

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

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## 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.

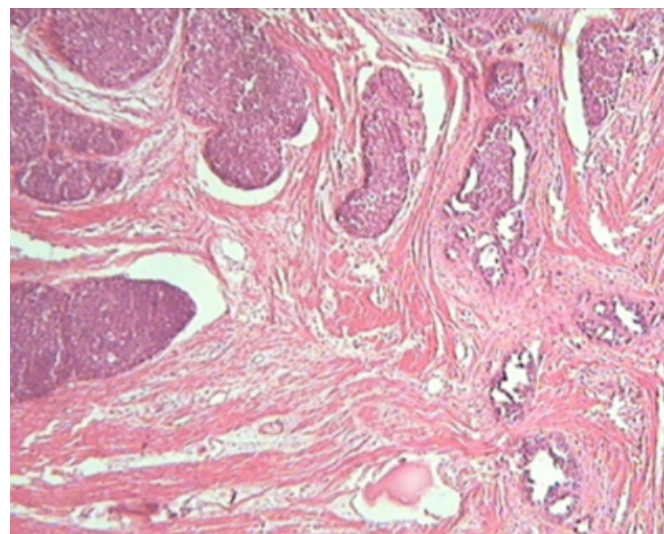
## PATHOLOGICAL FINDINGS

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.

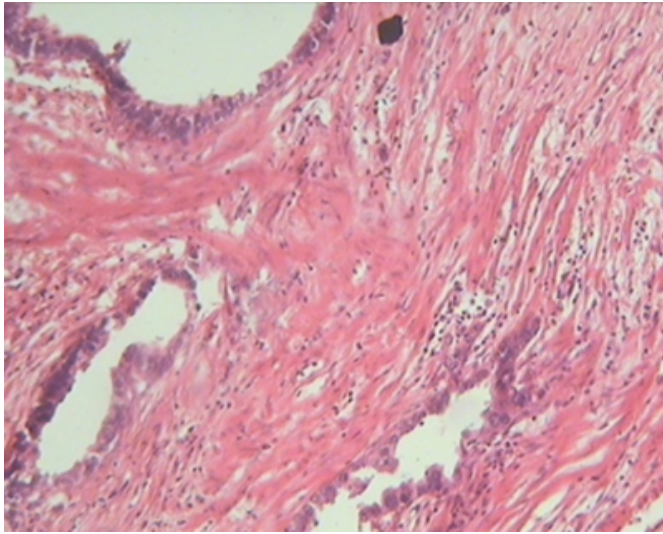
## Figure 1

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



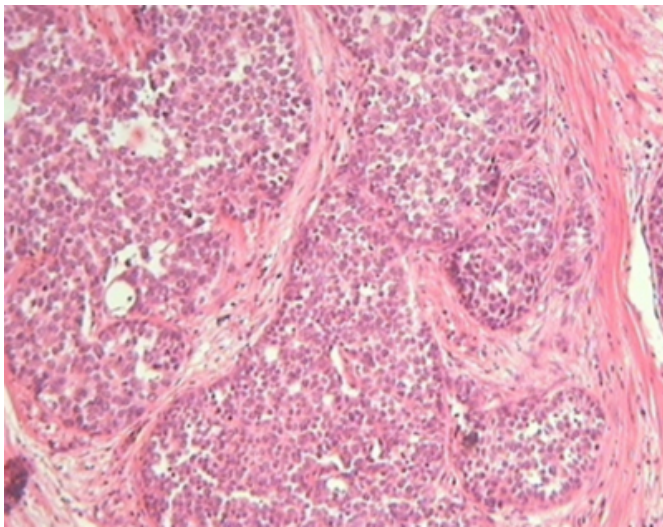
**Figure 2**

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



**Figure 3**

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



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.<sup>5</sup> 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 nonepithelial 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.

<sup>6,7,8,9,10,11</sup> . 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 <sup>13</sup> and lesser curvature <sup>14</sup> ,but rarely in pyloric antrum <sup>12</sup> .

The relationship between these two distinct tumors is unclear. There are two schools of thought regarding the origin of this tumor <sup>15</sup> .One is that both are derived from amultipotential 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 <sup>10</sup> 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. <sup>10</sup>

## DISCUSSION

In general, a carcinoid tumor of the stomach is rare and constitutes approximately 2% of all gastrointestinal carcinoid tumors <sup>1</sup> .Still rarer in stomach are tumors comprising of both carcinoid and adenocarcinoma <sup>2</sup> .This combination of tumors is divided in to 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 <sup>3</sup> ,gastrointestinal stromal tumor <sup>4</sup> and carcinoid can occur in collision with gastric adenocarcinoma. In our case,there was collision between a

**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 <sup>10</sup> ,1985 |
| 2.      | 69/F    | Body        | W/D adenocarcinoma | Carcinoid           | Chodankar et al <sup>2</sup> ,1989      |
| 3.      | 49/M    | Upper body  | M/D adenocarcinoma | Carcinoid           | Morishita et al <sup>11</sup> ,1991     |
| 4.      | 72/M    | Unknown     | M/D adenocarcinoma | Carcinoid           | Corsi and Bosman <sup>7</sup> ,1995     |
| 5.      | 66/M    | Cardia      | adenocarcinoma     | Carcinoid           | Mohinelo et al <sup>5</sup> ,1997       |
| 6.      | 84/F    | Cardia      | M/D adenocarcinoma | Carcinoid           | Morishita Y et al <sup>11</sup> ,2004   |
| 7.      | 48/M    | Pylorus     | M/D adenocarcinoma | Carcinoid           | Jayaraman A et al <sup>12</sup> ,2005   |
| 8.      | 47/F    | Pylorus     | M/D adenocarcinoma | Carcinoid           | Present case,2008                       |

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