Other Gastrointestinal Polyps

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Gastrointestinal polyp is a descriptive concept—observation of an elevated broad-based or stalked lesion which can be defined exactly only when examined histologically. Therefore, all polyps must, in principle, be snared or excised to achieve a final diagnosis. Nonneoplastic polyps or tumor-like lesions were formerly considered innocent findings with no malignant potential, while neoplastic adenomas with dysplasia are well-known premalignant lesions. This view of the totally harmless nature of nonneoplastic polyps is no longer true. At least the dominantly inherited juvenile polyposis and Peutz-Jeghers polyposis syndromes definitely have malignant potential through adenomatous change in the originally hamartomatous lesions. Consequently, juvenile polyposis is best treated with colectomy and ileorectal anastomosis, and repeated multiple polypectomies are now recommended in Peutz-Jeghers polyposis, in combination with laparotomy when feasible. In addition, hyperplastic gastric polyps may reflect an underlying atrophic gastritis implying increased risk of gastric carcinoid tumors and cancer. Furthermore, even colorectal hyperplastic polyps may undergo adenomatous change, and thus represent, theoretically, a reservoir from which adenomas arise.

The term polyp is derived from the Greek word "polypus" meaning many-footed, even though gastrointestinal polyps usually have a single broad-based or stalked foot and a rounded head, possibly with several arms or lobes. Polyp is a descriptive clinical concept denoting more or less restricted epithelial elevation discernible from the surroundings. Histologically, gastrointestinal tract polyps or polypoid tumors form a multitude of various malignant, semimalignant, and benign lesions with a different pattern of occurrence and significance depending on their site, number, and natural history. The unprecise term, polyp, is used when an apparently benign elevated epithelial lesion is found during endoscopy, radiological examination, or at surgery, and when no exact histological diagnosis is yet available. As a general rule, all single and scattered polyps must be excised or snared to achieve a final diagnosis.

Recent interest in gastrointestinal polyps is largely due to the general acceptance of the adenoma-carcinoma sequence [1]—i.e., that most, if not all, gastrointestinal adenocarcinomas evolve from benign neoplastic adenomas (or flat dysplastic lesions) through a slow developmental process of several years. By removing adenomas, the development of carcinoma is prevented. Thus, systematic search, treatment, and follow-up of patients with gastrointestinal adenomas will probably reduce cancer incidence and mortality.

In general, the malignant potential is bound to the dysplastic or adenomatous change, and other benign polyps are classified as nonneoplastic lesions with no malignant potential. Therefore, endoscopic or surgical treatment of multiple or recurrent nonneoplastic polyps has been seen as unnecessary or even potentially harmful, unless repeated symptoms such as bleeding or bowel obstruction warrant excisional treatment. The totally innocent nature of some nonneoplastic polyps is not quite clear, however, because recent long-term studies have demonstrated significant cancer risk in many conditions characterized by primarily nonneoplastic polyps.

Gastric Polyps

The renewed WHO international histological classification of tumors of the stomach [2] is presented in Table 1. (shortened to include benign lesions only). Nonneoplastic epithelial polyps are classified as "tumor-like lesions" in this list. Data about their incidence vary according to the age and polypl size criteria used; in endoscopic series, gastric polyps have been detected in 5–10% of patients [3, 4]. Adenomas account for less than 10% of gastric polyps, while hyperplastic polyps or focal foveolar hyperplasia represent the great majority [5, 6]. Inflammatory hyperplasia associated with atrophic gastritis occurs in about one-third of polyps [5]. On the other hand, 17% of patients with pernicious anemia were found to have hyperplastic gastric polyps [7].

Hyperplastic gastric polyps may, thus, in many cases, reflect the presence of atrophic gastritis [8], which is connected with a certain cancer risk in the long-term. In severe type A gastritis and in pernicious anemia, the risk is about 10% within 10 years of follow-up [9]. Still, regular endoscopic surveillance of patients with pernicious anemia has not been practiced [10]; however, using strict histological criteria of the severity and site of mucosal atrophy, subgroups with 5–90 times increased gastric cancer risk can be found [11]. In short follow-up studies of patients with hyperplastic gastric polyps, 1–5% of subjects developed cancer, but more cancer cases were observed synchronously in association with hyperplastic polyps [5, 6].

Another polypoid lesion associated with atrophic gastritis is the gastric carcinoid tumor occurring in 2–9% in patients with
Table 1. WHO classification of tumors of the stomach—Benign tumors [2].

1. Epithelial tumors
   Adenoma; tubular, tubulovillous, villous
2. Endocrine tumors
   Carcinoid tumor
3. Nonepithelial tumors
   Leiomyoma
   Lipoma
   Vascular tumors; hemangioma, lymphangioma, glomus tumor
   Neurogenic tumors; neurilemmoma, neurofibroma, granular cell tumor
4. Tumor-like lesions
   Hyperplastic polyp
   Hamartoma; fundic gland polyp, Peutz-Jeghers polyp, juvenile polyp
   Heterotopia; congenital (pancreatic, Brunner’s gland), acquired (gastritis cystica profunda)
   Giant rugal hypertrophy; foveolar hyperplasia (Menetrier’s disease), glandular hyperplasia (Zollinger-Ellison syndrome)
   Cronkhite-Canada polyposis
   Inflammatory fibroid polyp
   Endocrine cell hyperplasia
   Benign lymphoid hyperplasia
5. Others
6. Dysplasia (in flat mucosa)

Table 2. WHO classification of tumors of the large intestine—Benign tumors [35].

1. Epithelial tumors
   Adenoma; tubular, tubulovillous, villous
2. Endocrine tumors
   Carcinoid tumor
3. Nonepithelial tumors
   Leiomyoma
   Lipoma
   Vascular tumors; hemangioma, lymphangioma
   Neurogenic tumors; neurilemmoma, neurofibroma, granular cell tumor, ganglioneuroma
4. Tumor-like lesions
   Hamartoma: Peutz-Jeghers polyp, juvenile polyp (Cowden’s syndrome polyph?)
   Heterotopia; gastric
   Hyperplastic (metaplastic) polyp
   Transitional mucosa, transitional polyp
   Lymphoid polyp
   Inflammatory polyp, “pseudopolyph”
   Cronkhite-Canada polyposis
   Lesions secondary to mucosal prolapse; solitary ulcer of rectum, colitis cystica profunda, inflammatory polyp
   Epithelial displacement
   Endometriosis
   Malakoplakia
5. Others
6. Dysplasia in flat mucosa

Persecution anemia [7, 12]. These potentially malignant tumors are often small and multiple, and they grow slowly, seldom causing any symptoms. The significance of small asymptomatic gastric carcinoid tumors remains unknown at present, but they can be easily treated by polypectomy only [12]. Tumors larger than 1 cm require surgical excision or limited gastric resection because regional metastases may be present. The combined risk of gastric carcinoids and carcinomas in severe atrophic gastritis and pernicious anemia speak in favor of regular endoscopic screening—for example, at 3-year intervals for subjects under the age of 60 or 70 years at least.

Fundic gland polyp is a new type of benign gastric polyp first described by Japanese investigators in association with familial adenomatosis [13] and by Elster and colleagues without such association [14]. These small cystic polyps, classified as hamartomas, are found in 0.1–1% of patients undergoing routine endoscopy [15, 16], but their prevalence is about 50% in familial adenomatosis [17–19] (Fig. 1A). Fundic gland polyps show lability in follow-up, either increasing or decreasing in number and size; no cases with malignant transformation have been reported [18, 20]. On the other hand, adenomas of the gastric antrum may occur in familial adenomatosis [17–20].

Two other types of hamartomatous polyps, Peutz-Jeghers polyps and juvenile polyps, also occur in the stomach. These may sometimes be isolated lesions of the stomach [21, 22], but usually the gastric polyps are manifestations of a generalized hereditary polyposis syndrome. In our experience, juvenile polyps is almost invariably associated with gastric polyposis, sometimes covering most of the gastric mucosa (Fig. 1B). Juvenile polyps of the stomach may develop adenomatous change, for which reason endoscopic surveillance is recommended [23]. Seven of our 12 patients had undergone total or partial gastrectomy because of bleeding episodes or gastric obstruction.

As a general rule, prophylactic surgery is not warranted in cases with multiple nonneoplastic gastric polyps; however, regular endoscopic surveillance is generally recommended in the inherited polyposis syndromes (familial adenomatosis, juvenile, and Peutz-Jeghers polyposis). The same applies to severe atrophic gastritis and pernicious anemia in young age groups, especially when severe antral or total atrophy is present [11].

Small Intestinal Polyps

The classification of small intestinal polyps is essentially similar to that of gastric or colonic polyps and is not repeated here. Except for the duodenum, the small bowel is relatively inaccessible for all examinations. Fortunately, both benign and malignant tumors are rare in this part of the intestine.

Approximately half of patients with familial adenomatosis have small and multiple duodenal adenomas [23–26], carrying a definite risk for duodenal and periampullary cancer [27]. In addition to adenomas, these patients may have nonepithelial cystic lesions in the duodenum with a resemblance to fundic gland polyps [18]. Similar mucosal cysts and, in addition, foveolar hyperplasia and hyperplastic polyps have rarely been found in heterotopic gastric mucosa of the duodenal bulb [28]. One-third of uremic patients may have duodenal inflammatory polyps or hyperplasia of the Brunner glands, possibly associated with disturbed acid secretion or hypergastrinemia [29].

Small bowel polyps are the most characteristic feature of the Peutz-Jeghers polyposis, typically in association with small pigmented lesions around the lips. Any malignant potential of the Peutz-Jeghers polyps was long denied based on their definition as hamartomas [30]. Strong evidence about the increased cancer risk in Peutz-Jeghers syndrome was first derived from Japan, when Utsunomiya and associates [31] observed...