Benign Epithelial Gastric Polyps – Frequency, Location, and Age and Sex Distribution

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A B S T R A C T

Prospective investigation has been undertaken with the aim to study the frequency, location and age and sex distribution of various histological types of benign gastric epithelial polyps. Histological type - adenomatous, hyperplastic and fundic gland polyps - was diagnosed on the basis of at least three histological samples taken from the polyp. Biopsy samples were also taken from the antrum and the body of the stomach so that gastritis could be graded and classified, and the presence of H. pylori could be determined by histology. All 6,700 patients, who had undergone upper gastrointestinal endoscopy in a one-year period, participated in this study. Among them 42 benign gastric epithelial polyps were found in 31 patients: adenomatous gastric polyps in 7 patients, hyperplastic gastric polyp in 21 and fundic gland polyp in 3 patients. All patients with hyperplastic polyps had chronic active superficial gastritis, whereas most of the patients with adenomatous polyps had a chronic atrophic gastritis with high prevalence of intestinal metaplasia. Among 21 patients with hyperplastic gastric polyps, 16 (76%) patients were positive for H. pylori infection in contrast to only 2 patients (29%) with adenomatous gastric polyps and 1 patient (33%) with fundic gland polyp. Presented data indicates that hyperplastic gastric polyps are the most common and they are associated with the presence of chronic active superficial gastritis and concomitant H. pylori infection. Adenomatous polyps are rarer and they tend to be associated with chronic atrophic gastritis and intestinal metaplasia. Fundic gland polyp is the rarest type of gastric polyps.

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Introduction

Data regarding the frequency, location, size, and the sex and age of the patients affected with the various types of benign gastric epithelial polyps have been quite confusing. This has been due in part to the use of different classification systems over the years. Since the introduction of a uniform classification of gastric tumors, including benign gastric epithelial polyps, by the World Health Organization (WHO), the disadvantages resulting from different nomenclatures have been eliminated. Therefore, the aim of the present prospective study was to evaluate the frequency and distribution of various benign gastric epithelial polyps found in our patient population for a period of one year, and to determine the correlations between the various histotype polyps and demographic features of the patients.

Material and Methods

From November 1996 to December 1997, 6,700 patients who had undergone upper gastrointestinal endoscopy at the two centers in Zagreb, Croatia, were candidates for participation in the study. Whenever benign gastric epithelial polyp was diagnosed, the referring physician was asked to enroll the patient according to the protocol. Provided that patients met the inclusion criteria (i.e., the presence of gastric polyp) and gave their informed consent, they were included in the study.

Almost all patients (6,683 out of 6,700 patients, 99.7%) had a prolonged history of gastric symptoms before diagnosis, and most of them (4,256 out of 6,700, 63.5%) had already been given antacids or H2 receptor antagonists, or both. Benign gastric epithelial polyps (adenomatous, hyperplastic and fundic gland polyps) were diagnosed on the basis of at least three histological samples taken from the polyp. In seven patients endoscopy had to be repeated because forceps biopsy samples were inadequate for correct histological diagnosis. In only one of the 21 patients in whom endoscopic snare polypectomy was done, the histological diagnosis was modified after the entire polyp was made available (patient with adenomatous polyp).

Endoscopic biopsy samples were taken from the antrum (two samples) and the body of the stomach (two samples) so that gastritis could be graded and classified, and the presence of H. pylori could be determined by histologic examinations. Slides were stained with hematoxylin and eosin, as well as Giemsa stain. Two other samples were taken from the antrum and body for the rapid urease test (CLO test; Delta West Ltd., Perth, Australia). The patients were considered to be positive for H. pylori when both histology and the rapid urease test were positive.

Follow-up examinations were performed by endoscopy. The follow-up ranged from 4 to 17 months, with a median of 14 months. The same endoscopist was involved in the follow-up as in the initial histological diagnosis of the gastric polyp.

Results

Among 6,700 patients, 42 benign gastric epithelial polyps were found in 31 patients. Thirteen adenomatous gastric polyps were found in 7 patients (two women, five men; median age, 67 years). Twenty-six hyperplastic polyps were found in 21 patients (nine women, 12 men; median age, 52 years). Three fundic gland polyps were found in 3 patients (two women and one man; median age 53 years). All patients except one with a solitary adenomatous polyp and one with a fundic gland polyp were symptomatic at presentation; the main symptoms were dyspepsia, pain and nausea. Two patients with hyper-
plastic polyps and one patient with adenomatous gastric polyp had associated with duodenal and gastric ulcer, respectively.

Frequency and location of benign epithelial gastric polyps were demonstrated in Table 1. All patients with hyperplastic polyps had chronic active superficial gastritis, whereas five (71.4%) of the patients with adenomatous polyps had a chronic atrophic gastritis with high prevalence of intestinal metaplasia (Table 2). Four of the 21 patients (19%) with hyperplastic gastric polyps and two of the 7 patients (29%) with adenomatous polyps harbored multiple polyps. All patients with fundic gland polyp had solitary polyp each. Among 21 patients with hyperplastic gastric polyps, 16 patients (76%) were positive for *H. pylori* infection. Only two of

### TABLE 1

<table>
<thead>
<tr>
<th>Frequency (%) (N=42)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Antrum</td>
</tr>
<tr>
<td>Hyperplastic</td>
<td>26 (62)</td>
</tr>
<tr>
<td>Adenomatous</td>
<td>13 (31)</td>
</tr>
<tr>
<td>Fundic gland</td>
<td>3 (7)</td>
</tr>
</tbody>
</table>

### TABLE 2

<table>
<thead>
<tr>
<th></th>
<th>Hyperplastic (N=26)</th>
<th>Adenomatous (N=13)</th>
<th>Fundic gland (N=3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of polyp (cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1</td>
<td>19</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>1–2</td>
<td>5</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Number of polyp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solitary</td>
<td>17</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Multiple</td>
<td>9</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Associated mucosal changes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic superficial gastritis</td>
<td>21/21</td>
<td>2/7</td>
<td>1/3</td>
</tr>
<tr>
<td>Chronic atrophic gastritis</td>
<td>0/21</td>
<td>5/7</td>
<td>0/3</td>
</tr>
<tr>
<td>Intestinal metaplasia</td>
<td>8/21</td>
<td>7/7</td>
<td>1/3</td>
</tr>
<tr>
<td>Dysplasia within the polyp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Moderate</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><em>Helicobacter pylori</em> infection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>16</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Negative</td>
<td>5</td>
<td>5</td>
<td>2</td>
</tr>
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</table>
the 7 patients (29%) with adenomatous
gastric polyps, and one of the 3 patients
(33%) with fundic gland polyp were in-
fected with \textit{H. pylori}.

Endoscopic snare polypectomy was
carried out in 9 patients with hyperplas-
tic polyps in whom regression of the polyp
was not observed after \textit{H. pylori} eradica-
tion, as well as in 5 patients with hyper-
plastic gastric polyps who were \textit{H. pylori}
negative. Endoscopic snare polypectomy
has been performed in 6 patients with ad-
enomatous gastric polyps, whereas ex-
ploratory laparotomy and gastrotomy
with polyp excision were carried out in
one patient with multiple adenomatous
polyps. Argon plasma coagulation of the
gastric polyps has been performed in 3
patients with fundic gland polyp.

Recurrence of hyperplastic gastric po-
lyp was recorded in only one patient, who
was negative for \textit{H. pylori}, during fol-
low-up. No recurrence of adenomatous
polyps, as well as of fundic gland polyp
has been observed during the follow-up
period (Table 3).

\textbf{Discussion}

Benign gastric epithelial polyps are
uncommon lesions. Out of 6,700 gastro-
scopies performed over a period of one
year, only 42 polyps were found in 31 pa-
tients (0.5%). Most of the benign epithe-
elial gastric polyps belong to the category
of hyperplastic polyps as has been previ-
ously reported\cite{7,8}. Among our patients
with benign epithelial gastric polyps
there was a slight predominance of male
which is different from the results of
other authors suggesting that hyperplas-
tic gastric polyps are significantly more
common in women, while the other pol-
yps are more or less equally distributed
between the sexes\cite{8}. However, no signifi-
cant difference in the median age of the
various groups of patients with gastric
polyps were observed, so we agreed with
the statement that it is not possible to
distinguish histologic types of polyps by
the demographic features of the pa-
tients\cite{9,10}.

The concept of a causal correlation be-
tween \textit{H. pylori} positive chronic superfi-
cial active gastritis and hyperplastic gas-
tric polyps has been suggested\cite{5,11}. It has
been demonstrated that eradication of
the \textit{H. pylori} infection can lead to a com-
plete regression of hyperplastic gastric
polyps, particularly of those smaller than
one centimeter in diameter\cite{5}. Among
the patients with adenomatous gastric pol-
yps, the prevalence of \textit{H. pylori} infection
seems to be relatively low. In such pa-
tients, the successful eradication of the
\textit{H. pylori} infection did not lead to regres-
sion of polyps.

Gastric adenomas have a reported in-
cidence of malignant transformation
ranging from 6\% to 75\%\cite{12,13}. The risk of
carcinomatous transformation is size-de-
pendent, with a polyp size greater than
2cm suggested as being critical in the de-
termination of malignant potential for

\begin{table}
\centering
\caption{Recurrence of Benign Epithelial Gastric Polyps After Therapy with Endoscopic Snare Polypectomy or Argon Plasma Coagulation* During Follow-Up}
\begin{tabular}{|l|c|c|}
\hline
 & Recurrence N (%) & No recurrence N (%) \\
\hline
Hyperplastic (N = 14) & 1 (7.1) & 13 (92.9) \\
Adenomatous (N = 6) & 0 & 6 (100) \\
Fundic gland* (N = 3) & 0 & 3 (100) \\
\hline
\end{tabular}
\end{table}
adenomatous polyps. Malignant transformation of hyperplastic polyps ranges from 1.5% to 3%. Strong relationship between malignant transformation and the size of hyperplastic gastric polyps has not been elucidated as for adenomatous polyps. Dysplasia and carcinoma are more likely to be found on the surface of larger hyperplastic gastric polyps.

The incidence of polyp recurrence after endoscopic snare polypectomy is relatively low, ranging from 0% to 16%. Our findings demonstrate that in a great majority of patients no recurrence of either hyperplastic, adenomatous, or fundic gland polyps was recorded after successful endoscopic snare polypectomy.

In conclusion, our data indicates that hyperplastic gastric polyps are the most common, associated with the presence of chronic active superficial gastritis and concomitant H. pylori infection. Adenomatous polyps are rare, associated with chronic atrophic gastritis and intestinal metaplasia. Fundic gland polyps are very rare.

Acknowledgement

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REFERENCES


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LITERATURNI PODACI GLEDE PRAERASPODJELE PREMA SPOLU I DOBI TE UČESTALOSTI, LOKALIZACIJI TE NJIHOVA RASPODJELA PO DOBI I SPOLU

S A Ž E T A K

Literaturni podaci glede preraspodjele prema spolu i dobi te učestalosti, lokalizaciji i veličini benignih epitelijalnih polipa želuca nisu sukladni. cilj ovog istraživanja bio je odrediti odnos između različitih histoloških tipova benignih epitelijalnih polipa želuca i demografskih karakteristika bolesnika s osvrtom na recidive polipa nakon endoskopske polipektomije. U razdoblju između studenog 1996. i prosinca 1997. godine, 6700 bolesnika je gastroskopirano. Benigni epitelijalni polipi želuca (adenomatozni, hipertrofiji i žljezdani polipi fundusa želuca) su dijagnosticirani histološki. Biopsije su također uzimane iz antruma i korpusa želuca kako bi se gastritis mogao klasiificirati i stupnjevati, a istodobno odrediti i nazočnost infekcije s H. pylori. Bolesnici su pruženi tijekom razdoblja od 4 do 17 mjeseci s medijanom od 14 mjeseci. Između 6700 gastroskopija načinjenih tijekom jednogodišnjeg razdoblja, 42 benigna epitelijalna polipa želuca su nađena u sveukupno 31 bolesnika. Adenomatozni polipi želuca su nađeni u sedam bolesnika (dvije žene i pet muškaraca, prosječne dobi od 67 godina) dok je u 21 bolesnika (devet žena i 12 muškaraca prosječne dobi od 52 godine) histološki dokazan hiperplastični polip želuca. Žljezdani polip želuca nađen je u tri bolesnika (dvije žene i jedan muškarac prosječne dobi od 53 godine). Svi bolesnici s hiperplastičnim polipima želuca su imali kronični aktivni superficijalni gastritis. Većina bolesnika s adenomatoznim polipima želuca imala je kronični atrofični gastritis. Od 21 bolesnika s hiperplastičnim polipima želuca, 16 (76%) bolesnika je bilo pozitivno na H. pylori. Dva (29%) bolesnika s adenomatoznim polipima želuca je bilo pozitivno na H. pylori. Endoskopska polipektomija je načinjena u 21 bolesnika s hiperplastičnim polipima želuca i u 6 bolesnika s adenomatoznim polipima želuca. Recidiv nakon polipektomije je zabilježen u jednog bolesnika s hiperplastičnim polipima želuca. U zaključku možemo ustvrditi da su hiperplastični polipi najčešći među benignim epitelijalnim polipima želuca, udruženi s kroničnim aktivnim superficijalnim gastritisom i infekcijom s H. pylori. Adenomatozni polipi su rijetki, udruženi s kroničnim atrofičnim gastritisom i intestinalnom metaplazijom. Žljezdani polipi fundusa želuca su izuzetno rijetki.