Oxyntic gland polyp/adenoma

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Abstract

Gastric oxyntic gland polyp/adenomas, OGA are uncommon polyoid lesions that arise from oxyntic mucosa located in the body and fundus of the stomach. A case of oxyntic gland polyp/adenoma with typical histological and immunohistochemical features is presented and controversy over nomenclature and biological behavior is discussed.

Keywords gastric adenocarcinoma with chief cell differentiation; oxyntic gland polyp/adenoma

Case summary

A 67-year-old woman presented with anemia, requiring blood transfusion. She was investigated with lower and upper gastrointestinal endoscopy. A small polyp, approximately 0.5 cm in diameter was located in the fundus and biopsied.

Histological findings

Histologically the lesion consisted of clusters, anastomosing cords and tubules of oxyntic cells, both chief cells and parietal cells. There was mild nuclear pleomorphism with enlargement of nuclei, and anisonucleosis. (Figure 1a and b). Wispy strands of muscularis mucosa were present interspersed within the epithelial clusters (Figure 1b, arrow). No mitotic figures were identified. There was no necrosis and the lesion was confined to the mucosa. Immunohistochemistry revealed positive staining for MUC6 and was negative for MUC2 and MUC5AC. β-catenin immunostaining was normal membranous and cytoplasmic in appearance (Figure 2b) and p53 was not upregulated. Ki67 stain and proliferative index was increased (6–7%) (Figure 2a) and Pepsinogen I, marker for chief cells and parietal cells was positive.

Discussion

Gastric polyps arising in fundus and body and showing proliferation of chief cells and parietal cells were initially described as variants of fundic gland polyps by Müller-Hocker and Rellecke in 2003 followed by Matsukawa et al. in 2005.1,2 These unusual features were interpreted as distortion of mucosal architecture with minimal nuclear changes. However, after these initial publications, a case report by Tsukamoto et al.3 describing a histological lesion designated as gastric adenocarcinoma with chief cell differentiation was published. Following this, a number of articles appeared reporting cases of this new entity supporting its malignant nature.4,5 All these cases showed similar histological features and IHC revealed positive reaction for MUC6, Pepsinogen I and negative for MUC2 and MUC5AC. One report of three cases, however, shows the lesion consistently positive for MUC5AC. None of these cases, however, demonstrated morphological evidence of malignancy such as necrosis, desmoplasia and lymphovascular invasion or metastasis.

Singh et al. in their review6 defended the term oxyntic gland polyp/adenoma and refuted earlier claims of these polyps being malignant.

The differential diagnoses include fundic gland polyp FGP, carcinoid tumors and gastritis cystica profunda. Careful histological examination in combination with immunohistochemistry can resolve the diagnostic issues in majority of the cases.

Fundic gland polyp is the most common hamartomatous lesion of the stomach found sporadically as well as patients of Familial Adenomatous Polyposis (FAP). Cases have been reported in patients treated with proton pump inhibitors, the issue being controversial.7 They are small, smooth, sessile circumscribed polyps that occur exclusively in gastric oxyntic mucosa. Histologically, they are characterized by the presence of cystically dilated glands with parietal, chief cells and foveolar cells instead of mucous neck cells of OGA. Thus their immunophenotype of MUC6+, MUC5AC– differs with that of FGP which is MUC6+, MUC5AC+. The histological patterns of the cystically dilated glands of FGP versus the anastomosing cords and arborizing pattern of OGA is distinctive enough. However, a case of OGA in close proximity to the microcysts of adjacent FGP has been described.1

Gastritis cystica profunda is hyperplastic lesion, often found in patients with partial gastrectomy induced chronic bile reflux and also in non-surgically altered stomach. They consist of heterotopic mucus producing glands with dilated glands surrounded by lamina propria within the submucosa, while oxyntic gland adenoma limits the proliferation to the deep mucosa. Carcinoid tumors can be excluded by Chromogranin A immunopositivity and characteristic nuclear chromatin features.

Electron microscopy features have been well documented in OGA.1 Ultrastructurally, chief cell differentiation is described with evidence of disorganization at subcellular level. In contrast to the regular chief cells, where the rough endoplasmic reticulum is concentrated in a retro nuclear basal location, and zymogenic granules accumulate in the apical cytoplasm, most of the chief cells in OGA shows a loss polarity and a random distribution of the rough endoplasmic reticulum.

In conclusion, oxyntic gland polyp/adenomas are solitary mucosal polyoid lesions arising from oxyntic mucosa and consist histologically of cellular groups and cords of tightly packed glands with predominant chief cells and a complement of parietal and mucus neck cells. These lesions are considered benign but it may be stressed that a lack of long term follow up leaves the behavior uncertain. Total extirpation of the lesion and follow up may be recommended.
**Figure 1** Oxyntic gland adenoma. (a) Anastomosing cords, clusters and tubules of oxyntic cells (hematoxylin and eosin (HE), original magnification 4×). (b) Cells with mild nuclear pleomorphism and anisonucleosis, thin wispy strands of smooth muscle fibers (hematoxylin and eosin (HE), original magnification 40×).

**Figure 2** Immunohistochemistry. (a) MIB1 nuclear positivity (5–7%). (b) β-catenin, cytoplasmic and membranous positivity. (c) Synaptophysin, cytoplasmic positivity.
REFERENCES


Practice points

- Oxyntic gland polyp/Adenoma, OGA, is an uncommon polypoidal mucosal lesion located in the body or fundus of stomach.
- OGA shows distinct histomorphological features: clusters, anastomosing cords and tubules of oxyntic cells interspersed by wispy strands of muscularis mucosa.
- Morphological evidence of malignancy such as necrosis, increased mitoses and lymphovascular invasion are lacking.
- The differential diagnoses include fundic gland polyp, gastritis cystica profunda, and carcinoid tumor.
- Immunohistochemistry may help in the diagnosis with immunopositivity with Pepsinogen 1, MUC6 and MUC5AC.
- The biological behavior is uncertain and total removal is recommended.