

Gastric Collision Tumor: A Rare case of an Adenocarcinoma and Carcinoid tumor

K Mardi, J Sharma, S Gupta

Citation

K Mardi, J Sharma, S Gupta. *Gastric Collision Tumor: A Rare case of an Adenocarcinoma and Carcinoid tumor*. The Internet Journal of Gastroenterology. 2008 Volume 7 Number 2.

Abstract

We report a rare case of gastric collision tumor composed of well differentiated tubular adenocarcinoma and typical carcinoid in an 47year-old woman. On endoscopic examination, an invasive tumor was noted at the pyloric end of the stomach, and a pathologic examination of the biopsy specimen revealed adenocarcinoma. After total gastrectomy, a thorough histopathologic examination of the resected tumor revealed the concurrent presence of well differentiated adenocarcinoma and typical carcinoid tumor, which had a colliding pattern of tissue proliferation. The presence of either tumor individually would not be especially noteworthy, but this collision-type tumor of both histopathologic types in the stomach is, to our knowledge, is the eight case in the literature

INTRODUCTION

Neuroendocrine cells are frequently found in gastric tumours, although they rarely make up more than one third of the total number of tumour cells. When juxtapositioning of the two kinds of tumour cells occurs, a "collision tumour" is formed. These have been described to occur with varying frequency throughout the digestive tract. They are uncommon in the stomach. We describe a case, of a gastric collision tumour in which an adenocarcinoma coexisted with a carcinoid tumour .

CLINICAL FINDINGS

A 47year old female was admitted to the surgical ward with the history of vomiting and abdominal distension since one week. On endoscopic examination, a growth was noted at the pyloric end of the stomach. Biopsy revealed well differentiated adenocarcinoma. Surgery was the choice of treatment, and the patient underwent partial gastrectomy with the removal of lymph nodes and piece of omentum.

PATHOLOGICAL FINDINGS

On gross examination, partial gastrectomy specimen revealed Borrmann type 3 ulcer measuring 5x2.5cm at the pyloric end. Cut section of the growth was greyishwhite in colour with yellowish areas in the deeper portion. Microscopic examination showed that the tumor was composed of two distinct population of cells. One was well differentiated tubular adenocarcinoma and the other was

carcinoid tumor composed of small uniform tumor cells arranged in solid nests, sheets and trabaculae (Fig 1,2,3). These tumor cells had round nucleus with stippled chromatin, inconspicuous nucleolus and scanty cytoplasm. Both components of the tumor tissue invaded the subserosal layer. Lymph nodes showed metastatic deposits of adenocarcinomatous component. Immunohistochemical studies on carcinoid tumor showed positivity for chromogranin and synaptophysin.

Figure 1

Figure 1: Photomicrograph showing both adenocarcinoma and carcinoid, invading the muscularis propria (H&E, x20)

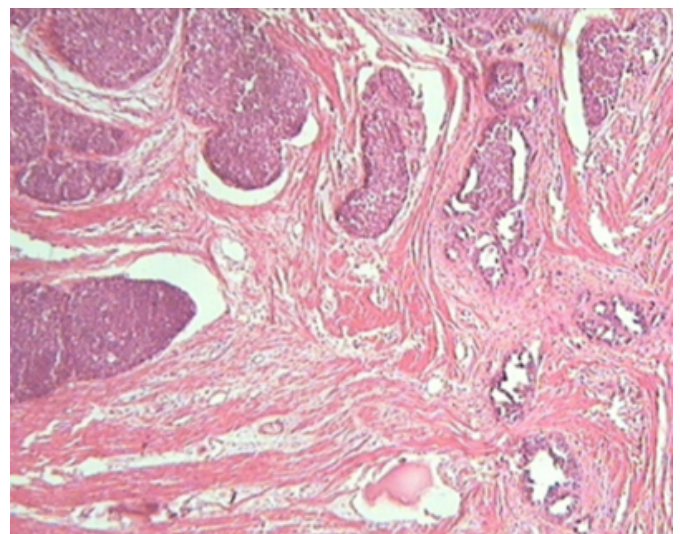


Figure 2

Figure 2: Higher magnification showing well differentiated adenocarcinoma (H&E, x40)

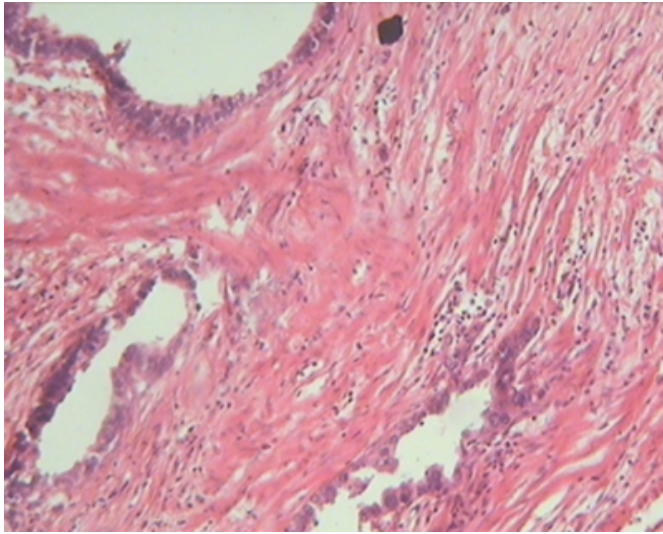
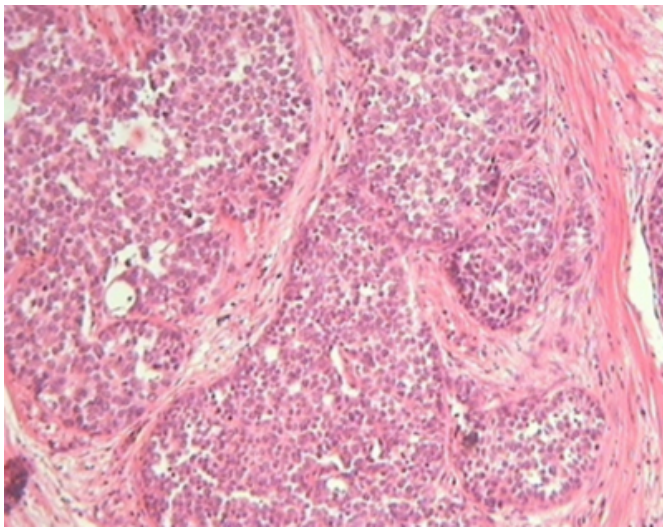


Figure 3

Figure 3: Higher magnification showing carcinoid (H&E, x40)



DISCUSSION

In general, a carcinoid tumor of the stomach is rare and constitutes approximately 2% of all gastrointestinal carcinoid tumors ¹. Still rarer in stomach are tumors comprising of both carcinoid and adenocarcinoma ². This combination of tumors is divided into two morphological groups. When two elements are juxtapositioned, a “collision tumor” is formed. When there is intermingling between the two components, it is called a “composite tumor”. Tumors like lymphoma ³, gastrointestinal stromal tumor ⁴ and carcinoid can occur in collision with gastric adenocarcinoma. In our case, there was collision between a

well differentiated adenocarcinoma and carcinoid. Usually, it is not easy to morphologically distinguish a collision-type from a composite-type tumor. It has been reported that metastasis from a composite tumor shows both of the tissue constituents, whereas those from a collision tumor show only a single tissue component. ⁵ Our case was compatible with such a finding, since the metastatic lymph nodes showed adenocarcinoma alone.

To our knowledge, there are 34 cases of gastric collision tumor composed of epithelial and non-epithelial malignant neoplasm reported in the literature. A summary of those 34 cases showed a male-female ratio of 2.5:1 and an average age of incidence of 61 years (range, 42–80 years). Most tumors were found in the body of the stomach. In those cases, a simultaneous incidence of adenocarcinoma and malignant lymphoma was the most frequent finding. There were only 7 cases of adenocarcinoma and carcinoid tumor.

^{6,7,8,9,10,11}. Our case is the eighth instance of collision tumor of adenocarcinoma and the carcinoid in the stomach. Gastric collision tumors have also been reported in the greater ¹³ and lesser curvature ¹⁴, but rarely in pyloric antrum ¹².

The relationship between these two distinct tumors is unclear. There are two schools of thought regarding the origin of this tumor ¹⁵. One is that both are derived from a multipotential epithelial stem cell. The other hypothesis is that both tumors have different cells of origin. It has been observed that patients with carcinoids have an increased risk of developing secondary neoplasms ¹⁰ and half of these cases also have an adenocarcinoma in the gastrointestinal tract

The prognosis of collision tumors is uncertain, but it seems that the presence and degree of differentiation of the adenocarcinoma component have a greater negative impact than do those of the carcinoid component. ¹⁰

Figure 4

Table 1: Summary of Case Reports on Gastric Collision Tumor Composed of Adenocarcinoma and the Carcinoid Type, including the present case

Case no	Age/sex	Location	Epithelial tumor	Nonepithelial tumor	Source
1.	50/M	Middle body	Adenocarcinoma	Carcinoid	Yamashina & Flinner ¹⁰ ,1985
2.	69/F	Body	W/D adenocarcinoma	Carcinoid	Chodankar et al ² ,1989
3.	49/M	Upper body	M/D adenocarcinoma	Carcinoid	Morishita et al ¹¹ ,1991
4.	72/M	Unknown	M/D adenocarcinoma	Carcinoid	Corsi and Bosman ⁷ ,1995
5.	66/M	Cardia	adenocarcinoma	Carcinoid	Mohinelo et al ⁵ ,1997
6.	84/F	Cardia	M/D adenocarcinoma	Carcinoid	Morishita Y et al ¹¹ ,2004
7.	48/M	Pylorus	M/D adenocarcinoma	Carcinoid	Jayaraman A et al ¹² ,2005
8.	47/F	Pylorus	M/D adenocarcinoma	Carcinoid	Present case,2008

CORRESPONDENCE TO

Dr.Kavita Mardi ,MD,DNB Assistant Professor 12-A, Type V Quarters GAD Colony Kasumpti, Shimla, H.P E. mail: kavitamardi yahoo.co.in

References

- Gilligan CJ, Lawton GP, Tang LH, West AB, Modlin IM. Gastric carcinoid tumors: the biology and therapy of an enigmatic and controversial lesion. *Am J Gastroenterol* 1995;90:338-52.
- Chodankar CM, Pandit SP, Motiwale SS, Deodhar KP. Collision tumor of stomach. *Indian J Gastroenterol* 1989;8:297-98.
- Nishino N, Konno H, Baba S et al .Synchronous lymphoma and adenocarcinoma occurring as collision tumor in stomach;report of a case.*Surg Today*1996;26:508-12.
- Lin SW,Chen GH,HischPP. Collision tumor of stomach:a case report of mixed GISTand adenocarcinoma. *J Clin*

- Gastroenterol*2002;35:332-4.
- Lewin KJ, Appelman HD. Endocrine cell proliferation of the stomach. In: Rosai J, ed. *Tumor of the Esophagus and Stomach*. Washington, DC: Armed Forces Institute of Pathology; 1996:331-356. *Atlas of Tumor Pathology*; 3rd series, fascicle 18.
- Mohinelo C, Requena M, Zaragoza M, Caballero E, Torres J, Guijarro A. Tumor de colision gastrico con metaplasia osea. *Rev Esp Enf Digest* 1997;89:317-19.
- Corsi A, Bosman C. Adenocarcinoma and atypical carcinoid: morphological study of a gastric collision-type tumor in the carcinoma-carcinoid spectrum. *Ital J Gastroenterol* 1995;27:303-8.
- Morishita Y, Tanaka T, Kato K. et al. Gastric collision tumor (carcinoid and adenocarcinoma with gastritis cystica profunda). *Arch Pathol Lab Med* 1991;115:1006-10.
- Chodankar CM, Pandit SP, Motiwale SS, Deodhar KP. Collision tumor of stomach. *Indian J Gastroenterol* 1989;8:297-8.
- Yamashina M, Flinner RA. Concurrent occurrence of adenocarcinoma and carcinoid tumor in the stomach: a composite tumor or collision tumors?. *Am J Clin Pathol* 1985;83:233-36.
- Morishita Y, Sugitani M, Sheikh A et al. Collision Tumor of the Stomach: A Rare Case of an Adenocarcinoma and Carcinoid Tumor. *Arch of Pathol and Lab Med*2004;. 129: 407-9.
- Jayaraman A, Ramesh S, Jeyasingh R, Bagyalakshmi KR. Gastric collision tumour--a case report. *Indian J Pathol Microbiol.* 2005 ;48:264-5.
- Takahashi N, Yonemura Y, Shima Y et al. A case of gastric carcinoid associated with multiple early gastric cancers and atypical epithelium *Gan No Rinsho*1984;30:524-8.
- Miura K, Kanazawa M, Watanabe k et al. A case gastric carcinoid with transient features of tubular adenocarcinoma. *Gan No Rinsho*1989;35:1693-8.
- Fukui H, Takada M, Chiba B et al. Concurrent occurrence of gastric adenocarcinoma and duodenal neuroendocrine cell carcinoma: a composite tumor or collision tumor? *Gut*2001;48:835-6.

Author Information

Kavita Mardi, MD, DNB

Assistant Professor, Dept of Pathology, Indira Gandhi Medical College

Jaishree Sharma, MD

Professor and Head of Deptt, Dept of Pathology, Indira Gandhi Medical College

Saurabh Gupta, MBBS

Senior resident, Indira Gandhi Medical College