A Clinico-pathological Study of Gastric Polyps Treated with Endoscopic Polypestomy

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SUMMARY: 181 gastric polyps obtained by endoscopic polypectomy were studied clinico-pathologically. The polyps occurred most frequently in the lower portion, and the incidence of the polyps tended to increase with age. 91% (164/181) of the polyps were occupied by hyperplastic polyps, and 3 polyps and one polyp respectively with dysplastic and carcinomatous foci were detected in 164 hyperplastic polyps. Although hyperplastic polyps rarely transform into dysplasia or carcinoma, careful follow-up is recommended.

INTRODUCTION

Endoscopic polypectomy has been performed safely in recent years, and it became possible to make detailed histopathological diagnosis. The hyperplastic polyp (HP), which is the most common type of the gastric polyp, was generally understood not to transform to malignancy. But some authors recently reported a few cases of malignant transformation of hyperplastic polyps^{3, 7)}.

In this paper, we studied clinico-pathologically 181 gastric polyps obtained by endoscopic polypectomy, and discussed malignant transformation of the gastric polyps.

MATERIALS AND METHODS

181 gastric polyps were obtained by endoscopic polypectomy. After the specimens were fixed in 10% formalin, they were embedded in paraffin and then were cut. At last serial cutsections were stained by hematoxilin and eosin.

RESULTS

1) Age distribution and sex ratio of polyps (Fig. 1)

The age distribution of the patients with the polyps ranged from 20 to 80 years. They occurred most frequently in the 7th decade.

2) Histopathological findings (Table 1)

181 polyps histologically consisted of 164 HPs (90.6%), 12 adenomas (6.6%), 2 adenocarcinomas (1.1%) and 3 inflammatory fibroid polyps (1.6%).

HPs consisted of hyperplastic foveolar epithelium with or without pyloric gland associated with inflammatory infiltrates. Small foci of dysplastic epithelium at the superficial layers in three of 164 polyps and foci of well-differentiated adenocarcinoma in one of them

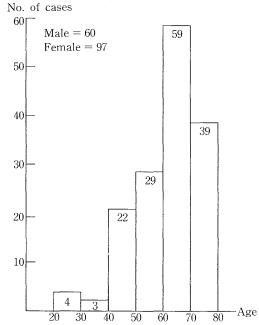


Fig. 1. Age Distribution of Gastric Polypoid Lesion

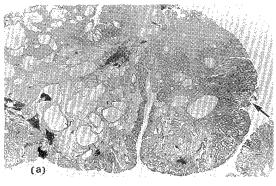




Fig. 2 a: Dysplastic focus in the hyperplastic polyp (arrow).

b: High power microscopic view of the dysplastic epithelium with stratification of nuclei and an increase of N/C ratio.

Table 1. Histological Diagnosis of the Gastric Polypoid Lesions Removed by Endoscopic Polypectomy

Histological Diagnosis	Lesions (%)
Hyperplastic polyp	160 (88.4)
Hyperplastic polyp with dysplastic foci	3 (1.7)
Hyperplastic polyp with focal carcinoma	1 (0.5)
Adenoma	10 (5.5)
Adenoma with focal carcinoma	2 (1.1)
Adenocarcinoma	2 (1.1)
Inflammatory fibroid polyp	3 (1.7)
Total	181

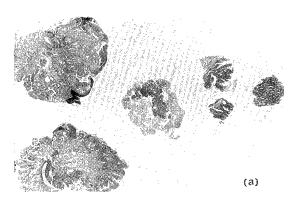




Fig. 3. a: Pieces of the hyperplastic polyp removed by polypectomy.

b: A focus of well differentiated adenocarcinoma is seen in the piece of the hyperplastic polyp.

Table 2. Location of Gastric Polypoid Lesions Treated with Endoscopic Polypectomy

	A S	м	c S
Anterior Wall	37 ○○○○○○○○○ ○○○○○○○○○○ ○○○○○○○○○○○ ○○○○○○	7 0000000	0 1
Lesser Curvature	_	15 000000000 000 000	000
Posterior Wall	29 ○○○○○○○○○○ ○○○○ ○ ● △△ ◇	6 	
Greater Curvature	29 000000000 00000000 0000000	22 000000000 000000000 0 \text{\tin}\text{\tetx{\text{\texi}\text{\text{\text{\texicr{\text{\text{\texicr{\text{\texi\tin\tin\tint{\text{\text{\text{\text{\text{\text{\texi}\text{\texit{\text{\text{	
Total 175 Lesions	120 (68.6%)	50 (28.6%)	5 (2.8%)

The location of 6 polypoid lesions were unknown

- ○: Hyperplastic polyp
- ①: Hyperplastic polyp with dysplastic foci
- : Hyperplastic polyp with focal carcinoma
- △: Adenoma
- ▲: Adenoma with focal carcinoma
- ■: Adenocarcinoma
- ♦: Inflammatory fibroid polyp

were detected, preserving the border between the neoplastic and hyperplastic epithelium (**Fig.** 2 and **Fig.** 3). The dysplastic foci correspanded histologically to adenoma defined by Hirota⁸⁾. Two of 12 adenomas were also accompanied by foci of differentiated adenocarcinomas

3) Location (Table 2)

The location of gastric polyps was described according to "The General Rules for Gastric Cancer Study" which divided the stomach into the upper portion (C), midportion (M) and lower portion (A), and into the anterior wall, posterior wall, lesser curvature and greater curvature.

The polyps were found most frequently in A area, and the incidence was 68.6% (120/175), and 28.6% (50/175) was found in M area and only 2.8% (5/175) in C area. 3 polyps showing malignant change, one adenocarcinoma with adenomatous pattern and 7 adenomas were found in A area, and 3 adenomas, one adenocarcinoma with adenomatous pattern and one hyperplastic

Shape Size (cm)	Yamada's type I, II	III	IV	Total (%)
<1.0	10 00000000 Δ	21 000000000 000000000	32 000000000 000000000 0000000000	63 (35.8)
1.0≦	3	24 000000000 000000000	64 000000000 000000000 000000000 00000000	91 (51.7)
2.0≦	0	2	15 0000000000 0 \triangle	18 (10.2)
30.0≦			4 ○ ○ △	4 (2.3)
Total (%)	14 (7.9)	47 (26.7)	115 (65.3)	176

Table 3. Size and Shape of Polypectomied Lesions Treated by Endoscopy

○: Hyperplastic polyp

⊚: Hyperplastic polyp with dysplastic foci●: Hyperplastic polyp with focal carcinoma

 \triangle : Adenoma

▲: Adenoma with focal carcinoma

■ : Adenocarcinoma

♦: Inflammatory fibroid polyp

polyp with dysplastic foci were found in M area.

4) Relationship between macroscpic type and size $(Table\ 3)$

The polyps were macroscopically classified according to Yamada's classification. The polyps of Type 4 (pedunculated type) were most frequantly found, and the incidence was 65.3% (115/176). The incidence of Type 3 (semipedunculated type) was 26.7% (47/176), and that of type 1 and type 2 (sessile type) was 7.9% (14/176). And 84% (148/176) of Type 3 and Type 4 was hyperplastic polyps.

Of 115 polyps of Type 4, 72% (83/115) was over 1cm in diameter. In 14 polyps of Type 1 and Type 2, 71% (10/14) was under 1cm. Althouugh 45% (21/47) of 47 polyps of Type 3 was under 1cm in diameter, 55% (26/47) was over 1 cm.

DISCUSSION

The most common type of the gastric polyps is the hyperplastic polyp compromising 88 to 96 % of all gastric polyps⁹⁾, and the hyperplastic polyps tend to grow into Type 3 (semiped-unculated from) or Type 4 (pedunculated from). As shown in **Table 2**, 164 (90.4%) of 181 polyps were hyperplastic polyps, and 91% (145/162) of the polyps of Type 3 and Type 4 were hyperplastic polyps. Pedunculated polyps tended to increase in number with the increase in size of polyps. Some studies showed that malignant transformation of the hypeplastic polyps as well as adenomas increased when they are more than 2 cm in diameter^{10, 11, 12)}. Alothough the incidence of malignant transformation of them

is low, hyperplastic polyps even less than 1 cm in diameter as shown in our data rarely showed maliganant change.

Malignant transformation of benign polyps is based on the histological criteria as follows: (1) malignant focus in the benign polyp, (2) remnant of the histological features characterized as the benign polyp, (3) malignant focus with sufficient cellular and structural atypia^{9, 13)}. According to the criteria mentioned above, three focal carcinomas were derived from one hyperplastic polyp and two adenomas. In our data, the rate of malignant transformation of 181 gastric polyps was 1.6% (3/181). Two hyperplastic polyps with dysplastic foci were also seen. The epithelium of hyperplastic polyp is capable of undergoing both neoplastic and kinetic alternation. Some authors showed that the cancerous focus was derived from the dysplastic area in hyperplastic polyps rather than from nondysplastic epithelium³⁾. Therefore, careful follow-up is recommended even in hyperplastic polyps. The polyps occur most frequently in the lower portion mainly composed of antral mucosa, and the incidence of the polyps tended to increase with age, especially over 40 years This reault is in agreement with that reported by the other authors 12). The occurrence of gastric polyps may be related to atrophic change and intestinal metaplasia advancing with age.

REFERENCES

- Nagatomi, Y., Kawamura, S., Takeuchi, K., et al: Polypous bud and its growth. Stomach and Intestine 17: 389 (1982) (Japanese).
- Fukuchi, S., Hayakawa, K., Yamada, N., et al.: Natural history of gastric polyps based on the results of clinical follow-up study. Saishin Igaku 36: 55 (1981) (Japanese).

- Daibo, M., Itabashi, M., Hirota, T.: Maligant Transformation of Gastric Polyps. Am. J. Gastroenterol. 82: 1016 (1987)
- Yanbe, T., Sakashita, O., Nagatomi, Y., et al.: Symposium II. The follow-up study of gastric polypoid lesion. Gastroenterol. Endosc. 24: 1462 (1981) (Jaoanese).
- 5) Mochizuki, F., Ueno, K., Hisamichi, S., *et al.*: Cancerous change of gastric polyp. *Stomach and Intestine* 10: 347 (1975) (Japanese).
- Muto, T., Shimazu, H., Kobori, K., et al.: Malignant transformation of benign gastric polyps. Stomach and Intestine 10: 341 (1975) (Japanese)
- Remmele, W., Kolb, E. F.: Malignant transformation of hyperplastic polyps of the stomach. *Endoscopy* 10: 63 (1987)
- 8) Hirota, T., Okada, T., Itabashi, M., et al.: Histogenesis of human gastric cancer: With special reference to the significance of adenoma as a precancerous lesion. In: Ming SC, ed. Precursors of gastric cancer., p. 301. New York, Philadelphia, Eastboune, Toronto Hong Kong, Tokyo, and Sydney: Praeger Publishers 1984.
- 9) Nagayo, T.: Histological criteria of malignant transfromation of gastric polyp and its results. *Stomach and Intestine* 10: 301 (1975) (Japanese).
- 10) Hay, L. T.: Polyps and adenomas of the stomach. Surgey 33: 446 (1953).
- 11) Monaco, A. P., Castleman, B., Roh, S. I., *et al*: Adenomatatous polps of the stomach. *Cancer* 15: 456 (1962).
- 12) Kamiya, T., Morishita, T., Asakura, H., et al.: Histological long standing follow up study of hyperplastic polyps of the stomach. Am. J. Gastroenterol. 75: 275 (1981).
- 13) Nakamura, T.: Malignant change of gastric polyp, with special reference to histopathological classification. *Stomach and Intestine* **3**: 737 (1968) (Japanese).