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Evaluation and management of gastric epithelial polyps

R. Castro, MD [a, *], P. Pimentel-Nunes, MD, PhD [a, b, c], M. Dinis-Ribeiro, MD, PhD [a, b, c]

[a] Gastroenterology Department, Portuguese Oncology Institute of Porto, Porto, Portugal
[b] CINTESIS - Center for Health Technology and Services Research, Porto, Portugal
[c] CIDES-FMUP – Faculty of Medicine of the University of Porto, Porto, Portugal

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A B S T R A C T

Gastric polyps include a wide spectrum of lesions with different histology and neoplastic potential. They are found in up to 6% of upper gastrointestinal endoscopy and are usually asymptomatic and incidentally diagnosed, being in the vast majority epithelial gastric polyps. Hyperplastic, fundic gland and adenomas are the most common types of gastric polyps and, although each type may have typical endoscopic appearances, they all must be sampled at the initial endoscopy for histological assessment. Also, the normal appearing gastric mucosa should be sampled to stage atrophic changes, rule out endoscopically non-visible dysplasia and to diagnose *Helicobacter pylori*. Polyposis syndromes that affect the stomach are rare but should be taken into account. Hamartomatous polyps can be found in Juvenile polyposis, Cowden syndrome and Peutz–Jeghers syndrome. On the other hand, multiple fundic gland polyps are present in the majority of patients with familial adenomatous polyposis. In this study we provide a comprehensive review on the evaluation and management of gastric epithelial polyps, in this way helping physicians to properly handle this type of lesions.

Introduction

Do to the widespread use of upper endoscopy in the past few years we have witness an increased detection in gastric polyps that, as mention above, are usually incidentally found. The current work is structured in a practical way in order to answer the main issues imposed by the detection of polyps in upper endoscopy and how to correctly approach them.

What is a gastric polyp?

In practical terms, gastric polyps can be broadly defined as luminal lesions projecting above the plane of the gastric mucosal surface [1]. According with Paris classification, a polypoid lesion is classified as Paris 0-I if its height doubles the thickness of the adjacent mucosa. Polyps can be further divided into pedunculated (Paris 0-Ip: with a narrow base) and sessile (Paris 0-Is: base and top with the same diameter). Intermediate forms are called semi-pedunculated (Paris 0-Isp) and they should be managed like sessile polyps [2,3]. Some elevated lesions such as xantomas or sub-epithelial lesions must not be considered as real polyps and will not be addressed in this manuscript.

Which type of polyps can usually be found in stomach? Are there endoscopic features to different them?

Hyperplastic polyps represents 30–93% of all gastric epithelial polyps and are characterized by hyperplastic foveolae with an inflamed stroma, generally arising in response to a chronic inflammatory environment [4,5]. They are the most frequent ones in countries where *Helicobacter pylori* infection is common. They can be sessile or pedunculated, generally with less than 20 mm in diameter, usually occurring as single polyps in the antrum (Fig. 1a), although they can arise as multiple lesions anywhere in the gastric mucosa [1,35–37]. This type of gastric polyp is strongly associated with chronic gastritis, particularly *H. pylori* gastritis. Hyperplastic gastric polyps rarely undergo neoplastic progression (1.5–2.1%) but are associated with an increased risk of synchronous cancer occurring elsewhere in the gastric mucosa [6,7]. The risk of

* Corresponding author. Gastroenterology Department, Portuguese Oncology Institute of Porto, Rua Dr. António Bernardino de Almeida, 4200-072 Porto, Portugal. Fax: +351 225084001.
E-mail address: rui.arrais.castro@gmail.com (R. Castro).

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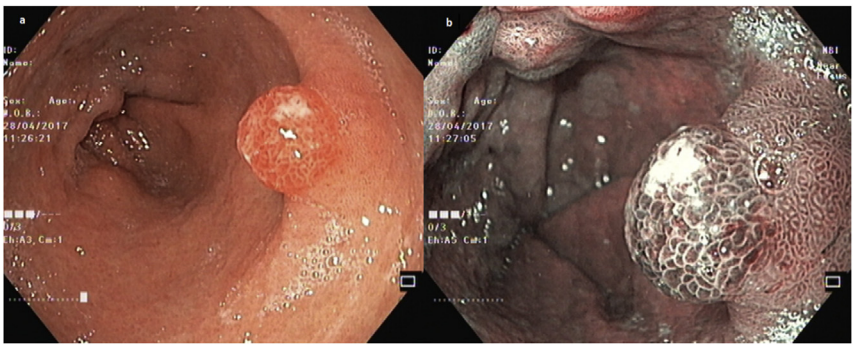

Fig. 1. **a**. Hyperplastic polyp typical appearance with white light endoscopy. **b**. The same hyperplastic polyp seen with NBI.

neoplasia in these polyps is increased when they are pedunculated and bigger than 10 mm [8].

Fundic gland polyps (FGP) represents 16–51% of all gastric epithelial polyps and are usually multiple, small, transparent and sessile, often located in gastric fundus and body (Fig. 2a) [4,5]. Fundic gland polyps are more prevalent in Western countries with lower rates of *H. pylori* infection and higher rate of PPI therapy, being the most frequent histological type in this scenario [5,10,35–37]. They are more frequent in women than in men. Sporadic fundic gland polyps rarely presents dysplasia (<1%), however in familial adenomatous polyposis (FAP), multiple polyps covering the majority of gastric mucosa can be found in 80–93% of patients and low grade dysplasia may be present in 44–54% of cases. However, fundic gland polyps, even in patients with FAP, rarely progress to cancer [9].

Gastric adenomas represents 3–26% of all gastric epithelial polyps and are strongly associated with atrophic gastritis and intestinal metaplasia [4,5]. Solitary, often flat or sessile, generally with less than 20 mm and frequently found in the antrum (Fig. 3a), this type of polyps are true neoplasms and precursors of gastric cancer. Adenomas larger than 20 mm and with villous histology have a higher risk of neoplastic progression (28–40%) [11,12]. In fact, some of this polyps harbour malignant cells, even with benign biopsies. Also, the presence of gastric adenomas is strongly associated with synchronous or metachronous gastric adenocarcinoma [13].

Gastric neuroendocrine tumours (NET) arise in enterochromaffin-like cells (ECL) and are increasingly identified at endoscopy, accounting for 0.6–2% of all gastric polyps [14–17]. They are classified in three different types. Type 1 represents 80% of all gastric neuroendocrine tumours and are typically found in women (50–70 years) as multiple, small (<10 mm), yellowish sessile lesions, with or without central depression or ulceration, usually located in gastric fundus and body (Fig. 4a), being associated with autoimmune gastritis (AIG), pernicious anaemia, achlorhydria and hypergastrinaemia, with the excess of gastrin being produced by antral G cells [14,18,19]. Type 2 represents 5% of all gastric neuroendocrine tumours, sharing the same macroscopic features as type 1 tumours. They occur in patients with Zollinger-Ellison Syndrome (ZES), usually in the background of multiple endocrine neoplasia type 1 (MEN1) and are associated with gastrinomas that lead to hypergastrinaemia and gastric hyperacidity [14,20]. Type 3 represents 15% of neuroendocrine gastric tumours occurring sporadically as solitary, large polyps, ranging from 20 to 50 mm, located anywhere in the stomach without association with hipergastrinaemia [14,15,21]. This type of gastric NET has the worst prognosis with the highest rate of metastases.

Hamartomatous polyps are rare in the stomach and include juvenile polyps, polyps of Peutz-Jeghers and Cowden syndromes [38]. These lesions can be indistinguishable from hyperplastic polyps [1]. Solitary juvenile polyps develop in 2% of children and adolescents, are usually found in the antrum and have no malignant potential. Multiple juvenile gastric polyps, with predominant location in the body, can be found in 14% of patients with juvenile polyposis and this condition is associated with gastric malignancy in 50% of cases [22]. Peutz-Jeghers syndrome is characterized by familial gastrointestinal hamartomatous polyposis that can be found scattered all over the stomach in 24% of affected individual [23]. These polyps have malignant potential, and the average age of patients presenting with gastric carcinoma is estimated to be 30 years [13]. Gastric harmatomatous can be found in Cowden syndrome but gastric malignancy is rarely associated, affecting only 1% of patients [23].

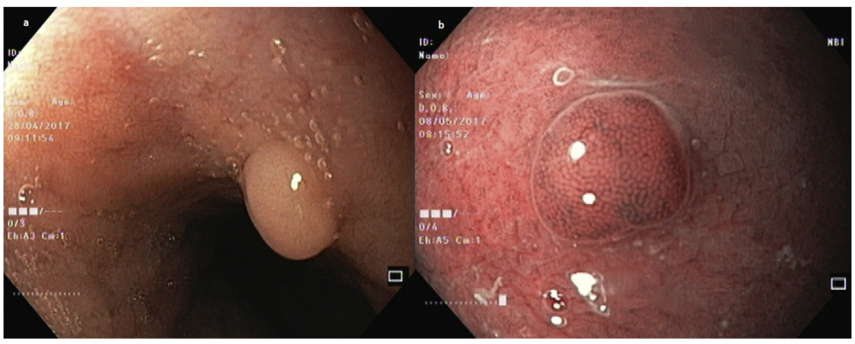

Fig. 2. **a**. Fundic gland polyp typical appearance with white light endoscopy. **b**. Fundic gland polyp appearance with NBI.