

Synchronous occurrence of gastrointestinal stromal tumor and gastric adenocarcinoma: a case report

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Abstract

Only a few cases of synchronous occurrence of gastric adenocarcinoma and gastrointestinal stromal tumour are reported in literature. We report a case of 70 years old lady who presented with symptoms of nausea, vomiting, epigastric pain and weight loss. Barium meal examination showed stricture of the body and antrum. Gastric endoscopic biopsy showed poorly differentiated adenocarcinoma. Total gastrectomy revealed a 2cm submucosal nodule of low risk gastrointestinal stromal tumour along with poorly differentiated adenocarcinoma. Patient died 18 months later.

Introduction

The few synchronous neoplasms in the stomach described in literature include adenocarcinomas with co-existing carcinoid,¹ and B cell non-Hodgkin's lymphoma.^{2,3} Adenocarcinomas of stomach have also been reported with gastric mesenchymal tumors.^{4,5} Maiorana et al⁶ reported 5 cases with synchronous occurrence of epithelial and stromal tumors of the stomach. Bircan et al⁷ reported 2 cases of GIST with adenocarcinoma.

We present a case with synchronous occurrence of gastric adenocarcinoma and stromal tumor (GIST).

Case Report

A 70 year old lady from Peshawar presented with symptoms of nausea, vomiting and epigastric pain for the past one and a half years. These symptoms were associated with weight loss. She had cholecystectomy ten years back.

Abdominal examination revealed a large mass in the epigastrium. Laboratory investigations including complete blood count, liver function tests, serum electrolytes, HBsAg and HCV antibody were normal. X-ray chest and ECG were unremarkable.

Abdominal ultrasound showed a thickening of stomach wall. Barium meal examination of upper gastrointestinal tract presented stricture of the body and antrum of stomach by a circumferential mass.

Gastric endoscopic biopsy was performed in May, 2003 and was reported as poorly differentiated gastric carcinoma with signet ring cells.

The patient underwent total gastrectomy in June, 2003. The resection specimen received in Section of Histopathology, consisted of a stomach measuring 10x6x4 cm. On opening the stomach its wall appeared thickened and fibrosed throughout. In addition, a nodular lesion was identified on the serosal aspect of the wall. This nodule measured 2x2 cm. Representative sections were taken from the thickened wall of the stomach, the peripheral resection margins and lymph nodes. In addition, representative sections were taken from the

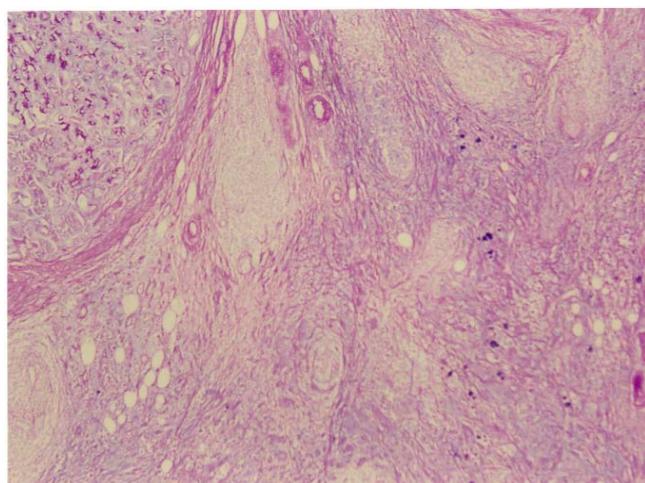


Figure 1. Gastric adenocarcinoma showing cytoplasmic acid mucin (periodic acid schiff alcian blue, 20x).

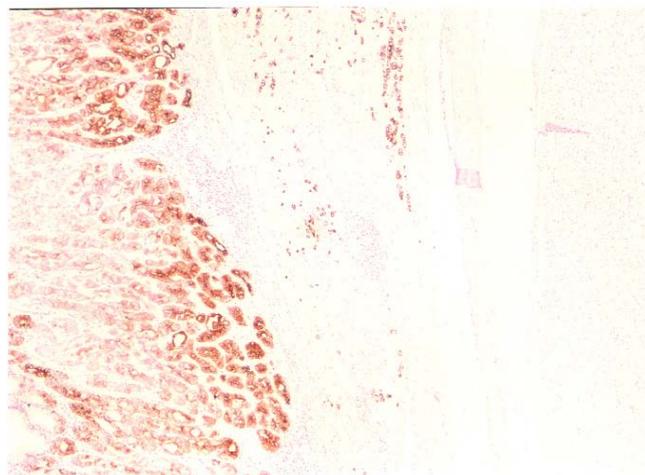


Figure 2. Gastric adenocarcinoma showing diffuse cytoplasmic positivity for cytokeratin Cam 5.2 (normal intestinal epithelium is also stained) however the circumscribed spindle cell lesion GIST is unstained (10x).

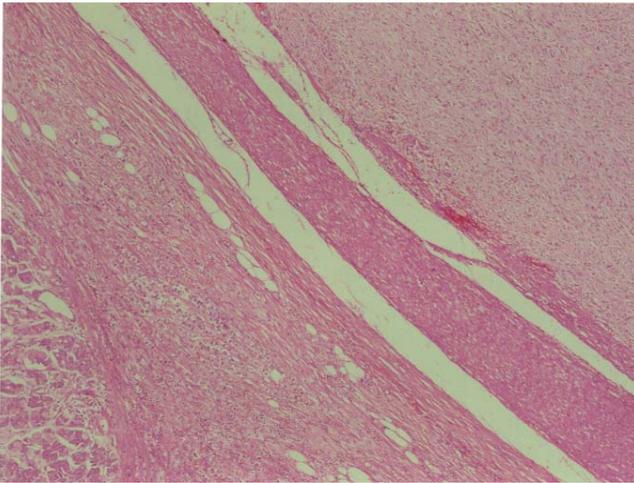


Figure 3 Section showing circumscribed spindle cell lesion (bottom left) and diffuse sheets of signet ring cells (center right), normal intestinal epithelium can be seen (top right) (10x).



Figure 4. Section showing diffuse positivity of spindle cells of Gist for immunohistochemical stain CD117(10x).

nodes. In addition, representative sections were taken from the nodular lesion. A segment of omentum measuring 21x20 cm was also received and representative sections were taken.

Histopathological examination confirmed the diagnosis of poorly differentiated adenocarcinoma infiltrating the full thickness of the wall into the serosal fat. It comprised of diffuse sheets of signet ring cells which showed positivity for acid mucin (Figure 1) and immunohistochemical stain Cytokeratin Cam 5.2 (Figure 2). The proximal surgical resection margin was involved by the tumour. One out of five recovered lymph nodes showed tumour metastases. However, omentum was unremarkable.

Histopathology of the submucosal nodular lesion showed a circumscribed neoplasm composed of plump spindle shaped cells arranged in fascicles and sheets (Figure 3). Mitotic activity was less than 5/50 HPF. Necrosis was absent.

Immunohistochemistry was performed and showed positivity with vimentin, CD34 and CD117 (Figure 4). Anti smooth muscle actin (ASMA) and S100 protein were negative. Based on the histological and immunohistochemical features, a diagnosis of gastrointestinal stromal tumour (GIST) was given. Since mitotic activity was less than 5/50 HPF and tumour size was less than 5 cm, it was placed in the low risk category. This case thus represents a synchronous occurrence of gastric adenocarcinoma and gastrointestinal stromal tumour (GIST). The patient died towards the end of 2004.

Discussion

Only a few cases of synchronous occurrence of gastric adenocarcinoma and gastric stromal tumors are reported in literature. Maiorana et al⁶ reported a series of six cases in which there was simultaneous association of stromal tumors with adenocarcinoma (5 cases) and with gastric carcinoid (1 case). Chen et al⁸ reported a case with resection of triple synchronous tumours i.e. gastric adenocarcinoma, gastric stromal tumour, and gallbladder adenocarcinoma. Recently Kaffes et al⁹ reported a case of synchronous gastric adenocarcinoma, MALT lymphoma and gastrointestinal stromal tumour in a *Helicobacter pylori* infected stomach. Lin et al¹⁰ published a case of mixed gastrointestinal stromal tumour and adenocarcinoma. They hypothesized that the stomach was influenced by the same unknown carcinogen, resulting in a simultaneous proliferation of epithelial and stromal cell lines. There are also a few case reports from Japan, reported in Japanese literature, with coexistent gastric adenocarcinoma and leiomyoma or leiomyosarcoma.^{4,5}

The most likely explanation for the presence of coexistent lesions may be just coincidence especially in areas where incidence rates of stomach cancer are high.⁶ Maiorana et al⁶ also considered genetic factors but found no information supporting such theories. No significant family histories were reported in any patients. In our case also, the family history of the patient was unremarkable. Bircan et al⁷ reported 2 cases of GIST with synchronous adenocarcinoma stomach; these were also an incidental finding.

References

1. Morishita Y, Tanaka T, Kato K, Kawamori T, Amano K, Fumato T, et al. Gastric collision tumor (carcinoid and adenocarcinoma) with gastritis cystica profunda. *Arch Pathol Lab Med* 1991; 115: 1006-10.
2. Wotherspoon AC, Isaacson PG. Synchronous adenocarcinoma and low grade B-cell lymphoma of mucosa associated lymphoid tissue (MALT) of the stomach. *Histopathology* 1995; 27:325-31.
3. Goteri G, Ranaldi R, Rezai B, Baccarini MG, Bearzi I. Synchronous mucosa - associated lymphoid tissue lymphoma and adenocarcinoma of the stomach. *Am J Surg Pathol* 1997; 21:505-9.
4. Tada I, Zeze K, Nakashima K, Kuwahara A, Saitoh T, Kobayashi M. Two cases of the independent coexistence of early cancer and leiomyosarcoma in the same stomach. *Gan No Rinsho* 1984; 30:1812 - 18.

5. Soejima H, Okada K, Matsuzaki S, Takasi K, Tajima Y, Kajwara Y, et al. A case of gastric cancer on the submucosal tumor (leiomyoma) of the stomach. *Nippon Shokakibyō Gakkai Zasshi* 1990; 87:2526-30.
 6. Maiorana A, Fante R, Cesinaro AM, Fano RA. Synchronous occurrence of epithelial and stromal tumors in the stomach. A report of 6 cases. *Arch Pathol Lab Med* 2000; 124:682-86.
 7. Bircan S, Candir O, Aydin S, Baspinar S, Bulbul M, Kapucuoglu N, et al. Synchronous primary adenocarcinoma and gastrointestinal stromal tumor in the stomach: A report of two cases. *Turk J Gastroenterol* 2004;15:187-91.
 8. Chen JH, Chen CC, Tzeng LM, Tsay SH, Chiang JH, Lu CC, et al. Resection of triple synchronous tumors - gastric adenocarcinoma, gall bladder adenocarcinoma and stromal tumor of the stomach. *Zhonghua Za Zhi (Taipei)* 2001; 64: 655-60.
 9. Kaffes A, Hughes L, Hollinshead J, Katelaris P. Synchronous primary adenocarcinoma, mucosa-associated lymphoid tissue lymphoma and a stromal tumor in a *Helicobacter pylori*-infected stomach. *J Gastroenterol Hepatol* 2002; 17:1033-36.
 10. Liu SW, Chen GH, Hsieh PP. Collision tumor of the stomach: a case report of mixed gastro-intestinal stromal tumor and adenocarcinoma. *J Clin Gastroenterol* 2002; 35:332-4.
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