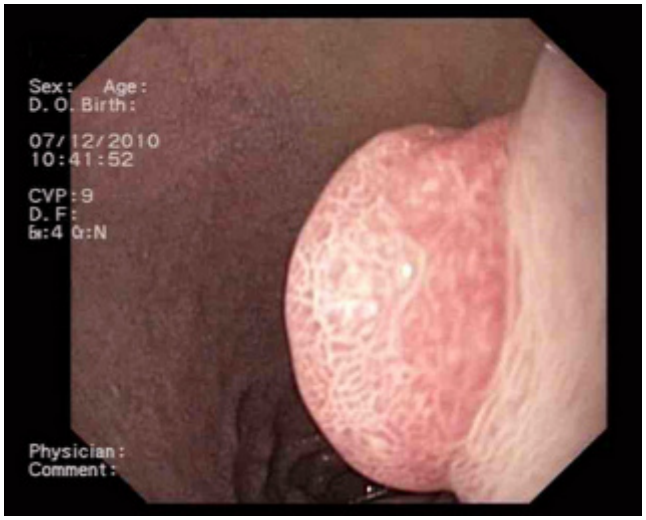
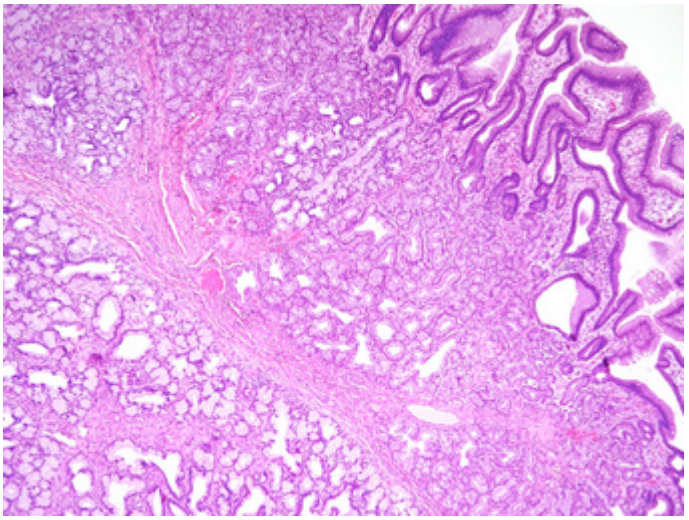
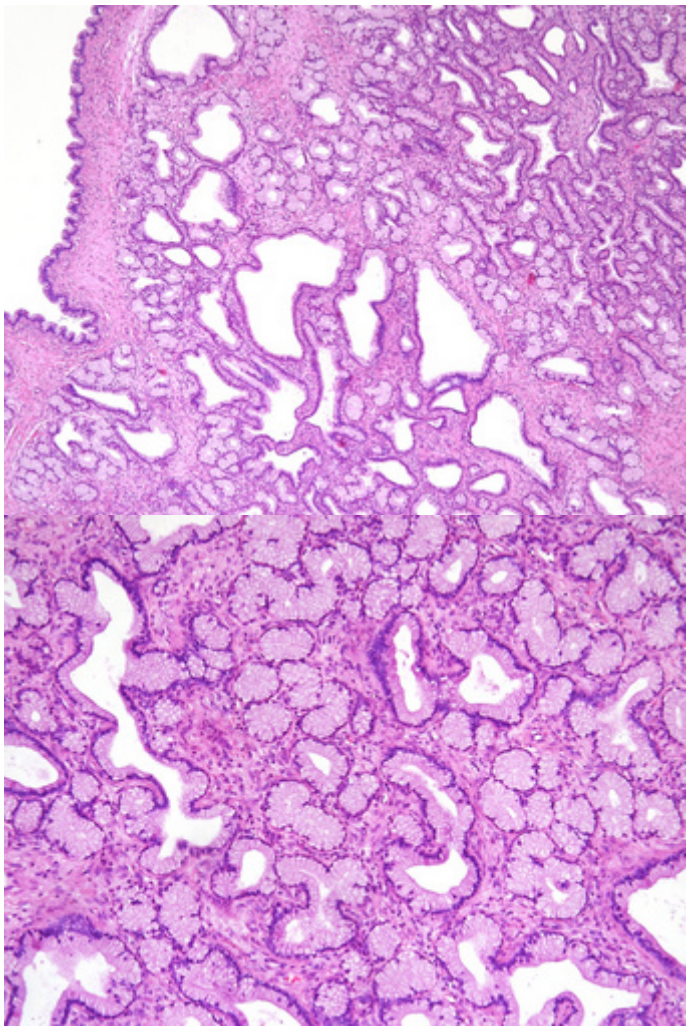
July 2018

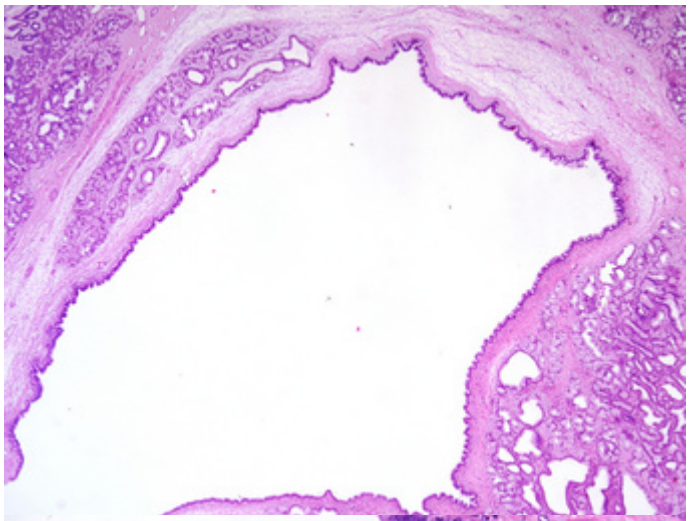
Polypoid lesion within the duodenum.

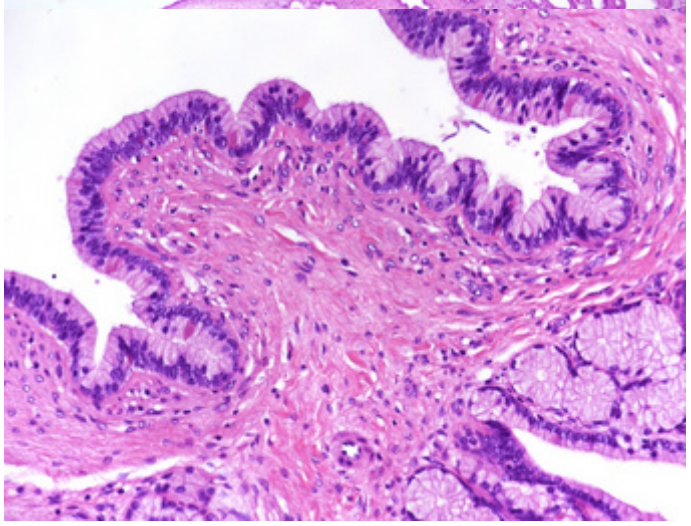
What is your diagnosis?

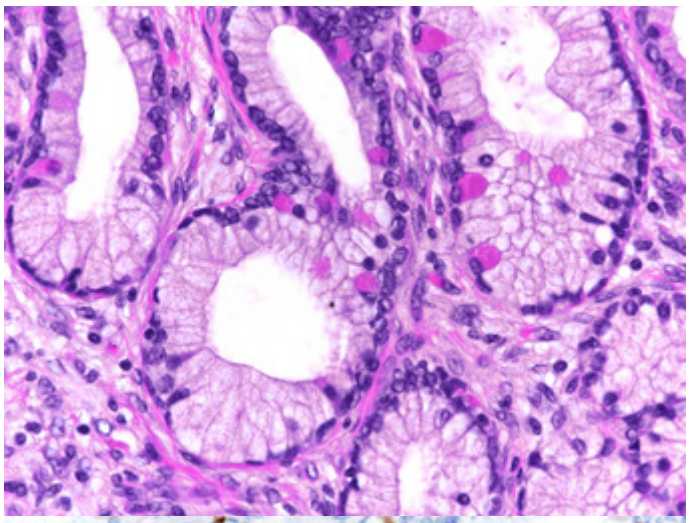


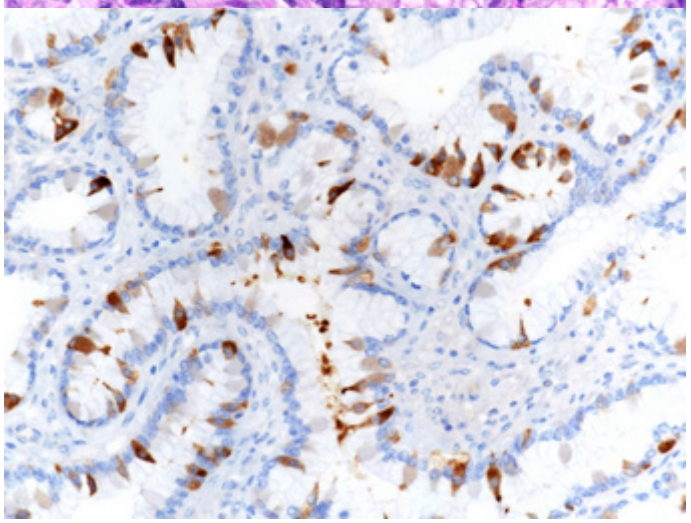


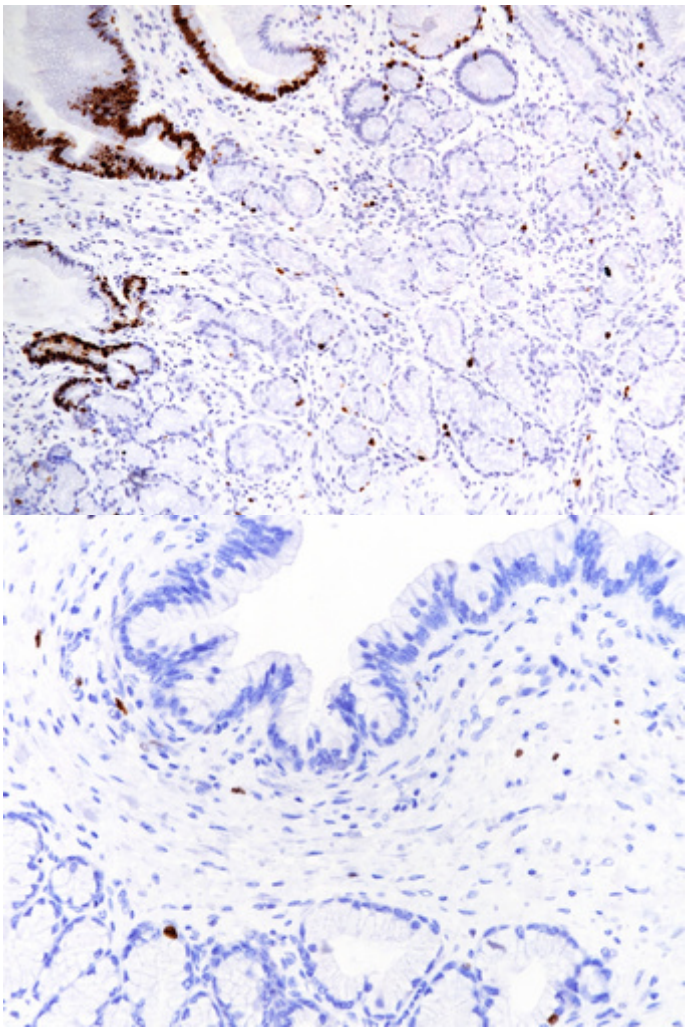












Diagnosis:

Brunner gland hyperplasia / hamartoma.

Comment:

A 67-year old female was referred for endoscopic investigation of her upper gastrointestinal tract. A large polypoid lesion was detected within the duodenal bulb, covered by mainly unaltered, yet focally eroded mucosa (Panel A). The lesion was removed by snare polypectomy. Histology showed a mass-forming proliferation of Brunner glands in a lobular architecture, admixed with dilated ducts, bundles of smooth muscle and focal lymphoid aggregates (Panel B-D). Some ducts demonstrated cystic dilatation and were lined by cuboidal-to-columnar cells displaying mild to moderate atypia (Panels E-F). Scattered single cells with eosinophilic neuroendocrine granules were observed (Panel G), showing immunoreactivity for synaptophysin (Panel H) and chromogranin A. The glands were diffusely positive for MUC 6 apoprotein. The ki67/MIB1 proliferation rate was low (<1%), both in glands (Panel I) and ducts (Panel J).

The nomenclature of Brunner gland proliferative lesions is not well established. The terms “Brunner gland hyperplasia”, “Brunner gland hamartoma” and “Brunner gland adenoma” have been used interchangeably in the literature, with different morphological criteria used by different authors.

Some authors distinguish “hamartomas” and “hyperplasias” based upon the size of the lesion (applying varying cut-off values that are not supported by evidence) and presence of certain components such as ducts, smooth muscle bundles and adipose tissue. However, this distinction is of no clinical significance and can thus not be recommended. The term “Brunner gland adenoma” has likewise been used by some authors,

preferably for lesions that display some nuclear atypia. Neoplastic origin, however, has not convincingly been proven. Moreover, this term is potentially dangerous, as it may prompt overtreatment, such as potentially deleterious surgery.

Brunner gland hyperplasias / hamartomas are usually discovered incidentally in asymptomatic patients, predominantly in the fifth and sixth decades, but large lesions may lead to obstruction and bleeding, thereby mimicking malignancy. They mostly appear as polypoid submucosal lesions in the duodenal bulb, but can coalesce into sessile or nodular lesions. On the cut surface they show firm, whitish, fairly well-marginated borders. Histological examination displays Brunner glands composed of mucin-secreting cuboidal to columnar cells with basally located nuclei, arranged in lobules containing thin fibrous septa. Diffuse and strong positivity for MUC6 represents a characteristic finding.

Brunner gland hyperplasias / hamartomas need to be distinguished from pyloric gland adenomas (PGAs) that can occur within the duodenal bulb, usually in association with heterotopic gastric mucosa. In contrast to Brunner gland hyperplasias / hamartomas PGAs consist of tightly packed, yet not lobulated glands lined by cuboidal cells show distinctly atypical nuclei, qualifying for a diagnosis of low grade or high grade dysplasia. In addition, PGAs often do not have overlying intestinalized epithelium when they occur in the duodenum.

Brunner gland hyperplasias / hamartomas and PGAs share more or less the same immune phenotype: they are both positive for MUC6, but PGAs are often positive also for MUC5AC, at least focally, which is not the case for Brunner gland lesions. Between 10% and 30% of PGAs are associated with invasive adenocarcinoma. Brunner gland hyperplasias / hamartomas are benign. In the literature, there are single case reports of glandular dysplasia or carcinoma allegedly originated from proliferating Brunner gland lesions, but some of them appear to arise from pyloric gland adenomas or probably represent secondary involvement by superficial dysplastic epithelium.

For further reading:

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- Hijikata K, Nemoto T, Igarashi Y, Shibuya K. Extra-ampullary duodenal adenoma: a clinicopathological study. Histopathology. 2017; 71: 200-207.

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