Case Report

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True Adenomas of the Cardia: A Case Series of 3 Patients

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Adenomas · Cardia, true adenomas · Barrett's esophagus

Abstract
Background/Aim: True adenomas of the cardia appear to be extremely rare lesions. There are no data on the natural history and histopathological background of these lesions. We report 3 patients with true adenomas of the cardia. ***Methods and Results:*** Three patients with polypoid masses at the cardia below the Z-line were submitted to a tertiary referral center for further diagnosis and therapy. In 2 of the 3 cases Barrett's esophagus with low-grade intraepithelial neoplasia was assumed on the basis of histopathological examination of biopsy specimens taken from the surface of the lesions. Polypectomy was performed in all 3 cases. In 2 of the 3 cases the final histopathological diagnosis of low-grade adenoma of the cardia could only be established after complete removal of the polypoid masses. ***Conclusions:*** Adenomas of the cardia can be mistaken for dysplasia arising from Barrett's esophagus, if the diagnosis is based on endoscopic biopsies only. It is, therefore, reasonable to completely remove any suspicious lesions by endoscopy not only for therapeutic but also for diagnostic reasons.

Introduction

Gastric polyps are infrequent lesions. Retrospective and prospective endoscopic data show a prevalence of this condition ranging between 0.33 and 0.46%. The most frequent form of gastric polyps are fundic gland polyps. Other entities are hyperplastic polyps usually associated with chronic gastritis, inflammatory fibroid polyps, carcinoids, hamartomas, and in very rare cases adenomas [1, 2]. The predominant localization of gastric adenomatous polyps is the antrum, followed by corpus, pylorus, fundus, and angulus [3–5]. Adenomatous polyps of the cardia appear to be extraordinarily unusual. Therefore, data on this topic are very sparse. A literature search in PubMed revealed only 4 hits referring to adenomas of the cardia. Among those, 2 are case reports on invasive carcinomas, and another report summarizes 6 cases of serrated adenomas [6–8]. To the best of our knowledge, a case of a true adenoma at the cardia was described only once by Merlier [9] in 1952. Here, we report a case series of 3 patients with true adenomatous polyps of the cardia.

Case Reports

Case 1

A 63-year-old male patient with unremarkable clinical history was admitted to our endoscopic department with a 1-cm (diameter) polyp located at the gastroesophageal junction (fig. 1) for

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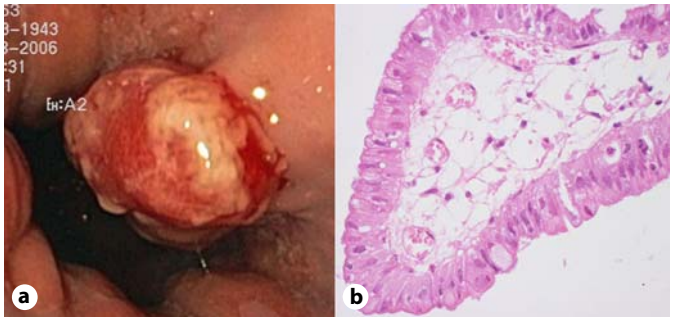

Fig. 1. Polyp measuring 1 cm in diameter at the gastroesophageal junction (**a**) and corresponding histolopathological image of a biopsy specimen taken from its surface showing intestinal metaplasia with goblet cells and inflammation in the submucosal layer (**b**).

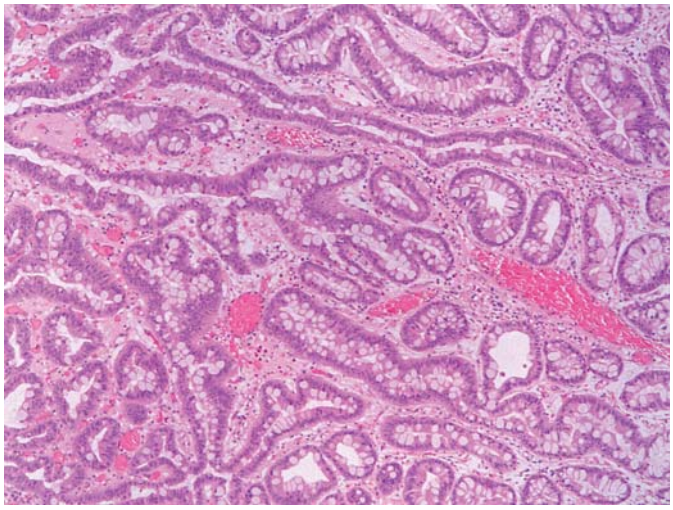

Fig. 2. Tubular adenoma with low-grade intraepithelial neoplasia. Glands are arranged in a tubulopapillar manner, and no high-grade neoplasia or invasive carcinoma could be observed. HE. ×10.

further investigation and therapy. The polyp had been detected in an outpatient screening-esophagogastroduodenoscopy. Biopsy samples obtained from the polyp revealed specialized intestinal metaplasia with low-grade intraepithelial neoplasia. No further pathological findings were detected in stomach or duodenum both endoscopically and histologically.

The cardiac polyp was removed by endoscopic snare resection. The histopathological findings revealed a massively broadened cardiac mucosa with polypoid architecture characterized by hyperchromatic nuclei and low-grade intraepithelial neoplasia arranged in a tubular pattern (fig. 2). Additional immunohistochemical staining revealed marked nuclear accumulation of the p53 oncoprotein. The lesion was resected in toto. There was no evidence for transformation into a high-grade intraepithelial neoplasia or invasive growth. Infection with *Helicobacter pylori* was not detectable. Six weeks later at repeat endoscopy in our department, neither macroscopic pathological findings nor histological residues of adenomatous cells were detected.

Case 2

A 76-year-old female patient complained about typical reflux-associated symptoms (acidic regurgitation and heartburn) for several weeks. Acid-suppressive therapy was administered for 4 weeks and resulted in symptom relief. She presented to a local gastroenterologist for further endoscopic investigation. Biopsy samples from a polypoidal mucosal mass from the Z-line were taken, and histology revealed superficial mucosa suspicious for Barrett's metaplasia with low-grade intraepithelial neoplasia. Biopsy samples obtained from gastric corpus and antrum showed chronic, inactive pangastritis with focal intestinal metaplasia and absence of *H. pylori*. The patient was admitted to our hospital for endoscopic mucosectomy of the polypoid lesion.

At endoscopy, no mucosa tongues suggestive of Barrett's esophagus could be found. However, a 7-mm polypoid tumor was detected directly aboral of the Z-line. The lesion was completely removed by snare technique, and histopathology revealed tubular structures with low-grade intraepithelial neoplasia with interspersed goblet cells and absence of invasive growth (adenoma with low-grade intraepithelial neoplasia and goblet cell metaplasia of the cardia). Additional biopsy samples from the esophagogastric junction showed columnar cells with signs of chronic inflammation typical of reflux esophagitis. At follow-up examination, 3 months after the procedure, endoscopic and histological findings were normal with no signs of adenoma recurrence or presence of Barrett's metaplasia.

Case 3

A 69-year-old male patient was submitted to our hospital for endoscopic resection of a polyp at the cardia. The patient's history was remarkable for partial gastrectomy for a large (50-mm) sessile adenomatous polyp in the antrum 1 year before. Six months after surgery, a follow-up endoscopic and histological examination showed massive chronic active gastritis associated with *H. pylori* in the corpus of the remnant stomach and a 10-mm polyp at the cardia. *H. pylori* eradication therapy was, therefore, initiated. Biopsy samples taken from the polypoid lesion identified a tubular adenoma. At repeat endoscopy in our department, a 15 × 30-mm cardiac polyp was removed by snare technique. The pathological findings of the biopsy samples were confirmed in the polypectomy samples. The specimen showed a flat adenoma of 1 cm in diameter with low-grade intraepithelial neoplasia and was rich in Paneth cells. No invasive growth could be identified. Resection was carried out in toto. However, a second cardiac polyp with a diameter of 20 mm was detected at follow-up endoscopy 3 months later. Again, histopathology revealed an adenoma, and complete gastrectomy was, therefore, performed.

Discussion

True adenomas of the cardia seem to be a very rare condition. So far, there are no data on the pathophysiology, natural history, and risk factors for developing adenomas in this most proximal part of the stomach. We reported

the first small collection of true adenomatous cardiac polyps. Of note, in 2 of the 3 cases, true adenomas were initially thought to resemble neoplasia arising from Barrett's esophagus, a metaplastic change of the esophageal epithelium from squamous to intestinalized columnar mucosa. This assumption was based on the histopathological diagnosis of biopsy specimens obtained from the surface of the polypoid lesions showing intestinal metaplasia and low-grade intraepithelial neoplasia. Therefore, the final histopathological diagnosis could only be established after complete removal of the polypoid mass with clear demonstration of true adenoma. In the 3rd case, the adenoma at the cardia was detected during follow-up after surgical removal of a large adenoma in the distal stomach. Here, findings in biopsy samples were in agreement with the final histopathological results after polypectomy.

Barrett's esophagus remains a histopathological diagnosis. But the accurate diagnosis is indeed dependent on the endoscopist's clearly identifying the site of the biopsy as being in the gastric cardia, hiatal hernia, or the esophagus. There is still a lack of generally accepted criteria to endoscopically distinguish the cardia from the esophagus. Recommendations target to ascertain key anatomic landmarks and to allow some delineation of abnormal columnar-lined esophagus such as the level of the most proximal gastric fold [10]. In our cases the problem for the endoscopist was to define if the biopsy specimens were taken proximal or distal from the gastroesophageal junction because of polypoid lesions around the Z-line.

In our opinion, adenomas of the cardia are not related to Barrett's metaplasia and have to be clearly separated from neoplasia arising from Barrett's esophagus. A sequence of inflammation caused by reflux-Barrett's metaplasia-adenoma-carcinoma appears to be unlikely. Indirect evidence for this assumption derives also from the fact that adenomas are extremely rare. If adenomas indeed were common precursor lesions for carcinomas as in the human colon [11, 12], one would anticipate a higher incidence of adenomas. Due to their rarity, the malignant potential of these adenomas and the recurrence rate for metachronous lesions remain unknown [13, 14]. Clear recommendations on follow-up intervals after resection are, therefore, not available. However, the strong overexpression of p53 in case 1, similar to high-grade lesions in other locations, speaks for a certain risk, despite the deceptively benign histology. As demonstrated in case 3, the interval of recurrence in the same region despite complete resection of the first lesion at the cardia was very short. Therefore, we currently perform follow-up examinations at 6-month intervals in the other 2 patients.

In summary, we were able to show that adenomas of the cardia can be mistaken for dysplasia arising from Barrett's esophagus, if the diagnosis is based on endoscopic biopsies only. It is, therefore, wise to completely remove any suspicious lesions by endoscopy not only for therapeutic, but also for diagnostic reasons. Another challenge is to provide exact endoscopic data to the pathologist from which location biopsy samples were taken. Further data with larger patient numbers are needed to draw any conclusions on the pathogenesis and natural history of this rare condition.

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