Pathology Quiz

Aikaterini Parassi[1], P. Cherakakis[2], Antigoni Karakosta[1], Helen Sotiriou[1], Maria Sklavaina[2], J.K. Triantafillidis[2]

CLINICAL HISTORY

A man aged 43 was referred to our department for upper GI Endoscopy because of the appearance of melaena. Upper GI Endoscopy revealed a polypoid mass located near the top of duodenal bulb (Figure 1). The lesion was removed endoscopically by endoscopic polypectomy. Some of the histological pictures are shown in pictures 2 to 4.

What is the most possible diagnosis?

1. Benign polypoid lesion of the duodenum.
2. Brunner's gland adenoma/amartoma.
3. Hamartomatous polyp (Peutz-Jeqhers syndrome).
4. Gastrointestinal stromal tumor (GIST).
5. Malignant polypoid lesion.

ANSWER

Histology revealed a hyperplastic Brunner's glands lesion, characterized by nodular proliferation of normal Brunner's glands, accompanied by ducts and some stromal elements associated with erosions.

COMMENT

Benign duodenal tumors are rare and, surprisingly, less common than malignant tumors. Brunner's glands are confined mainly to the submucosa of the proximal duodenum. They begin at the gastrointestinal junction and extend for variable distances distally in the wall of the proximal small intestine. The secretory units of runner's gland consist primarily of a mucin producing cellular type, although other cell types may be encountered, reflecting the developmental origin of these glands.[1] The unique capacity of the mucin produced by these glands to protect the underlying epithelial cells is due to the gel-forming properties of its glycoprotein molecules. Human Brunner's gland also produces epidermal growth factor, trefoil peptides, bactericidal factors, proteinase inhibitors and surface-active lipids.[1] These factors protect the underlying mucosa from the noxious influence of gastric acid, and pancreatic enzymes. Other factors produced by Brunner's gland provide active and passive immunological defense mechanisms, promote cellular proliferation and differentiation and elevate duodenal luminal pH.

Hyperplasia of Brunner's gland is generally referred to under the terms adenoma, amartoma of Brunneroma.[2,3] Even today, the data concerning the real nature of the lesion (hyperplasia, amartoma, adenomatous lesion or true neoplasm of Brunner's gland) are conflicting. However, the intact gland architecture, the absence of mitosis and cellular proliferation, the maturity of cells and the absence of cellular atypia, all are in favour of the hyperplastic nature of the lesion. True Brunner's adenomas probably exist, although their incidence could be very low. Their diagnosis requires increased cellular proliferation, atypia and cellular immaturity. The most common location is the posterior wall of the duodenum at the junction between the first and second portions.

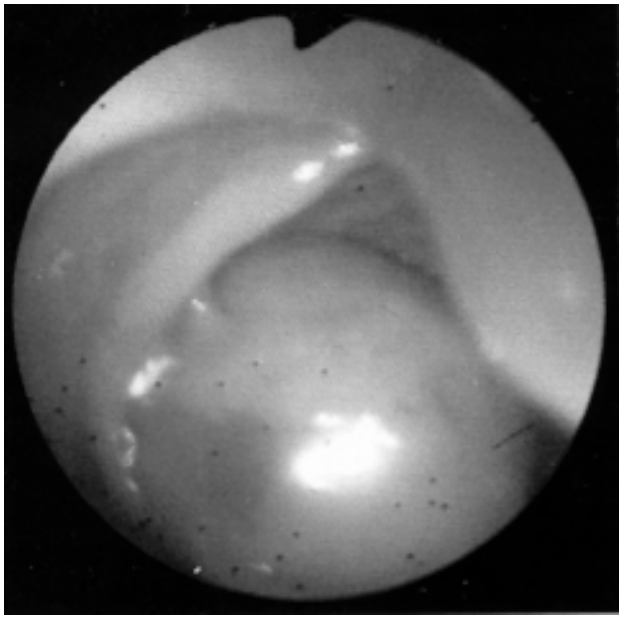
The most frequent clinical presentation of Brunner's gland adenoma is abdominal pain and upper gastrointestinal bleeding.[2,4] Rarely, obstruction of the duodenum due to an extremely large adenoma can appear. Correct diagnosis requires the presence of some degree of cellular atypia and immaturation on histology, as well as increased rate of cellular proliferation. Malignant transformation of Brunner's adenomas has been described.[5,6] Endoscopy is the most useful diagnostic procedure.[7] Treatment consists of endoscopic[8] or surgical, either laparoscopic[9] or open,[10] resection of the lesion.

In conclusion, diagnosis of Brunner's adenoma lesion (adenoma/amartoma), must be included in the differen-

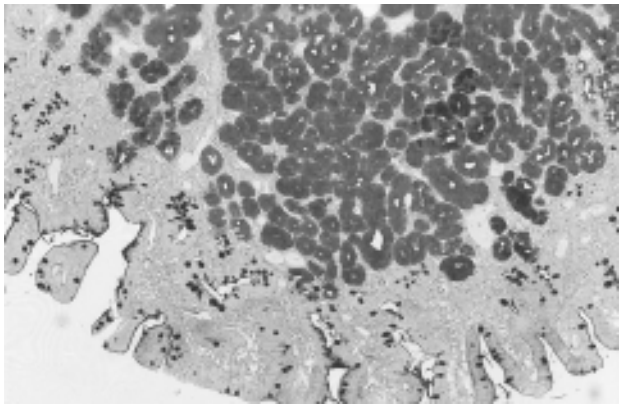
Department of Pathology[1] and Gastroenterology[2], Sain Panteleimon General State Hospital, Nikea, Greece

Author for correspondence:

John K. Triantafillidis, MD, 8 Kerasountos str., 124 61 Haidari, Athens, Greece, Tel.: 210-5819481, Fax: 210-5810970, e-mail: jkt@panafonet.gr



Picture 1. Endoscopic picture of the polypoid lesion of duodenum.

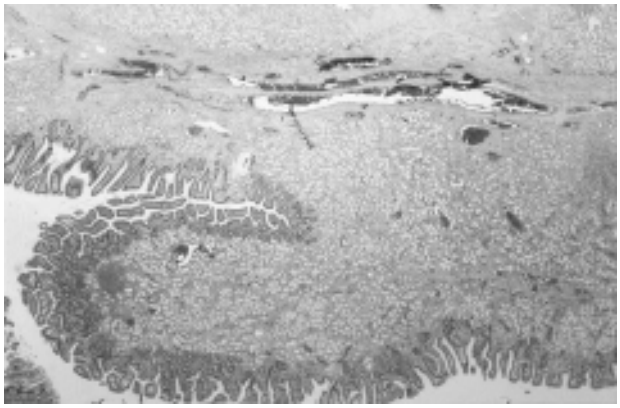


Picture 3. Characteristic histological picture of Brunner's gland (P-AB x 200).

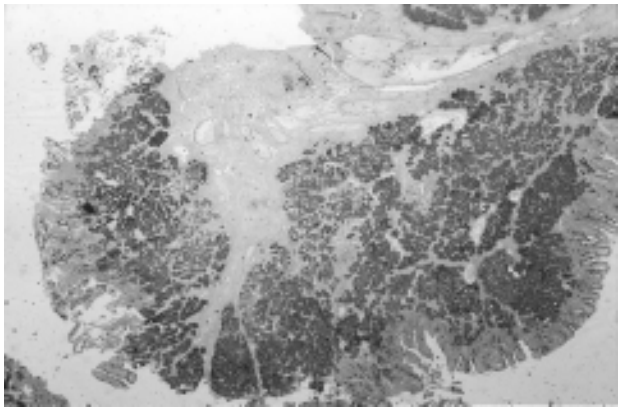
tial diagnosis of all polypoid lesions in the duodenum, discovered during upper GI Endoscopy.

REFERENCES

1. Krause WJ. Brunner's glands: a structural, histochemical and pathological profile. Prog Histochem Cytochem 2000; 35:259-267.
2. Chong KC, Cheah WK, Lenzi JE, Goh PM. Benign duodenal tumors. Hepatogastroenterology 2000; 47:1298-1300.
3. Re Mine WH, Brown PW, Gown MMR, Harrison EG. Polypoid hamartomas of Brunner's gland. Arch Surg 1970; 100:313.
4. Tan YM, Wong WK. Giant Brunneroma as an unusual cause of upper gastrointestinal hemorrhage: report of a case. Surg Today 2002; 32:910-912.
5. Akino K, Kondo Y, Ueno A, et al. Carcinoma of the duodenum arising from Brunner's gland. J. Gastroenterol 2002; 37:293-296.
6. Cortese AF, McDivitt RW. Carcinoma of the duodenum arising in Brunner's glands. NY State J Med 1973; 73:1687.
7. Venu RP, Rolny P. Greenen JE, et al. Ampullary hamartoma: Endoscopic diagnosis and treatment. Gastroenterology 1991; 100:795.
8. Jansen JM, Stuifbergen WN, van Milligen de Wit AW. Endoscopic resection of a large Brunner's gland adenoma. Neth J Med 2002; 60:253-255.
9. Baladas HG, Borody TJ, Smith GS, Dempsey MB, Richardson MA, Falk GL. Laparoscopic excision of a Brunner's gland amartoma of the duodenum. Surg Endosc 2002; 16:1636.
10. Wagholikar GD, Dhingra S, Krishnani N, Kapoor VK. Large Brunneroma presending with bleeding. Indian J Gastroenterol 2002; 21:201-202.



Picture 2. Polypoid lesion due to Brunner's hyperplasia. The glands retain their lobian architecture, extensively occupying the submucosa and protruding into the lumen.



Picture 4. PAS-positive cytoplasmic stain of the hyperplastic Brunner's gland (x 100).