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Fukuda, Shin-ichiro  
Department of Gastroenterology, Aso Iizuka Hospital

Akahoshi, Kazuya  
Department of Gastroenterology, Aso Iizuka Hospital

Fushimi, Fumiyoshi  
Department of Pathology, Aso Iizuka Hospital

Oya, Masafumi  
Department of Pathology, Aso Iizuka Hospital

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## Case Report

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# Gastric Hyperplastic Polyp with Xanthoma Observed by Magnification Narrow-Band Imaging Endoscopy and Endoscopic Ultrasonography : Report of a Case

Shin-ichiro FUKUDA<sup>1)</sup>, Kazuya AKAHOSHI<sup>1)</sup>, Fumiyoshi FUSHIMI<sup>2)</sup> and Masafumi OYA<sup>2)</sup>

<sup>1)</sup>*Department of Gastroenterology, Aso Iizuka Hospital, Iizuka, 820-8505, Japan.*

<sup>2)</sup>*Department of Pathology, Aso Iizuka Hospital, Iizuka, 820-8505, Japan.*

### Abstract

We experienced an extremely rare case of gastric hyperplastic polyp with xanthoma. A 73-year-old Japanese man was transferred to our hospital from a referral hospital for further evaluation of a pedunculated gastric polyp and early gastric cancer. Esophagogastroduodenoscopy (EGD) revealed a yellow-whitish pedunculated polyp arising from the anterior wall of the fornix. Magnification narrow-band imaging (NBI) endoscopy revealed extended and tortuous microcapillaries and a swollen interfoveolar pattern on the polyp's surface, but there was no sign of malignancy. Endoscopic ultrasonography (EUS) revealed an irregularity of the first layer and a thickened second layer. The third layer was intact. A hyperechoic area was seen in the thickened second layer. Endoscopic submucosal dissection (ESD) for early carcinoma of the antrum and endoscopic mucosal resection (EMR) for a polyp in the fornix were performed in one session. Histological examination of the specimen of the fornix polyp revealed lengthened, branched and dilatated gastric foveolae and a tight sheet of foamy histiocytes in the stroma. The background mucosa of the polyp was atrophic. The pathologic evidence was gastric hyperplastic polyp with proliferation of xanthoma. The early cancer of the antrum was intramucosal tubular adenocarcinoma and was resected curatively.

**Key Words** : Hyperplastic polyp · Xanthoma · Narrow-band imaging endoscopy · Endoscopic ultrasonography · Coexistence

### Introduction

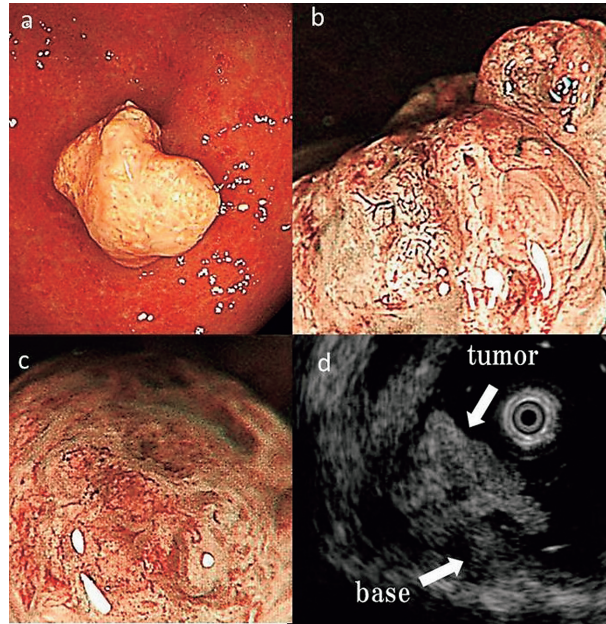
Xanthoma, also known as “xanthelasma” and “lipid islands” are incidental lesions that are sometimes encountered during esophagogastroduodenoscopy (EGD)<sup>1)</sup>. Gastric polyps are found during 2% ~5% of EGD, and the most common histologic types are hyperplastic polyps. They are also called inflammatory or regenerative polyps, and constitute 70% ~90% of all gastric polyps<sup>2)</sup>. It is extremely rare for gastric polyps to be associated with xanthoma<sup>3)–6)</sup>. We report a rare case of a patient diagnosed with gastric hyperplastic polyps with xanthoma, observed by

magnified endoscopy with NBI and EUS, and treated with EMR.

### Case report

A 73-year-old Japanese man was transferred to our hospital from a referral clinic for further evaluation of a pedunculated gastric polyp and early gastric cancer (Type 0-IIc + IIa). There were no abnormal physical findings and no specific family history was found. Routine hematological examination and biochemical tests were within normal limits, but anti-*Helicobacter pylori* immunoglobulin G (IgG) antibody was positive.

EGD revealed a pedunculated polyp arising



**Fig. 1**

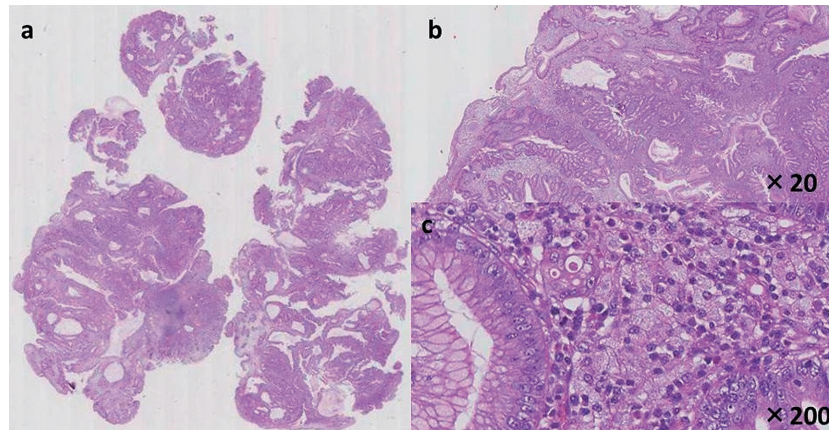
(a) EGD revealed a white-yellow pedunculated polyp arising from the anterior wall of the fornix. (b, c) NBI endoscopy revealed extended and tortuous microcapillaries, and a swollen interfoveolar pattern on the surface of the polyp. There was no evidence of malignancy. (d) EUS revealed a thickened second layer. The third layer was intact. A hyperechoic area was seen in the thickened second layer.

from the anterior wall of the fornix. The polyp was yellow-whitish, about 10 mm diameter with an indented patterned surface (Fig. 1a). Magnification by narrow-band imaging (NBI) endoscopy (GIF-H260Z Olympus) revealed extended and tortuous microcapillaries and a swollen interfoveolar pattern on the surface of the polyp, but there was no evidence of malignancy (Fig. 1b, c). Endoscopic ultrasonography (EUS) (15Mhz small probe) revealed an irregularity in the first layer and thickness of the second layer. The third layer was without abnormality. A hyperechoic area was seen in the thickened second layer (Fig. 1d). From these findings, this polypoid lesion was suspected to be a benign polyp with xanthoma cell. There was 15 mm intramucosal cancer (Type 0-IIc + IIa, well-differentiated adenocarcinoma) in the antrum. ESD for the early carcinoma of the antrum and EMR for the polyp in the fornix were performed in one session. Histological examination of the specimen of the polyp in the fornix

revealed lengthened, branched and dilatated gastric foveolae and a tight sheet of foamy histiocytes in the stroma (Fig. 2a-c). The background mucosa of the polyp was atrophic. The pathologic impression was gastric hyperplastic polyp with proliferation of the xanthoma. The antral lesion was intramucosal tubular adenocarcinoma and was resected curatively. *H. pylori* eradication was performed after operation. There were no complications in the postoperative course.

## Discussion

Gastric xanthomas may occur in any part of the stomach as rounded or oval, yellow-white macules or polyps measuring 1 to 5 mm in diameter<sup>3)</sup>. Gastric xanthomas are generally asymptomatic and are observed incidentally in EGD. They range from 0.23%–14.4%<sup>4)</sup>. Gastric xanthomas occur more frequently in gastric mucosa in which there are pathologic changes



**Fig. 2** The resected specimen of the polyp in the fornix shown lengthened, branched and dilatated gastric foveolae and a tight sheet of foamy histiocytes in the stroma (hematoxylin and eosin, loupe (a),  $\times 20$ (b),  $\times 200$  (c)).

such as chronic gastritis, intestinal metaplasia or atrophic gastritis. In addition, the incidence of xanthomas is higher in older patients than in younger ones. There is no difference in sex, more they occur frequently in the antrum, rarely disappear spontaneously and are not related to hyperlipidemia<sup>5</sup>). Xanthomas are composed of foamy cells, termed xanthoma cells, characterized by abundant vacuolated cytoplasm in the lamina propria<sup>1</sup>.

In studies of gastric polyps, hyperplastic polyps were the most common ; 70%–90% of all polyps<sup>2</sup>). They typically arise within a background of chronic inflammation but are not usually the direct cause of symptoms<sup>6</sup>). Elongated foveolae, normal antral-type glands, edematous lamina propria infiltrated by various inflammatory cells, and the presence of smooth-muscle bundles are the characteristic microscopic findings<sup>4</sup>), carcinoma is rarely found in hyperplastic polyps<sup>7</sup>).

The coexistence of gastric hyperplastic polyp and xanthoma is rare, Lin et al<sup>4</sup>). Reported the first instance in 1989, and only a few cases have been reported until now<sup>5)8)9</sup>). Both gastric xanthomas and hyperplastic polyps are frequently found to be associated with chronic atrophic gastritis and gastric surgery, sharing similar associated factors. So it is speculated that such backgrounds influence the coexistence of these

two polyps<sup>4</sup>). In fact, past reports show that there is a great frequency of chronic atrophic gastritis in a patient with a hyperplastic polyp with xanthoma (6/9 cases Table 1). *Helicobacter pylori* infection may be one of the causes of both polyps<sup>10)11</sup>), but we were unable to discover the relationship between the *H. pylori* infection and the occurrence of hyperplastic polyp with xanthoma (1/9 cases Table 1). The 3 cases with chronic atrophic gastritis, *H. pylori* could have been undetectable because of severe atrophy.

Hirasaki et al<sup>8</sup>). reported typical findings of hyperplastic polyp with xanthoma by magnification NBI endoscopy long microcapillaries without disappearance of the mucosal microstructure or irregular branched capillaries. In addition to these findings we also found extended and tortuous microcapillaries and a swollen interfoveolar pattern on the surface of the polyp. It was reported that it is usual for both findings to be observed in a hyperplastic polyp. However, there are no specific findings of hyperplastic polyp associated with xanthoma in this case or in any previous reports. Observation of magnification NBI endoscopy was unable to reveal any superficial findings caused by existing xanthoma cells in stroma of polyp.

There have been no previous reports of EUS findings of hyperplastic polyp with xanthoma. In this case we report that the hyperechoic area was



**Table 1** Clinicopathological Characteristics of Reported cases of hyperplastic polyp with xanthoma.  
 † : yamada classification ‡ : no data

year	author	age/sex	location	figure	size	H.pylori	atrophy
1989	Lin	85 F	body	Y <sup>†</sup> - II	15mm	n.d. ‡	+
2004	Gencosmanoglu	n.d.	body	Y- II	5mm	n.d.	n.d.
2009	Hirasaki	69 M	antrum	Y-III	7mm	+	+
2013	Bassullu	45 M	antrum	n.d.	3mm	-	+
2013	Bassullu	48 M	body	n.d.	6mm	-	+
2013	Bassullu	78 F	cardia	n.d.	2mm	-	+
2013	Bassullu	68 M	fornix	n.d.	4mm	-	-
2013	Bassullu	68 F	fornix	n.d.	6mm	-	-
2013	our case	73M	fornix	Y-IV	10mm	+	+

observed in the thickened second layer. This hyperechoic area closely resembled the histologically closely-aggregated foamy histiocytes, which became apparent by comparing a EUS image to a loupe image. Bluth et al<sup>12)</sup> suggested that xanthoma cell was shown as a highly reflective mass by sonography. We speculate that the hyperechoic area reflects foamy histiocytes.

Histological examination of the hyperplastic polyp with xanthoma in this report showed a typical hyperplastic polyp. Gastric foveolae were lengthened, branched and dilatated and there was no evidence of malignancy thus matching the findings of magnification NBI endoscopy done pre-therapy. There were a tight sheet of foamy histiocytes in the stroma of the polyp, the area which matched completely the area of the hyperplastic polyp. This means xanthoma did not exist accidentally on the hyperplastic polyp but the two lesions were coincidentally generated caused by unknown factor.

There has been a report on the association of gastric cancer and xanthoma or xanthogranuloma<sup>13)-16)</sup>. Muraoka et al<sup>13)</sup>. suggested that gastric cancer cells contribute to the growth of xanthoma cell. Kato et al<sup>14)</sup>. suspected malignant alteration of the xanthoma cells, because the spreading area of the cancer and xanthoma completely matched macroscopically

and histologically. And there are a few cases of the malignant transformation of gastric hyperplastic polyps<sup>17)</sup>. There are no reports of hyperplastic polyp with xanthoma, but both xanthoma and hyperplastic polyp rarely have malignant potential. So if a hyperplastic polyp with xanthoma is found detailed observation by magnification NBI endoscopy is important and careful follow up.

In conclusion, we report a rare case of a patient diagnosed with gastric hyperplastic polyp with xanthoma that was observed by magnified endoscopy with NBI and EUS, and treated with EMR. Further clinical research is needed to confirm the specific findings of magnified endoscopy with NBI and EUS in this condition.

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(和文抄録)

## 狭帯域光観察 (NBI) 内視鏡および超音波内視鏡 (EUS) にて 観察された、黄色腫混在過形成ポリープの一例

<sup>1)</sup>株式会社麻生 飯塚病院 消化器内科

<sup>2)</sup>株式会社麻生 飯塚病院 病理

福田 慎一郎<sup>1)</sup>, 赤星 和也<sup>1)</sup>, 伏見 文良<sup>2)</sup>, 大屋 正文<sup>2)</sup>

今回、我々は極めてまれな黄色腫が混在した胃過形成ポリープの一例を経験した。症例は73歳男性。胃隆起性病変と早期胃癌の精査加療目的に当科紹介となった。当科で施行した上部消化管内視鏡検査 (EGD) では、穹窿部前壁に黄白色調の隆起性病変を認めた。狭帯域光 (NBI) による拡大観察では拡張、蛇行した微小血管構造、窩間部の膨化した表面構造を認めたが、明らかな悪性を示唆する所見は認めなかった。超音波内視鏡検査 (EUS) では穹窿部前壁の病変は第1層の不整と第2層の肥厚として描出され、第3層は保たれていた。肥厚した第2層の内部には高エコー領域が散見された。前庭部の早期胃癌に対する内視鏡的粘膜下層剥離術 (ESD) と穹窿部の病変に対する内視鏡的粘膜切除術 (EMR) を一期的に行なった。病理組織学的検索では穹窿部の病変は腺窩上皮が延長、分枝、拡張を伴う過形成変化を示し、また間質には泡沫組織球が著明に集簇していた。腫瘍背景は萎縮粘膜であった。以上の病理所見から黄色腫混在の胃過形成ポリープと診断された。前庭部の早期胃癌は、組織型は高分化腺癌であり、粘膜内病変で内視鏡的治癒切除が得られていた。