the duodenum: A literature review. Adv Ther. 2021; 38:2779–94.

3. Rana R, Sapkota R, Kc B, Hirachan A, Limbu B. Giant Brunner's gland adenoma presenting as upper gastrointestinal bleeding in a 76-year-old male: A case report. JNMA J Nepal Med Assoc. 2019; 57:50–3.

4. Chatziisaak D, Piachas A, Burri P, Wolf S, Steffen T. Giant Duodenal Brunneroma: Report of a Rare Case and Review of the Literature. Am J Case Rep. 2024 Dec 18;25: e945913. doi: 10.12659/AJCR.945913.

5. Naito S, Fukuzawa M, Nakamura S, Kono S, Matsubayashi J, Itoi T. Giant Brunner's gland hamartoma diagnosed via endoscopic mucosal resection: A case report. DEN Open. 2021; (1):e65. doi: 10.1002/deo2.65. PMID: 35310720; PMCID: PMC8828167.

6. Valantine B, Venkatapur M, Nawahirsha S, Kumar SB. Giant Brunner gland hamartoma: An unusual cause of upper gastrointestinal bleed. Gastroenterology, Hepatology and Endoscopy Practice. 2023;3(3):90-93. doi: 10.4103/ghep.ghep_9_23.

7. Mendes I, Vara-Luiz F, Nunes G, Cruz J, Antunes SC, Fonseca J. A giant Brunner's gland hamartoma: A rare cause of upper gastrointestinal bleeding. Acta Gastroenterol Belg. 2024 Apr-Jun;87(2):340. doi: 10.51821/87.2.12806. PMID: 39210769.

8. Peetz ME, Moseley HS. Brunner's gland hyperplasia. Am Surg. 1989 Jul;55(7):474-7. PMID: 2662841.

9. Kurella RR, Ancha HR, Hussain S, Lightfoot SA, Harty R. Evolution of Brunner gland hamartoma associated with Helicobacter pylori infection. South Med J. 2008; 101:648–650. doi: 10.1097/SMJ.0b013e318172435a.

10. Kovaceviæ I, Ljubiciæ N, Cupiæ H, et al. Helicobacter pylori infection in patients with Brunner's gland adenoma. Acta Med Croatica. 2001; 55:157–160.

11. Alsugair Z, Lavrut PM, Chassagne L. A 10 cm pedunculated duodenal Brunner gland hamartoma: Case report and literature review. Int J Surg Case Rep. 2022; 100:107747. doi: 10.1016/j.ijscr.2022.107747. PMID: 36270207; PMCID: PMC9587310.

12. Dhali A, Ray S, Mandal TS, et al. Surgical outcome of Brunner's gland hamartoma: A single-centre experience. Surg J (N Y). 2022;8(1):e14-e18. doi: 10.1055/s-0041-1741510. PMID: 35059497; PMCID: PMC8763466.

13. Mendes I, Vara-Luiz F, Nunes G, Cruz J, Antunes SC, Fonseca J. A giant Brunner's gland hamartoma: A rare cause of upper gastrointestinal bleeding. Acta Gastroenterol Belg. 2024; 87(2):340. doi: 10.51821/87.2.12806. PMID: 39210769.

14. Lee W, Yang H, Lee Y, et al. Brunner's gland hyperplasia: Treatment of severe diffuse nodular hyperplasia mimicking a malignancy in the pancreaticoduodenal area. J Korean Med Sci. 2008; 23:540-3.

15. Iusco D, Roncoroni L, Violi V, Donadei E, Sarli L. Brunner's gland hamartoma: 'Overtreatment' of a voluminous mass simulating a malignancy of the pancreaticoduodenal area. JOP. 2005; 6:348-53.

16. Stewart ZA, Hruban RH, Fishman EF, Wolfgang CL. Surgical management of giant Brunner's gland hamartoma: Case report and literature review. World J Surg Oncol. 2009;7:68. doi: 10.1186/1477-7819-7-68. PMID: 19725968.

17. Reddy RR, Schuman BM, Priest RJ. Duodenal polyps: Diagnosis and management. J Clin Gastroenterol. 1981; 3:139-147.

18. Levine JA, Burgart LJ, Batts KP, Wang KK. Brunner's gland hamartomas: Clinical presentation and pathological features of 27 cases. Am J Gastroenterol. 1995; 90:290–4.

19. Joseph MN, Laird DJ, Petrosyan M, Selby R, Kulkarni S (2021) Brunner's Gland Hamartoma: A Case Report, Meta-Analysis, and Algorithm Approach to Obstructing Duodenal Masses. Archiv Surg S Educ 3: 031. doi: 10.24966/ASSE-3126/100031.

20. Naito S, Fukuzawa M, Nakamura S, Kono S, Matsubayashi J, Itoi T. Giant Brunner's gland hamartoma diagnosed via endoscopic mucosal resection: A case report. DEN Open. 2021 ;2(1): e65. doi: 10.1002/deo2.65. PMID: 35310720.

21. Maruo M, Tahara T, Inoue F, et al. A giant Brunner gland hamartoma successfully treated by endoscopic excision followed by transanal retrieval: A case report. Medicine 2021;100(14): e25048. doi: 10.1097/MD.0000000000025048.