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GASTRIC FUNDIC GLAND POLYPS AND COLONIC POLYPS – IS THERE A LINK, REALLY?

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Abstract
Background and aim: A retrospective analysis of endoscopic investigation was carried out. Gastric fundic gland polyps occur in patients with familial adenomatous polyposis. The aim of our study was to investigate if colonic polyps is present and related to gastric fundic gland polyps.
Patients and methods: A 6 years retrospective analysis was carried out. At baseline upper gastrointestinal endoscopy, gastric fundic gland polyps were diagnosed in patients suffered from intestinal bleeding. Subjects received a colonoscopy additionally. A total of 500 patients were enrolled into study: 250 fulfilled the diagnostic criteria for gastric fundic gland polyps and 250 age and sex matched served as controls.
Results: Colonic cancer was more frequently observed in 39 (15.5%) patients who met the criteria of gastric fundic gland polyps as compared to 23 (9.2 %) patients of the controls ($p < 0.05$). Patients with gastric fundic gland polyps tended to have more often colonic polyps 122 vs. 111, but these differences were not statistically significant.
Conclusion: The prevalence of colonic cancer was elevated in patients with gastric fundic gland polyp. Furthermore, this relationship did not differ significantly according to occurrence of colonic polyps. Even tough colonoscopy is prophylactic in preventing colonic cancer; the use of colonoscopy should be encouraged in patients with gastric fundic gland polyps.
Key words: Gastric fundic gland polyps, colonic cancer, colonic polyps

INTRODUCTION

Sporadic gastric fundic gland polyps account for approximately 50 % of all gastric polyps and may be observed in 0.8 to 1.0 % of patients undergoing upper gastrointestinal endoscopy [1-3]. Elster et al. were the first to report a possible association between the gastric fundic gland polyps and synchronous colorectal epithelial tumors[4]. For a larger cohort of 595 patients with gastric fundic gland polyps, different techniques of colorectal work-up were used in order to search for possible coexisting colorectal neoplasia. In this group, neoplasias of the colorectum were discovered in 26.5 % of the patients. Applying total colonoscopy and or contrast enema, the percentage increased to 35.6% [5]. In a prospective study colorectal neoplasias have been shown to present in 45.3% of patients with gastric fundic gland polyps [6]. Gastric fundic gland polyps also occur in 12.5 % to 84 % of patients with familial adenomatosous polyposis [7]. There still remains considerable uncertainty about a synchronous prevalence of gastric fundic gland polyps and colorectal neoplasia. In this investigation, we aimed to evaluate the incidence of colorectal neoplasias in patients with gastric fundic gland polyps using total colonoscopy.

PATIENTS AND METHODS

This study was a retrospective analysis of all patients with gastric fundic gland polyps diagnosed first time at Academic Teaching Hospital Ludwigshafen during a 6 –year period 2000 – 2006, and thus there were no selection. Patients with symptoms of anemia as well as those with gastrointestinal bleeding were included. 250 patients were diagnosed being carriers of gastric fundic gland polyps. The endoscopic diagnosis was confirmed histologically. For completing the diagnostic of bleeding source patients underwent additionally a total colonoscopy. Total colonoscopy was done to specifically search for both source of bleeding and polyps and tumours. Any polyp found was removed by either endoscopical polypectomy or forceps biopsy, with size being the decisive factor for treatment. The tumours and polyps were classified by histological examinations and graded according to the WHO classification [8]. All patients with gastric fundic gland polyps during hospitalization, or as outpatients in the endoscopic unit, were retrieved from the endoscopic diagnosis register of hospital. The medical records of eligible patients were reviewed to obtain histological data. An age- and sex matched control group consisting of 250 patients with no evidence of gastric fundic gland polyps was established.

Statistical analysis: The following methods were applied for statistical analysis: Fisher's exact test. Statistical analysis was performed using SPSS© 12.0.1 for Windows [9].

RESULTS

A total of 500 patients were eligible to be included in this study. 250 patients with gastric fundic gland

Table 1. Number of colonic polyposis in patients with gastric fundic gland polyps (n= 250) compared to controls (n= 250).

			Colonic polyposis yes	no	total
Gastric fundic gland polyps	**yes**	**number**	122	128	250
		%	48.8%	51.2%	100%
	no	**total**	111	139	250
		%	44.4%	55.6%	100%
total		**total**	233	267	500
		%	46.6%	53.4%	100%

p = 0.370

Table 2. Number of colorectal cancer in patients with gastric fundic gland polyps (n= 250) compared to controls (n= 250).

			Colorectal cancer yes	no	total
Gastric fundic gland polyps	**yes**	**total**	39	211	250
		%	15.6%	84.4%	100%
	no	**total**	23	227	250
		%	9.2%	90.8%	100%
total		**total**	62	438	500
		%	12.4%	87.6%	100%

p = 0.041

Table 3. Number of low-grade-adenoma in patients with gastric fundic gland polyps (n= 250) compared to controls (n= 250).

			low-grade adenoma yes	no	total
Gastric fundic gland polyps	**yes**	**total**	104	146	250
		%	41.6%	58.4%	100%
	no	**total**	90	160	250
		%	36.0%	64%	100%
total		**total**	194	306	500
		%	38.8%	61.2%	100%

p = 0.233

Table 4. Number of high-grade-adenoma in patients with gastric fundic gland polyps (n = 250) compared to controls (n= 250).

			high-grade adenoma yes	no	total
Gastric fundic gland cyst	**yes**	**total**	5	245	250
		%	2.0%	98.0%	100%
	no	**total**	8	242	250
		%	3.2%	96.8%	100%
total		**total**	13	487	500
		%	2.6%	97.4%	100%

p = 0.576

Table 5. Correlation between the number of colonic polyposis in patients with gastric fundic gland polyps (n = 250) and controls (n = 250) under consideration of age.

			Colonic polyposis yes	no	total
Aged	**<=50**	number	16	16	32
		% of the group	50.0%	50.0%	100%
	51-60	number	45	81	126
		% of the group	35.7%	64.3%	100%
	61-70	number	67	63	130
		% of the group	51.5%	48.5%	100%
	71-80	number	78	78	156
		% of the group	50.0%	50.0%	100%
	>80	number	27	29	56
		% of the group	48.2%	51.8%	100%
total		number	233	267	500
		% of the group	46.6%	53.4%	100%

No significance p = 0.81

polyps were identified. Thus the prevalence of diagnosed colonic polyps was 122 /250. However, compared to controls (111/250) the difference was not significant (Table 1). The subjects did not differ from the controls in low-grade adenoma or high-grade-adenoma (Table 3, Table 4). Table 2 describes the main difference between patients with gastric fundic gland polyps and controls of the study: 39 of these reported having colorectal cancer compared to those of controls, in which 23 cases of cancer were found in the colorectum. (Significance level $p < 0.05$). The correlation between the number of colonic polyps in patients with gastric fundic gland polyps (n = 250) and controls (n = 250) under consideration of age was without any significance. (Table 5)

Discussion

We found that the prevalence of diagnosed colorectal polyps was not significantly increased in our cohort of 250 patients with gastric fundic gland polyps than expected compared to control group. Furthermore, this relationship did not differ according to differentiation into high grade or low grade adenoma. Our results are in contrast to earlier studies [5, 6]. The prevalence in the group with gastric fundic gland polyps was 45.3 % (including 12.5 % carcinomas) [6]. However, 48.8 % of our patients with gastric fundic gland polyps had developed colorectal adenoma. Additionally, 15.6 % of them presented colorectal adenocarcinoma. Therefore, the pooled prevalence of colonic carcinoma and colorectal adenoma in our study is much higher compared to previously published studies in outpatients.

Jung et al. diagnosed colorectal adenocarcinoma in 12.5 % of patients with fundic gland polyps, which underwent total colonoscopy [6]. An important finding in the present study was that the prevalence of colorectal cancer was significantly higher among patients with gastric fundic gland polyps compared to age and sex matched controls. Our results are in line with a study included 64 patients where gastric fundic gland polyp was found to be an independent predictor for colorectal cancer [6].

Little is known about the natural history of fundic gland polyps. They may occur as early as 8 years of age in familial adenomatous polyposis (FAP). The number and size of polyps have been shown in booth FAP and the sporadic setting to slowly increase, remain the same or sometimes even decrease. Symptoms are rarely associated with fundic gland polyps. It is not known if sporadic fundic gland polyps or fundic gland polyps related to proton pump inhibitor therapy (PPI) have any relation to colonic neoplasms [3]. Distinguished sporadic fundic gland polyps from PPI-related fundic gland polyps is not highly important determination, as both conditions are believed completely benign and extremely unlikely to cause clinical problems. Dysplasia in both of these situations is rare and gastric cancer is not known to be a risk [3]. Gastric fundic gland polyps also occur in 12.5 % to 84 % of patients with FAP [3]. In this setting the occurrence is equivalent in women and men and polyps are observed at much younger ages [3]. The pathogenesis and cancer risk of gastric fundic gland polyps is poorly understood. The general existence of such relationship can be derived from the fact that patients with familial adenomatous polyposis do not show only colorectal pathological findings, but also coexisting glandular cysts in 60 – 70 % [10-12]. It is solely this patient group which has been reported to develop initial adenoma on the apex of glandular cast polyps in 10 % of cases. Only two case reports confirm early cancer in the apex of glandular cysts [13-14]. However, there is no evidence for a malignant transformation occurring in the apex of glandular cysts in patients without FAP. Adenomas and carcinomas of the gastric mucosa arise

in more than 90 % of the cases of Helicobacter pylori-induced gastritis or atrophic autoimmune gastritis, with the vast majority being Helicobacter-associated [6]. As sporadic fundic gland polyps arise almost exclusively in a healthy corpus mucosa with no signs of gastritis [15-17] non-transformation into malignancy does not come unexpectedly.

Nevertheless, an underlying factor in the pathogenesis of glandular cysts appears to be a proliferation disorder [12], thus constituting an accompanying epiphenomenon of a colorectal neoplasia. Regardless of the malignant or non-malignant outcome, a proliferation disorder seems to be a substantial factor in the pathogenesis of glandular cysts [6].

In view of the results presented above, colonoscopy still remains the ultimative standard for the evaluation both of colonic polyps and colorectal carcinoma in patients with gastric fundic gland polyps. The fact that the prevalence of colonic cancer was elevated in patients with gastric fundic gland polyp is a further argument in favor additional coloscopy,

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