Brunner Gland Adenoma: A Case Report and Literature Review

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Abstract

Brunner's gland adenoma is a rare benign lesion of the duodenum. It can present as obstruction or bleeding in symptomatic patients. Various theories have been postulated but the exact cause for the brunner gland tumor to occur are unknown. This case had a large Brunner's gland adenoma, presented with melena and vomiting operated with surgical excision.

Introduction

Brunner's glands were first described by Brunner in 1688.Most of these glands are present in proximal portion of duodenum and duodenal bulb and their number decreases in distal duodenal segments. They are submucosal in location and secrete mucin. These glands secrete alkaline mucus which protects duodenal epithelium from acid chyme of stomach.

Brunner's gland adenoma (BGA), a rare duodenal benign lesion with incidence of 0.008% as reported in single autopsy series.1Brunner gland adenoma was first described by curveilheir in 1835. Most of the lesions are benign with a rare exception of malignant transformation.[1,2]

Most of the patients with Brunner's gland adenoma lesions are asymptomatic as lesions are smaller in size. Larger sized lesions can present with features of obstruction or bleeding.

Case Report

A 42 year old male presented with symptoms of vomiting and black coloured stools for a duration of 15 days. He did not have symptoms of haematemesis. On clinical examination no abnormalities are detected. Routine blood tests revealed no significant abnormality except haemoglobin with level of 8g/dl. On upper GI endoscopy, a large polypoid type of growth present in the first portion of duodenum with scope negotiated with difficulty. Biopsy report suggestive of brunner glands in stroma with no definitive evidence of dysplasia or malignancy.

On computed tomography lesion of size 57×44×64mm arising from 1st and 2nd part involving 7cm segment of duodenum with target like lesion (Bowel within bowel appearance). The intussuscipiens is 2nd part of duodenum suggestive of duodenal intussusception. (Figure 1)

After preoperative checkup,open surgical resection has been preferred over endoscopy due to large size of lesion. First part of duodenal segment has been resected along with Roux n y gastrojejunostomy, jejunojejunostomy and feeding jejunostomy had been done. Resection of the tumour has been done with 2-3cm margin sparing pylorus. Specimen margins appeared to be free clinically. Postoperative period uneventful and discharged on pod 7 after full oral diet.

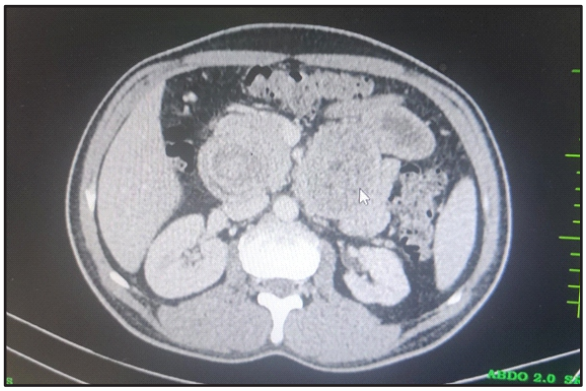

Figure 1: CT scan image showing lesion in duodenum

Figure 2: Image of excised duodenal lesion

Pathologically, gross examination showed polypoidal mass of size 6×4.5×4 cm3 arising from duodenal submucosa infiltrating into duodenal muscles. On microscopic examination it shows brunner gland polyp/ adenoma with no evidence of dysplasia or malignancy. (Figure 2) Both proximal and distal margins are free.

Discussion

Primary duodenal tumours constitute upto 1% of various gastroenterology tumors.[3] In 1688, Brunner named these submucosal glands as "pancreas secundarium". Brunner's glands secrete alkaline mucus to protect duodenum from the acidic nature of gastric juices.

The exact cause for the adenoma to arise in brunner gland remains unknown. Initially it was thought that increased gastric secretions resulted in adenomatous tumours. Franzin et al,[4] have postulated relationship between duodenal ulcers and gastric erosions due to hyperchlorhydria and brunner's gland adenoma, but Spellberg et al,[5] had shown there was no reduction when treated with acid secretion inhibitors. The most accepted theory for brunner gland adenomas had to be duodenal dysembryoplastic lesion or hamartoma.[6]

Clinically most of the patients do not have symptoms. Few patients can present with vomiting and pain in the abdomen.[7] Upper GI endoscopy and imaging studies will be useful in identifying these lesions in asymptomatic cases. The usual presentations in patients with symptoms are obstruction and bleeding due to lesion.

Clinically it is difficult to diagnose brunner gland adenoma lesions as the majority of patients are asymptomatic and smaller in size. Computed tomography can be used in identifying the lesion and also to rule out extra luminal extension. Upper GI barium studies show polypoid filling defects which are smooth walled in the corresponding part of duodenum. These radiological features may not be specific to adenoma lesions. Differential diagnosis for the above filling defect can be lymphoma, leiomyoma and lipoma. Upper GI endoscopy and biopsy can be used for the diagnosis as it can localize the lesion and biopsy can be used to confirm it. Biopsies may often be negative or shows only gland hyperplasia. Deeper biopsy has to be taken for confirmation of diagnosis. Sometimes surgical biopsy specimens will provide adequate tissue for diagnosis as gland proliferations may be covered by normal mucosa which may be difficult in case of small size samples. In the histological section it shows hyperplastic brunner glands, adipose tissue, cystic ducts lined by ciliated cylindrical epithelial cells. There was no evidence of malignancy. (Table-1)

Table 1: Review of previous brunner gland case reports.

	Author and year of publication	Number of cases	Clinical features	Radiological findings	Surgery	Comments
1	Yu Ping Gao,[6] Jian-Shan Zhu and Wen-Jun Zheng 2004	1	Melena, epigastric discomfort	X-ray barium study- nodular, polypoid-filling defect mass measuring 3 cm × 2.5 cm in the duodenal bulb	Resection of polypoid mass	On microscopic examination, the tumor was composed of hyperplasia of Brunner's gland with no evidence of malignancy.
2	Alba Rocco,[8] Pasquale Borriello, Debora Compare, 2006	1	Melena, epigastric discomfort	CT scan - polypoid mass originating in the mucosa of the duodenal bulb and extending to the second portion of the duodenum.	Endoscopic resection	Histological examination - Brunner's glands and ducts embedded in a fibrous stroma with a moderate degree of lymphocyte and monocyte infiltration.
3	Chattopadhyay P,[9] Kundu A K, Bhattacharyya S, 2008	1	Melena, epigastric discomfort, postprandial bloating	Upper GI endoscopy- multiple small sessile polyps about 0.5–0.7 cm in length, was found up to the distal D2 segment.	Endoscopic polypectomy or removal was not feasible and the patient was advised regular clinical follow-up.	On biopsy- lesion showed proliferation and aggregation of normal Brunner's gland in a lobulated manner.
4	Lucas X. Marinacci,[10] Farrin A. Manian, 2017	1	Epigastric pain, melena	Upper GI Endoscopy- large pedunculated duodenal mass extending from the pylorus into the third portion.	Endoscopic resection	Histological examination- massive Brunner gland proliferation and an abnormal architecture with lobules separated by fibrous septae.
5	Current study	1	Melena epigastric discomfort	CT Scan- lesion of size 57×44×64mm arising from 1st and 2nd part of duodenum with target like lesion.	Resection	Microscopic examination- Brunner gland polyp/ adenoma with no evidence of dysplasia or malignancy.

Conclusion

We are reporting this case in view of rarity of tumour and can considering most common tumours in duodenum are NET, Adenocarcinoma of duodenum which require major surgical procedures and Brunner gland is one of differential diagnosis in which those major surgeries can be avoided. Endoscopic or surgical excision of brunner gland has to be done for the diagnosis and to avoid complications like obstruction or bleeding and in asymptomatic patients. There are no studies suggestive of recurrence after resection of tumours. Brunner gland tumours are benign and have good prognosis.

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