

Aclinico-Pathological study of Gastric polypi in Iraqi patients

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ABSTRACT

Background:

Gastric polyps are encountered during upper gastro-intestinal endoscopy. In most cases the polyps are small, sessile, single and located in the antrum and occur in patients with gastritis. Hyperplastic polyps are the most common encountered subtype gastric polyp. Many of these represent a reactive processes.

Aim of the study:

To analyse gastric polypoid lesions in our patient- population with respect to histopathological features, demographic, clinical and endoscopic characteristics.

Patients and Method:

Clinical records and histopathological reports of the patients with gastric polypoid lesions were analyzed retrospectively. All lesions had been totally removed by either by endoscopic polypectomy or hot biopsy forceps. The histopathologic evaluation was performed by the center's specialized team.

Results:

Eighty six gastric polypoid lesions were identified in 8000 patients who underwent upper endoscopy. There were 45 women (52%) and 41 men (48%) with a median age of 60 (range :10 80) years. The most frequent presenting symptom was epigastric pain that was observed in 60 patients (70%). Symptoms were mostly related to associated gastric abnormalities such as gastritis and Helicobacter pylori infection rather than the polypoid lesion itself. Gastric polypi were commonly found in the antrum followed by cardia. The majority (55.8%) were less than or equal to 5 mm in largest dimensions and only (24.4%) of gastric polypi were pedunculated. The frequencies of hyperplastic polyps, hamartomatous polyps and inflammatory polyps were (69.7%), (10.4%), and (9%) respectively. Adenomatous polyps were detected in 5 patients, gastric cancer in 2, leiomyoma in 1, retention polyps in 1, and fundic glandular polyp in 1 patient. Histopathological evaluation of the surrounding gastric mucosa demonstrated chronic gastritis in 27 patient (31.3%), Helicobacter pylori in 10 patients (11.6%), intestinal metaplasia in 11 patients (12.7%), and dysplasia in 6 patients (6.9%).

Conclusion:

Hyperplastic polypi are the most frequently encountered subtype of gastric polypoid lesions. They are mostly single, sessile and located at antrum. It is associated with chronic gastritis or H. pylori gastritis. Hyperplastic polyps are apparently harmless lesions. However, some authors reported a risk of their malignant transformation which is not supported by our study. Endoscopic polypectomy seems to be a sensible diagnostic and therapeutic procedure for hyperplastic polypi.

Keyword:

Gastric polyp, pathology

Introduction

: In the alimentary tract the term polyp is applied to any nodular mass that project above the level of the surrounding mucosa.

(1)The frequency of gastric polypi is gradually increasing due to the widespread use of endoscopic examinations (2,3)

Gastric polyps are detected in 2-3% of upper GI endoscopic examinations, often incidentally (2,3). They are usually small with a diameter of less than 1-2 cm. With larger polyps, patients may complain of vague abdominal discomfort, bleeding and rarely a prolapsing antral polyp may obstruct the gastric outlet. (4)Gastric polyps may be neoplastic or non-neoplastic.

Neoplastic lesions which may present as polyps in the stomach include adenoma (relatively rare), carcinoma (the most common polypoid neoplastic lesion) and actually any gastric neoplasm may present as a polyp. (4)

About 80-90% of gastric polyps are non-neoplastic and these include hyperplastic polyps, fundic gland polyps, focal foveolar hyperplasia, juvenile retention polyps, inflammatory fibroid polyps and hamartomatous polyps.

While most mesenchymal polyps are submucosal and include leiomyoma, neurofibromas, lipomas, granular cell tumor, and gastro-intestinal stromal tumor. (6)

Hyperplastic polyps

Hyperplastic polyps are the most common polypoid lesions of the stomach (approximately 75% of all gastric polyps), far common

er than adenomatous polypi and they do not seem to enlarge with time as adenomatous polyps do (4, 7). Rarely hyperplastic polyps are associated with a carcinoma or an adenoma in the same lesion.

The histology is that of hyperplasia of foveolar elements (4). Gastric hyperplastic polyps tend to occur against the background of hypochlorohydria, low level of pepsinogen, hypergastrinemia, chronic gastritis and gastric atrophy (8,9). The likelihood that hyperplastic polyps are associated with atrophic gastritis is proportional to number of the polyps. If there are more than 10 polyps, the chance of associated atrophic gastritis is as high as 30%.

(10) These polyps probably never become a cancer but there is a slightly increased risk of cancer elsewhere in the stomach (10).

Endoscopic appearance:

Hyperplastic polyps can occur throughout the stomach, they are usually less than 1.5cm in diameter, can be single or multiple, sessile or pedunculated. With larger polyps, the overlying mucosa is often red, friable and there may be a small erosion or ulceration at the tip of the polyp. (4, 5)

The 10-20% of polyps that are larger than 2 cm may be confused with adenomatous or carcinomatous lesions. (4, 5)

Histopathological features:

Hyperplastic polyps show elongation, tortuosity and dilatation (often cystic) of the gastric foveolae, with a component of pyloric or less commonly fundic type of glands in the deeper portion. (11) The stroma which is usually prominent, is characterized by edema, patchy fibrosis, inflammatory cells and scattered smooth muscle bundles. Collections of foamy macrophages (not to be confused with signet ring cells) are also present. Epithelial atypia is either absent or minimal and usually of a regenerative type, and limited to the tips of the foveolae. (11) In the presence of significant focal atypia, the diagnosis of a mixed (hyperplastic and adenomatous) polyp should be considered. (4, 11)

Fundal gland polyp

Also called fundic gland hamartomas and glandular cysts. They are the second most common type of gastric polypi.

They occur in the oxyntic mucosa of the fundus and body and are detected in about 2% of all endoscopies. (4,

6) Fundic gland polyps are also seen in patients with familial adenomatous polyposis (occur in 50% of patients with FAP) (4,6)

Histologically, there is glandular dilatation and budding. The deeper part of the gland show cystic dilation, and the most common criterion is the presence of microcysts lined by chief and parietal cells. (4,6)

Fundal gland polyps are not considered a risk factor for the development of gastric carcinoma (4,6).

Foveolar or focal hyperplasia

Arise against a background of atrophic gastritis and perhaps represents an early stage of hyperplastic polyp and antral gland hyperplasia (probably analogous to so called pyloric gland adenoma).

Inflammatory fibroid polyp

Inflammatory fibroid polyp is the currently preferred term for a non-neoplastic lesion previously described under several names such as eosinophilic granuloma, inflammatory pseudotumor, granuloblastoma, neurofibroma and hemangiopericytoma. (4) It is frequently associated with hypochlorohydria or achlorohydria and is usually located in the antrum. (4) Radiographically and endoscopically it presents as a sessile or pedunculated mass.

Microscopically this lesion is centered in the submucosa and is characterized by vascular and fibroblastic proliferation (often in a whorl-like arrangement around blood vessels) and a polymorphic inflammatory response, usually dominated by eosinophils. (4,6)

The polyposis syndromes of the gastrointestinal tract

These often involve the stomach. In familial colonic polyposis and the related Gardner's syndrome, gastric involvement occurs in over 50% of the cases. The gastric polyps can be adenomatous, hyperplastic or of fundic gland hyperplasia type. (4,6) In Peutz-Jeghers syndrome, hamartomatous gastric polyps have been found in approximately 20% of the cases (sometimes accompanied by an adenomatous component)

. (4,14) In generalized juvenile polyposis and the related Cronkhite-Canada syndrome the incidence of gastric retention (juvenile) polyp is very high.

Cowden's syndrome (multiple hamartomatous syndrome) can also be accompanied by small sessile gastric polyps, most of which seem to be of the hyperplastic type. (6, 14)

Adenomatous polyps:

Adenomatous polyps are uncommon accounting for only 5-10% of polypoid lesions in the stomach.

Up to 40% contain a focus of carcinoma, especially the larger villous lesions (greater than 1-2cm). These polyps may develop invasive malignancy with time. The risk of cancer in the adjacent gastric tissue may be as high as 30%. (5)

Endoscopic features:

Adenomatous polyps are usually larger than hyperplastic polyps.

(5) They are often red, with lobulated surface that may be smooth or superficially eroded. They are single in 60% of cases. (4,10) Adenomatous polyps are usually sessile, more commonly located in the antrum than in the body. (4, 10)

Microscopically, they are composed of dysplastic glands with pseudo-stratified epithelium showing nuclear abnormalities and high mitotic count (7, 12) They have been subdivided into gastric-type and intestinal-type depending on the nature of the glandular epithelium. (13)

The intestinal type adenomas which are the most common are analogous in appearance and natural history to those in the colon and rectum and are thought to arise on the basis of intestinal metaplasia (14)

Like their large bowel counterparts, adenomas of the stomach can be divided into tubular, villous and tubulo-villous. The latter two are associated with the highest risk of developing cancer in the polyp. (4)

Villous polyps are often large, commonly located in the antrum, sessile, superficially eroded and associated with blood loss and may obstruct the gastric outlet. (4,5,10).

The aim of the study:

To study gastric polypoid lesions with respect to histological features, demographic, clinical and endoscopic characteristics in Iraqi patients

Patients and methods:

Patients with gastric polypoid lesions detected by upper gastrointestinal endoscopy at the Gastroenterology and Hepatology Teaching hospital in Baghdad between

January 2003 and August 2005 were analyzed retrospectively.

Of 8000 patients that have undergone upper GI endoscopy, gastric polypoid lesions were diagnosed in 86 patients. The clinical and histopathological reports of these patients were reviewed. All endoscopies were performed under topical pharyngeal anesthesia with 10% lidocaine without parenteral sedation. Clinical and histopathological reports of the patients were re-evaluated.

The location, shape, size and surface appearance of each polypoid lesion was assessed and recorded.

Polypoid lesions were removed either by endoscopic polypectomy with one attempt or by hot biopsy forceps with multiple attempts according to their size.

In addition multiple biopsies were collected from adjacent mucosa to detect any associated histopathological changes such as gastritis, H pylori infection or intestinal metaplasia.

A team of experienced pathologists at the center had evaluated all the tissue samples to confirm the histopathological subtype of gastric polypoid lesions and notify any associated gastric pathology.

Results:

1. Demographic features:

In the 8000 endoscopies that were performed, gastric polypoid lesions were diagnosed in 86 patients (about 1%).

There were 45 (52%) women & 41 (48%) men with slight female predominance (1.2:1).

The age of patients ranged from 10-80 year with peak incidence at 60 year

2. Clinical features:

The most frequent symptoms were epigastric pain (70%), followed by dyspepsia (14%) then anemia and melaena (6%), repeated vomiting (5.5%) and haematemesis (4.5%). Symptoms were usually related to the associated gastric abnormalities such as gastritis & Helicobacter Pylori infection. Exceptionally there were two large antral polyps causing intermittent gastric outlet obstruction.

There were three cases of gastric polypi causing anemia due to melaena, two of them proved to be adenocarcinoma of the stomach & one case was presumably a leiomyoma as indicated by Endoscopic Ultrasound. In four cases the presentation was haematemesis and endoscopy showed esophageal varices grade IV with portal hypertensive gastropathy and the histopathology of the associated gastric polyps were hyperplastic polyps. (table 1)

Table 1: The clinical features of gastric polyps in 86 patients

Symptoms	Number	percent
Epigastric pain	60	(70%)
Dyspepsia	12	(14%)
Anemia	5	(6%)
Repeated vomiting	4	(5.5%)
Haematemesis	4	(5%)

3- Endoscopic features

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The various characteristics of gastric polypoid lesions are presented in tables (2,3,4)

Table 2: The distribution and location of gastric polyps

Location	Number (percent)
Antrum	43(50%)
Cardia	11(12.7%)
Greater curative	7(8.1%)
Lesser curative	6(6.9%)
Fundus	6(6.9%)
Diffuse (whole stomach)	2(2.3%)
Prepyloric area	11(12.7%)

Table 3: The shape of the gastric polyps

SHAPE	
sessile	65(75.5%)
pedunculated	21(24.4%)

Table 4 : The size of gastric polyps

Size	No (%)
< 5mm	48(55.8%)
5 – 10 mm	16(18.6%)
10 – 20 mm	13(15.1%)
20 – 30 mm	2(0.2%)
30- 50 mm	4(0.46%)
> 5cm	3(0.3%)

The commonest location of gastric polyps was in the antrum (50%) followed by the cardia (12.7%), the prepyloric area (12.7%), at the greater curvature (8.1%), at the lesser curvature (6.9%), at the fundus (6.9%) and diffuse (whole stomach) (0.2%)

Out of 86 gastric polypoid lesion 65 (75.5%) were sessile while the remainder were pedunculated (24.4%)

Figure 1: Endoscopic views of pedunculated polyp (A) & multiple gastric polyps (B). (X)

Forty eight (55.8%) of gastric polypoid lesions were 5 mm or less in largest dimension and were totally removed by hot biopsy forceps.

In the remainder, the largest dimension ranged from 6-30mm. Seven lesions were initially evaluated by forceps biopsy because they were suspicious lesions endoscopically because their size was more than 3 cm. After evaluation of these polyps by histopathologically, two lesions proved to be tubular adenomas with moderate dysplasia ,another two were hyperplastic polyps, one was a hamartomatous polyp and another one was afundic glandular polyp while the remainder was a leiomyoma as indicated by EUS and was removed surgically.

Out of 86 gastric polypoid lesion thirteen 15.1% had surface ulceration, one (7%) was a tubular adenoma and the remainder were hyperplastic polyps as shown in table (5). Multiple polyps were detected in 15 patients (17.4%). In ten patients (66.6%) the polyps were located in the antrum, in two patients (13.3%) they were located at body, while in the other three patients (20%) they were located at the cardia. Their histopathological types were hyperplastic polyps in 12 (80%), adenomatous polyps in 2 (13.3 %) and retention polyps in 1 (6.6%).The total number of patients with single polyps was 71 (82.5%). Their commonest histopathological type was hyperplastic polyp (73.2%) as shown in table (6).. Inflammatory polyps followed , forming (12.6%), while hamartomatous polyps and adenomatous polyps respectively formed 11.2% and 4.2%.

Table 5 showed the number and location of gastric polyps

	Antrum	Body	Fundus	cardia
Multiple polyps	(11.6%) 10	(1%) 1	(1%) 1	(3%) 3
Ulcerated surface	8(9%)	2(2%)	1(1%)	2(2%)
Single polyp	51(59%)	8(9%)	5(5.8%)	6(6.9%)

Table 6: The histopathological types of gastric polypoid lesions in 86

	Total	Inflammatory polyps	Hamartomatous polyps	ADENOMATOUS POLYPS	Retention Polyp	Hyperplastic Polyp
Multiple polyps	15 (17.1%)	0	0	2 (13.3%)	1 (6%)	13 (86%)
Ulcerated polyps	13 (15.4%)	0	0	1 (6%)	0	12 (92.3%)
Single polyps	71 (82.5%)	9 (12.6%)	8 (11.2%)	3 (4.2%)	0	47 (66.1%)

HISTOPATHOLOGICAL FEATURES OF THE LESIONS:

The most frequently encountered histopathologic subtype of gastric polyp was hyperplastic polyps which were diagnosed in 69.7% of patients followed by hamartomatous and inflammatory polyps respectively seen in (9%) of patients.

Five patients had adenomatous polyps while in two patients the polyps proved to be well differentiated adenocarcinoma. The remainder were a leiomyoma, a retention polyp and a fundic glandular polyp.

Table 7: The histopathological subtypes of gastric polypi in 86 patients.

HISTOLOGICAL SUBTYPES	Number Percent
Hyperplastic polyp	60 (69.7%)
Inflammatory polyp	8(9%)
Hamartomatous polyp	9(10.4%)
Adenomatous polyp	5 (5.8%)
Gastric cancer	2(2.3%)
Leiomyoma	1(1.1%)
Retention polyp	1(1.1%)
Fundic Glandular polyp	1(1.1%)

Evaluation of the surrounding gastric mucosa revealed that 27 (31%) patients had chronic gastritis. Ten patients (11.6%) had associated *H. pylori* infection and 10 (11.6%) had intestinal metaplasia. Dysplasia was observed in 6 patients (5.8%). In 4 of these patients the

Dysplasia associated adenomatous polypi and ranged from mild to severe. The remaining two, one was hamartomatous polyp related & the other was an inflammatory polyp and in both the dysplasia was low grade as shown in table (8).

Table 8 showed the surrounding gastric mucosal abnormalities in gastric polyps patients.

	Inflammatory Polyp	Adenomatous Polyp	Hyperplastic Polyp	Hamartomatous polyp
Normal	6	Zero	40	4
Chronic gastritis	2	2	20	3
H.Pylori	2	1	6	1
Intestinal metaplasia	1	1	7	2
Dysplasia	1 Low grade	4	Zero	1 Low grade

Chronic gastritis was found mostly in patient who had hyperplastic polyps (74%) followed by hamartomatous polypi (11.1%) & inflammatory polyp (7.4%)

The average size of hyperplastic polyps was 8 mm in diameter. Two large polyps were antral in location causing intermittent gastric outlet obstruction and were found to be adenomas (their size was around 3 cm in diameter).

Hyperplastic polyps were located in the antrum in 43 patients (50%). Eleven (17.7%) polyps were pedunculated and thirteen patients (20.9%) had multiple hyperplastic polyps. Coexistent gastric abnormalities such as chronic gastritis, *H. pylori* infection and intestinal metaplasia were seen in 20 (74%), 6 (9.6%) and 7 (11.2%) patients respectively.

Discussion:

The incidence of gastric polyps was 1% in 8000 patients who underwent upper GI endoscopic examination at the GIT & hepatology Teaching hospital Oberhuber G and et al (2000) reported a frequency of 2-3% of gastric polyps in their study(15).

Sebastien M W(16) and Rasim G. et al (14,17) reported that most of gastric polyps were single and sessile. Our study confirmed this finding whereby (73%)of gastric polyps were single and (75.5%) were sessile (16).

Sebastien MW(16) reported a mean age of 40 for their gastric polyp patients, while in our study the mean age of the patients was over 60.

Rasim Gencosmoglu and et al reported a comparable median age of 53 in their series (17). Although the vast majority of gastric polyps were asymptomatic (17), most of our patient who were discovered to have gastric polyps were symptomatic and the most frequent symptoms were epigastric pain followed by dyspepsia, anemia, repeated vomiting, hematemesis, melena and gastric outlet obstruction. In the study of Rasim G. et al (14) the most frequent symptoms were dyspepsia followed by epigastric pain and anaemia.

The complication risk in gastric polypi is reported to be generally related to polyp size (14). In our study seven polyps (8%) were larger than 3cm in diameter and two of them caused gastric outlet obstruction by their large size and location near the pylorus. Two of these polyps were adenomas and one was a leiomyoma causing bleeding. However, our results, support the opinion that the underlying gastric abnormalities are more likely to be responsible factors for the symptoms in the majority of the patients with gastric polyps.

Hyperplastic polypi were the most frequently encountered type of gastric polyps in our study. Similar findings were reported by other studies(18,19,20,21). Most authors (20,21) consider gastric hyperplastic polyps to be completely benign. Similarly in our study none of gastric

hyperplastic polypi were associated by adenomatous or malignant change, neither in the polyp and nor in the surrounding mucosa even in those patients with chronic gastritis & H. pylori gastritis. However, some recent studies showed that hyperplastic polypi

might harbor adenomatous changes or dysplastic foci (5,18,20,21). Hizawa(22) and Zea Iriarte (23) reported an incidence of 2% & 1.8% respectively of malignant change in hyperplastic polyps.

Since hyperplastic polyps were usually associated with chronic gastritis particularly autoimmune gastritis and H.pylori gastritis, thus, patients with hyperplastic polyps are at an increased risk of synchronous or metachronous adenocarcinoma elsewhere in the stomach (2,4). A study from Germany with up to 7 years follow-up after endoscopic removal of hyperplastic polyps reported later adenocarcinoma in 1.4% of patients(14).

In our study hyperplastic polyps were usually associated with chronic gastritis and H. pylori gastritis in agreement with other reports (3,15).

Inflammatory & hamartomatous polyps were the second most common type of gastric polypoid lesions in our study. While other reports suggested foveolar hyperplasia to be the second most common subtype (5,24,25)

Gastric adenomas, similar to hyperplastic polyps, are usually detected in pathological abnormal gastric mucosa as gastritis or intestinal metaplasia (18,19)

In the five adenomatous polyps detected in our study, three were associated with chronic gastritis, and in one of them H.pylori was incriminated. The remainder two, were associated with intestinal metaplasia and low grade dysplasia.

The malignant potential of gastric adenomas is related to their histologic features, shape, size and surface appearance (26). While the risk of malignancy in adenoma smaller than 2 cm in diameter ranged from 1-5%, in larger ones it was higher than 50%(27,28)

In our study reported five cases of adenomatous polyps. Three adenomatous out of five polyps(75%)were single and sessile while the remainder 2(40%) were multiple

lesion and ulcerated. Their size ranged from less than 2 cm in 3(60%) while 2 (40%) were 2-5 cm in size.

These findings are comparable to those reported by Abraham Sc and etal and the results of Stotle M (26,27). Generally the commonest site of gastric polyps in our study was the antrum (50%) followed by the cardia(12.7%), prepyloric area(12.7%), greater curvature(8,1%), lesser curvature(6,9%), fundus(6.9%) ,and lastly. They were usually sessile (75.5%) and their size was usually small (less tha 1 cm in 64%). These results are comparable to those of Rasim G. et al (17).

Conclusion:

Hyperplastic polypi are the most frequently encountered subtype of gastric polypoid lesions. They are mostly single, sessile and located at antrum. It is associated with chronic gastritis or H. pylori gastritis. Hyperplastic polyps are apparently harmless lesions. However, some authors reported a risk of their malignant transformation which is not supported by our study. Endoscopic polypectomy seems to be a sensible diagnostic and therapeutic procedure for hyperplastic polypi.

Recommendation:

1. All gastric polypi diagnosed during endoscopy should be biopsied to exclude a neoplastic process. The pathologist should be notified about their size ,site ,and number for better interpretation.
2. Endoscopic resection of polypi is feasible for most and can be performed by one attempt if small or multiblt if large.
3. Endoscopic ultrasound and other modern imaging modalities can be useful in assessment of larger polypi and exclusion of invasion.
4. Endoscopic follow up is recommended for patients gastric polypi especially the adenomatous ones, for possibility of development of new ones, recurrence or progression.

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