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CASE REPORT

VANISHING TUMOR OF THE STOMACH: SEQUENTIAL ENDOSCOPIC AND ENDOSONOGRAPHIC FEATURES

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A 50-year-old man developed epigastralgia 1 day later, after eating a raw squid meal. A submucosal tumor-like lesion at the gastric fornix was demonstrated on gastroscopic examination. Manifestations of acute gastritis were also seen. In 5 days (the period between the first and second examinations), the tumor disappeared and a large ulcer was seen endoscopically at the same site. Biopsy specimens revealed eosinophilic infiltration at the site of the lesion. Mild leucocytosis, significant eosinophilia and high serum anti-*Anisakis* antibodies were also revealed. The patient was closely followed up by endoscopy, endosonography, barium studies and laboratory investigations until the ulcer was completely healed. The lesion was probably caused by gastric anisakiasis and could be categorized as a so-called 'vanishing tumor of the stomach'.

Key words: anisakiasis, vanishing tumor of the stomach.

INTRODUCTION

The term 'vanishing tumor of the stomach' was introduced by Yamazaki *et al.*[1] in 1976 to define tumor-like gastric lesions with rapid regression. However, few cases have been reported to date. In most cases, the lesion was thought to occur as a result of transudate fluid collection caused by acute localized gastritis. The condition usually improves within a few days to several weeks with reduction of edema and subsequent vanishing of the tumor. In only two cases reported, ulceration of the lesion occurred during the course of the disease.[2,3] Recently, we experienced a case in which a submucosal tumor (SMT)-like lesion developed at the gastric fornix and transformed into an ulcer within 5 days of its first demonstration with subsequent healing. In this report, endoscopic and endosonographic findings of the lesion at its different stages are shown and the possible pathogenesis is discussed with review of scientific reports.

CASE REPORT

A 50-year-old male subject presented with mild acute epigastric pain 1 day after eating a raw squid meal. A gastroscopic examination was performed on the day of the onset of pain and revealed the presence of an SMT-like lesion at the gastric fornix with tiny erosion on its surface and edematous overlying mucosa. The remaining gastric mucosa was edematous and hemorrhagic (Fig. 1). A diagnosis of gastric SMT was made. The patient was admitted to our hospital 5 days after the first endoscopic examination for further assessment. By that time he had become asymptomatic. A second endoscopic examination was performed on admission and surprisingly, the SMT-like lesion had disappeared and an elongated large gastric ulcer on an edematous enlarged gastric fold was seen at the same site (Fig. 2a). Endoscopic ultrasonography of the lesion revealed thickening of the third hyperechoic layer corresponding to the submucosa with heterogeneous echogenicity and ulceration of the central part of the overlying mucosal layer. Mild thickening of the fourth hypo-echoic layer corresponding to the muscularis propria was also seen (Fig. 2b). Tests for *Helicobacter pylori* were negative and *Anisakis* larvae were not found on gastroscopic, nor on colonoscopic examinations. Laboratory investigations on admission revealed mild leucocytosis (12 300/mm^3) and significant eosinophilia (9.7%) in blood cell analysis. High serum levels of anti-*Anisakis* IgG-A (3.0 cut-off index) and anti-*Anisakis* specific IgE (26.3 UA/mL) were noted. Otherwise, all laboratory data were within normal values, including serum tumor markers.

As malignant lymphoma or a perforated SMT lesion were suspected, endoscopic biopsy for histopathological study was performed four times, including one 'jumbo biopsy' obtained by an endoscopic mucosal resection-like technique to provide ample tissue material for pathological diagnosis. All specimens were negative for malignant cells; however, scattered eosinophils were demonstrated in the mucosa in most of the samples (Figs 3a,b).

Gastric mucosal protective drugs and a proton-pump inhibitor were administered and follow-up of the ulcer healing was done by endoscopy and endosonography. Red ulcer scar stage was attained 4 weeks after the demonstration of ulcer (Fig. 4a) and ulcer scar (Ul-IIIs) was confirmed by endosonography (Fig. 4b).

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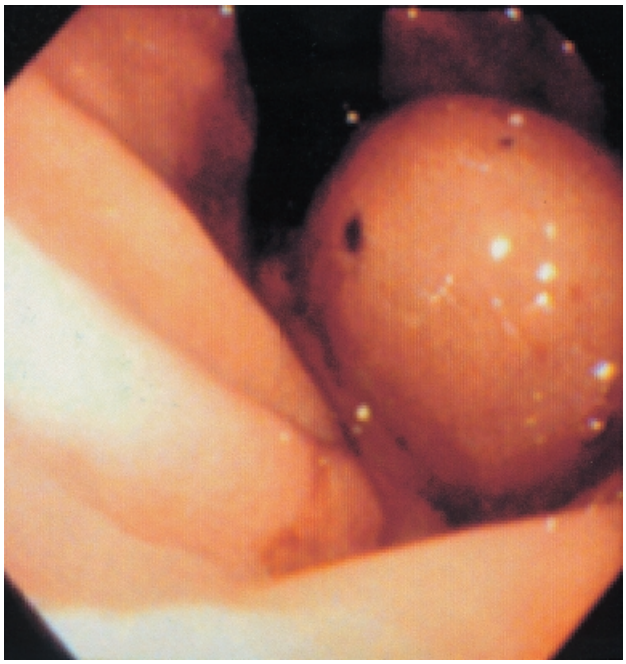

Fig. 1. The first gastroscopic examination on the day of pain onset revealed a submucosal tumor-like lesion at the gastric cardia with small erosion on its surface and edematous overlying mucosa.

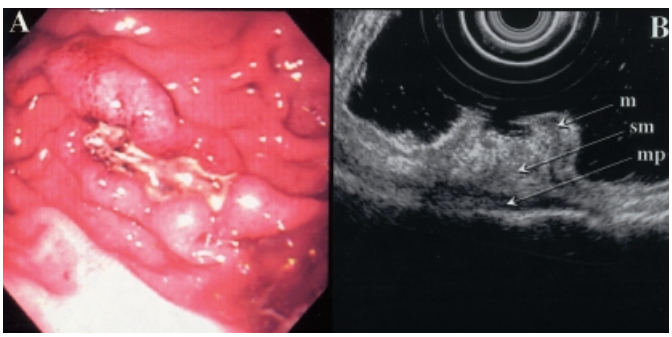

Fig. 2. The second gastroscopic examination performed 5 days after the first one; (A), the submucosal tumor-like lesion seen on the first examination had disappeared and was replaced by a large ulcer on an edematous enlarged gastric fold. (B), Endosonographic examination of the ulcerated lesion showed a heterogeneous thickening of the third and the superficial part of the fourth echo-layers corresponding to the submucosa and muscularis propria, respectively. m, mucosa; sm, submucosa; mp, muscularis propria.

DISCUSSION

In 1976, Yamazaki *et al.* gave the first report of two cases with round filling defects at the gastric cardia demonstrated on barium studies that showed rapid regression in the following upper gastrointestinal series.[1] They referred to this phenomenon as a 'vanishing tumor of the stomach'. The same authors made two additional reports of four similar cases later.[4,5] They suggested four criteria for diagnosis: (i) the pathogenesis is acute localized gastritis; (ii) the lesion most commonly occurs in the gastric cardia or fornix; (iii) the tumor disappears in 1 to 3 weeks; and (iv) it occurs at around 40–50 years of age. Such criteria were true for most of the cases reported later.

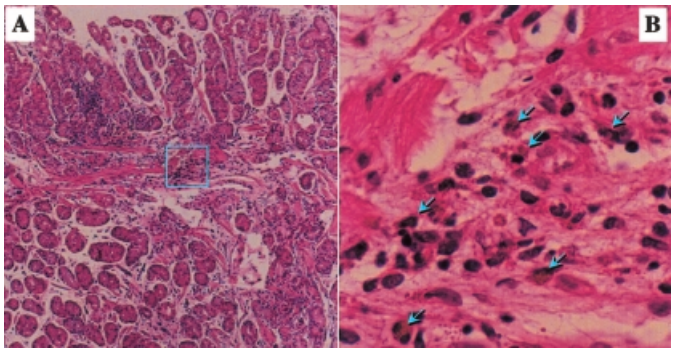

Fig. 3. Histopathological examination of the biopsy specimens revealed scattered eosinophils in the mucosa (arrows) H&E (A) ×20, (B) ×200.

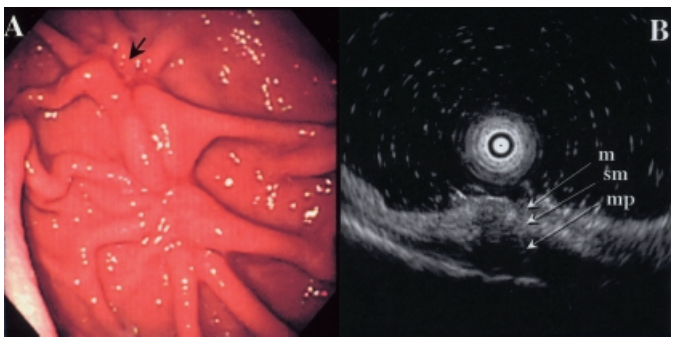

Fig. 4. Gastroscopic examination 4 weeks after the second one; red ulcer scar is demonstrated. (A), The arrow points to the scar of jumbo biopsy. (B), Endoscopic ultrasonography revealed Ul-III ulcer scar. m, mucosa; sm, submucosa; mp, muscularis propria.

To our knowledge, only 26 tumors in 25 patients have been reported based on such a diagnosis in the Japanese and English scientific reports to date. However, the actual number of cases is probably much greater.

The endoscopic findings of the lesions in the previous reports were nearly the same, which was a round SMT-like lesion with a smooth surface and regular margins. Bridging folds were rarely seen.[6] The overlying and surrounding mucosa is usually edematous. Manifestations of acute gastritis were present in 22 of the 26 lesions.[5,7] In most of the cases, the lesion showed regression and disappeared within a few days. Ulceration of the lesion was reported in only two cases. Okazaki *et al.* reported a case with an SMT-like lesion demonstrated radiologically which had disappeared by the time of endoscopic examination 6 days later.[2] A shallow ulcer with fold convergence was seen at its site. In another case reported by Muraoka *et al.*, a patient presented on the first examination with an ulcerated SMT-like lesion in the upper angulus of the stomach that disappeared by the second examination 2 weeks later, and it was proved pathologically to be an eosinophilic granuloma due to parasitosis.[3]

Ten of the 26 reported lesions were proved to be caused by gastric anisakiasis, a disease acquired by eating raw or poorly cooked fish infected with *Anisakis* larvae.[8,9] The incidence of such a disease is highest in Japan, but it is sporadically reported in many other parts of the world, especially in Spain,[10,11] France,[12] Korea,[13] USA,[14] Belgium[15] and Chile.[16] The larvae usually penetrate the gastric mucosa resulting in an acute inflammatory reaction with erythema, edema, and sometimes ulceration or pseudotumor formation.[12,17] Eosinophilic infiltration is usually present at the site of the lesion. The diagnosis is usually made by gastroscopic examination. Nevertheless, Ikeda *et al.* reported some cases with a typical course of anisakiasis in which the *Anisakis* larva could not be found endoscopically.[18]

Among the reported 26 vanishing tumor cases, the location of the lesion was found to be the gastric cardia or fornix in 18 cases, the gastric body in three, the angular region in two and the gastric antrum in three cases. The high affinity for the cardia or fornix may be related to the site of predilection of *Anisakis*-larval penetration or to the anatomical vascular structure of the stomach as severe edema tends to occur most in these areas, but this phenomenon has to be confirmed by further studies.[17]

Our case showed an SMT-like lesion of the gastric fornix with symptoms and signs of acute gastritis, as demonstrated in most of the previously reported vanishing tumor cases. Although the *Anisakis* larva could not be found on gastroscopic examinations, strong evidence of anisakiasis was present, such as: the patient's history, the presence of an erosion on the tumor surface that might be an indication of the site of larval penetration, mild leucocytosis and marked eosinophilia in blood cell analysis,[17] high serum levels of anti-*Anisakis* IgG-A and anti-*Anisakis* specific IgE[19] and eosinophilic infiltration of the biopsy specimens. Endosonographic examination was not performed for any of the previously reported cases, but the endosonographic manifestations of gastric anisakiasis were described in previous studies.[20,21] The endoscopic ultrasonography findings of our case were suggestive of gastric anisakiasis, although they alone are not diagnostic.

To our knowledge, the present case seems to be the second patient in whom an SMT-like lesion, ulceration and subsequent healing were sequentially confirmed. However, it may be the first one in whom such sequential events were recorded endoscopically and endosonographically.

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