Gastric Polyps and their Relationship with Malignancy

Bista Roka P*, Roka K**
*Assistant Professor, Department of Pathology, National Academy of Medical Sciences, Bir Hospital, Kathmandu.
** Assistant Professor, Department of Medicine, Shree Birendra Hospital, Chhauni, Kathmandu.

ABSTRACT

INTRODUCTION: Gastric polyps are found inadvertently on upper gastrointestinal endoscopy performed for an unrelated indication and only in rare cases they cause symptoms. The diagnosis of the polyps by histopathology is still a sine-qua-non as some these polyps have malignant potential or harbinger a malignancy at the time of their diagnosis.

This is a retrospective study done in Department of Pathology of Bir hospital, National Academy of Medical Sciences (NAMS), Kathmandu to see the incidence of gastric mucosal epithelial polyps, their location within the stomach, their size, different histological types and their association with malignancy on all the patients who had upper gastrointestinal endoscopy in the Department of Gastroenterology.

METHOD: A total of 40,060 upper gastrointestinal endoscopy were done in Bir hospital, NAMS, over the period of three years starting from January 2012 to December 2015. Pertinent demographic data and clinical indications for upper gastric endoscopy were retrieved from Department of Pathology, histopathology section. All biopsies were sent for histopathological examination to confirm the diagnosis.

The biopsy samples were received and after adequate fixation in 10% formalin, the specimen were processed in tissue processor, embedded in paraffin and serial sections were stained with hematoxylin and eosin (H&E). The slides were examined by junior pathologists followed by senior consultant pathologist.

RESULT: The present study showed that the hyperplastic polyps were the most common type of polyps and constituted 63.80%, followed by fundic gland polyps comprised 26.6% and adenomatous polyps 9.52%. Focal adenocarcinoma were found in two cases of hyperplastic polyps which comprised 2.09% of the hyperplastic polyps. A single case of adenomatous polyp of 2cm in size and adjacent mucosa on histopathological examination showed high grade dysplasia and the adjacent mucosa showed well differentiated adenocarcinoma. Dysplasia and malignancy were not found in the fundic gland polyps in the present study.

CONCLUSION: The upper gastrointestinal tract endoscopy is the safest and an efficient method to assess the gastric lesion particularly gastric polyps when patients do not present with any symptoms. All the polyps must be examined histopathologically as some of the polyps can have malignant components or malignancy adjacent to the benign lesion.

KEY WORDS: Stomach diseases, polyps, endoscopy, malignancy

Correspondence:
Dr Pratibha Bista Roka
Assistant Professor, Department of Pathology.
National Academy of Medical Sciences, Bir Hospital,
Kathmandu.
Email: pbista2005@gmail.com
INTRODUCTION

Gastric polyps arise either from the proliferation of mucosal surface epithelium or from submucosa and form polypoidal mass protruding towards the lumen. With the advent of modern techniques for upper gastrointestinal endoscopy, gastric polyps are diagnosed more frequently and studied using the material obtained by biopsy or polypectomy. Before the introduction of upper gastrointestinal endoscopy, the diagnosis of gastric polyps was based on x-ray examination and the treatment involved surgery. Heinz was the first to observe gastric polyps by radiology in the year 1911 and the first endoscopic diagnosis was done by Schendler in the year 1922. (1)

Upto 75% of all gastric polyps are hyperplastic polyps also known as Inflammatory polyp according to WHO. (2) Chronic inflammation is the initiating force for the development of these polyps as they usually lead to chronic gastritis, reactive hyperplasia and eventually polypoidal growth. The majority of the hyperplastic polyps are < 1cm in diameter. As the risk of dysplasia correlates with size of these polyps, polyps that are larger than 1.5cm should be resected instead of taking forcep biopsy. (4) Focal dysplasia are observed in few cases of hyperplastic polyps. (1) Grossly, these polyps are ovoid in shape with a smooth surface, though superficial erosions are common. Microscopically, polyps have irregular, cystically dilated and elongated foveolar glands. The lamina propria is typically edematous with variable degrees of acute and chronic inflammation and surface ulceration may be present.

Fundic gland polyp was found in 1.9% of the general population and they account 50-77% of gastric polyp by Spiegel et al. (5) These polyps occur sporadically or in association with familial adenomatous polyposis (FAP) and with the prolonged use of proton pump inhibitors (PPI). The incidence of fundic gland polyps has increased markedly in recent years as a result of increased use of PPI therapy. PPI inhibits acid production leading to increased gastrin secretion and oxyntic gland growth. (6) These polyps are located in the gastric body and fundus as a well circumscribed lesion with a smooth surface. Dysplasia and even cancer may occur in FAP associated fundic gland polyp but not with those found sporadically. (5)

Gastric adenoma accounts for 10% of all gastric polyps. The frequency of these gastric adenoma increases progressively with age. Patients are usually between 50-60 years of age and males are affected three times more often than females. Like fundic gland polyps, the incidence of adenoma is increased in patients with FAP. Adenoma occur on a background of chronic gastritis with atrophy and intestinal metaplasia. The risk of adenocarcinoma in gastric adenomas is related to its size and is particularly increased in lesions greater than 2cm in diameter. Carcinoma may be present in up to 30% of gastric adenomas. The adenomas are composed of intestinal-type columnar epithelium that exhibits varying degrees of dysplasia. Dysplasia can be classified as low or high grade and both grades may include enlargement, elongation, pseudostratification and hyperchromasia of epithelial cells nuclei and epithelial crowding. High grade dysplasia is characterized by more severe cytologic atypia and irregular architecture, including glandular budding and gland within gland or cribriform structure. Like intestinal adenomas, gastric adenomas are premalignant neoplastic lesions. (2)

METHOD

This was a retrospective cross-section study done on slides retrieved from the Department of Pathology, histopathology unit, Bir hospital, starting from Jan 2012 to Dec 2015. Demographic data including age, sex and clinical presentation were obtained from the histopathology records.

Biopsy was taken from the patients who had polypoidal lesion on upper gastrointestinal endoscopy examination. Patients detailed history, clinical examination and endoscopy findings were taken into consideration.

The biopsy samples were received in 10% formalin, routinely processed and stained by H&E and examined by pathologists.

RESULT

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-25</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>26-35</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>36-45</td>
<td>21</td>
<td>36</td>
</tr>
<tr>
<td>46-55</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>
The total no. of cases who had upper gastrointestinal endoscopy from January 2012 to December 2015 were 40,060. During endoscopy 105 patient were found to have polyps. In this study, the incidence of gastric polyps were found to be 0.26%. According to Morias et al. the incidence of polyps were 0.6% in 26000 upper gastrointestinal endoscopy performed.\(^7\) Similarly, Ming et al. found the incidence of gastric polyps to be 2% which was significantly higher than in our study.\(^1\) In this study, males and females constituted 63 and 42 patients respectively i.e ratio 1.5:1.

After histopathological examination by pathologists the polyps were divided into three groups; hyperplastic, fundic and adenomatous.

In this study, the hyperplastic polyps were the most common type and constituted 63.80%, fundic gland polyps comprised 26.6% and adenomatous polyps 9.52%. Similarly Morias et al. also found hyperplastic polyps are the predominant polyp which accounted 71.3%, followed by fundic gland polyps 16.3% and adenomatous polyps 12.4%. The total no. of patients who had hyperplastic polyps were 67 and all had single polyp. 42 were male and 35 were female. The peak incidence of hyperplastic polyps were observed in third to fourth decade, constituting 15 cases. In this study, the most common site for these hyperplastic polyps were found in antrum (52 cases) followed by fundus (12 cases) and oesophagogastric junction (3 cases). 56 cases of hyperplastic polyps were <1cm in size and 11 cases were of between 1-2 cm. None of the hyperplastic polyps were larger than 2cm in size. The risk of developing carcinoma in hyperplastic polyps is rare and so these polyps are not considered precancerous. In this study, focal adenocarcinoma were found in two cases of hyperplastic polyps which comprised 2.09% of the hyperplastic polyps. Nakamura et al. found that the risk of focal adenocarcinoma within hyperplastic polyp was less than 1% \(^8\), which was lower than in this study conducted. The incidence was observed greater than 1% in study done by Hattori et al.\(^9\)

The fundic gland polyps were found in 28 patients; males 20 and females 8 respectively. All cases of fundic gland polyps were found in fundus. 18 cases of fundic gland polyps were of 1-2 cm size and 10 cases were of <1cm size. Dysplasia and malignancy were not found in the fundic gland polyps in this study which was similar to study done by Snover et al.\(^10\)

The incidence of adenomatous polyps were found in 105 patients; males 80 and females 25 respectively. Nine cases of adenomatous polyps were found in antrum and one case was in oesophagogastric junction. On histopathological examination, eight cases of adenomatous polyps had low grade dysplasia and two cases had high grade dysplasia. The size of adenomatous polyps were <1cm of eight cases. One case had size of 1-2cm and one case had size >2cm. A single case of adenomatous polyp of 2cm size and adjacent mucosa labeled as an ulcerated mucosa adjacent to the polyp was sent on a separate container and for histopathological examination. On histopathological examination, the polyp showed high grade dysplasia and the adjacent ulcerated mucosa showed “well differentiated adenocarcinoma”. Similar observation was found by Morias et al. where they found two cases of focal adenocarcinoma adjacent to adenomatous polyp.\(^7\) Adenocarcinoma was reported in 33% of cases with adenomatous polyps which was associated directly to the size of adenomatous polyps.
Incidence, Location, Size, Histological Types of Gastric Polyps and their Relationship With Malignancy...

being ≥2 cm in diameter in 24% of cases in the study done by Nakamura et al.\(^8\)

The clinical findings associated with gastric polyps depends on the size of the polyp and their location within the stomach (3). Most patients in this study produced no symptoms specific to digestive system. Similar conclusion was made by Nakamura (8) and Ginsberg et al.(11).

CONCLUSION

The upper gastrointestinal tract endoscopy is the safest and an efficient method for the diagnosis of the gastric polyps. Gastric epithelial polyps are infrequent and endoscopic glance does not suffice to know about the nature of these polyps so the histopathological examination and categorization into its further type is still gold standard method as some of the polyps have potential to change into malignancy and some are found adjacent to adenocarcinoma. This study affirms that gastric polyps which are found accidently without any symptoms should be examined histopathologically as there is a strong relationship between the larger size of the polyps, different histological type and malignancy.

REFERENCES


