Article is available online at http://www.webio.hu/por/2002/8/4/0275

CASE REPORT

Carcinosarcoma of the Stomach

Fazilet KAYASELÇUK,[1] İlhan TUNCER,[1] Yavuz TOYGANÖZÜ,[2] Nebil BAL,[1] Gürsel ÖZGÜR[3]

[1]Baskent University Faculty of Medicine, Department of Pathology, Adana Hospital, Seyhan Hospital, [2]Department of Surgery and [3]Gastroenterology, Adana, Turkey

In the gastrointestinal tract, carcinosarcomas are most frequently seen in the esophagus. Carcinosarcoma in the stomach is a rare tumor. We report a carcinosarcoma of the antrum of stomach. The tumor was polypoid and exophytic in appearance and located in the antrum. Immunohistochemical studies showed positivity for cytokeratin, epithelial membrane antigen and cytoplasmic carcinoembryonic antigen in the epithelial component. Positive staining with vimentin, desmin and focal smooth muscle actin and negative staining with chromogranin were observed in spindle cells. Nuclear positive staining was observed with p53 and Ki-67 in both glandular and spindle atypical cells. (Pathology Oncology Research Vol 8, No 4, 275–277)

Keywords: carcinosarcoma, immunohistochemistry, stomach

Introduction

Carcinosarcomas are rare, biphasic tumors. They occur in such diverse locations as the uterus, breast, thyroid, lung, and upper gastrointestinal system.[1,2] In the gastrointestinal canal (GIC), they are most frequently seen in the esophagus.[1-4] With less frequency, carcinosarcomas located in the stomach have been reported.[1-8] In the present study, a case of carcinosarcoma in the stomach in a 53-year-old male is presented along with clinical, light microscopic, and immunohistochemical (IHC) features.

Case report

A 53-year-old male attended the surgical clinic with the complaints of weight loss, fatigue, and gastric hemorrhage of 5 days' duration. Radiologic examination of the liver showed many areas consistent in appearance with metastasis, and upper gastrointestinal system endoscopy showed a tumoral mass in the gastric antrum. The patient was diagnosed with stromal sarcoma according to endoscopic biopsy results, and subtotal stomach resection and liver wedge resection were performed. During surgery, the tumor was observed in the antrum.

On macroscopic examination of a 15x10 cm gastrectomy specimen, a 3.5x3.5x3cm tumoral mass was determined in the antrum. Ulceration and necrosis were observed in the tumor, which had a polypoid appearance. On light microscopy, spindle cell clusters and fascicles in large regions with the appearance of stromal sarcomas were observed. Irregular glands with cuboidal and columnar cells appearing to overlap these regions were determined. The spindle cells generally had coarse chromatin, elongated oval nuclei, small nucleoli, eosinophilic cytoplasm and frequent mitotic activity. In adjacent regions of the tumor, dysplastic glands and goblet cell metaplasia were seen within mucosa. No Helicobacter pylori was seen. The tumor had infiltrated the entire gastric wall. Mucicarmine stain revealed no mucin accumulation in atypical cells. Immunohistochemically, pancytokeratin, epithelial membrane antigen (EMA) and cytoplasmic carcinoembryonic antigen (CEA) positivity was observed in tubular regions (*Figure 1*). There was no staining with any of these three antigens in spindle cells. Positive staining with vimentin, desmin and focal smooth muscle actin (SMA) and negative staining with chromogranin were observed in spindle cells (*Figure 2*). Nuclear positive staining was observed widely with p53 and more limitedly with Ki-67 in both glandular and spindle atypical cells.

Received: July 15, 2002; *accepted:* Dec 15, 2002

Correspondence: Fazilet KAYASELÇUK, Baskent Üniversitesi, Adana Uygulama ve Arastirma Hastanesi, Dadaloğlu mah. 39 Sk. No. 6 01250 Yüreğir, Adana/Turkey, Tel: +90 322 32727 27, fax: +90 322 3227428, e-mail: faziletks@yahoo.com

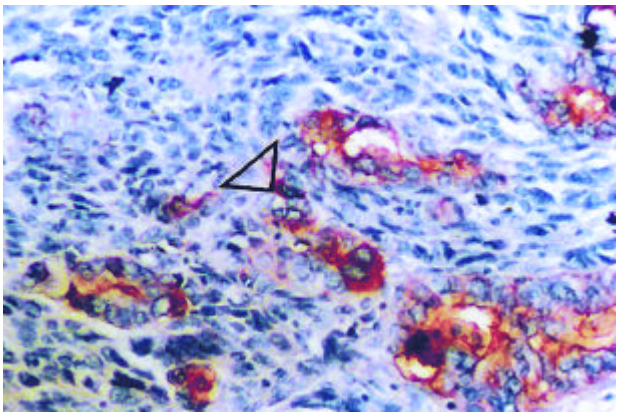

Figure 1. Biphasic tumor composed of spindle cells and glands where only the glands showed positivity for pancytokeratin (arrow). (IHC, pancytokeratin X 100)

On liver biopsy, a metastatic tumor formed by atypical epithelial cells in a region within the liver wasobserved. The case was diagnosed as gastric carcinosarcoma with metastatic adenocarcinoma in the liver. The patient received postoperative chemotherapy, and no additional metastatic focus was determined in the first 8 months.

Discussion

Carcinosarcoma in the stomach is a rare tumor. In the literature, 34 cases are reported up to 1990, most of them in Japanese sources.[1,2] Clinically, carcinosarcomas do not differ from gastric adenocarcinomas, and a discriminating diagnosis is impossible endoscopically or radiologically.[2,3] Only an epithelial or sarcomatous component of the tumor may be observed in small endoscopic biopsies. Carcinosarcomas in the stomach may be polypoid, exophytic, or endophytic.[2,3] Their surfaces are generally ulcerated, and they frequently infiltrate the gastric wall by forming large tumor masses.[1,2,4] In a 24-patient study by Tanimura and Furuta, the age range was 27-74, and the male-female ratio 9/15; the tumors in this study were most frequently located in the pylorus and were of polypoid appearance.[9] In our patient, the tumor was polypoid and exophytic in appearance and located in the antrum.

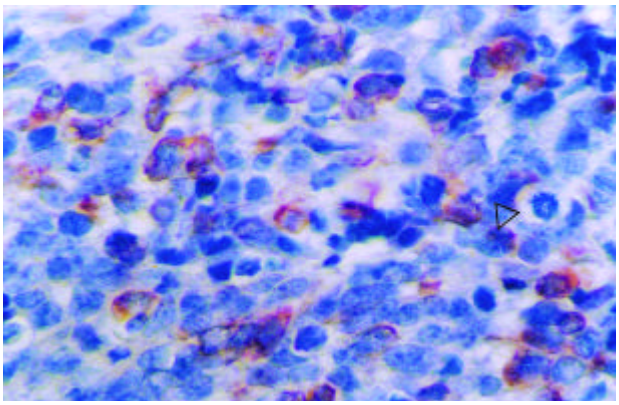

Figure 2. Immunreactivity for desmin in spindle cells. Arrow: a mitotic figure (IHC, desmin X 400)

Histologically, carcinosarcomas include epithelial and sarcomatous regions, and the two tumor components may be separate or overlapping.[1-9] The tumor is often accompanied by atrophy, dysplasia and intestinal metaplasia.[1,2] These tumors may be categorized into three subtypes.[2] In type 1, or "collision" tumors, there is a distinct boundary between the two tumor components. In type 2, or "combined" tumors, the two tumor components are together, overlapping, but the stromal component does not have any distinguishing characteristics. In type 3, or "composite" tumors, both (two) tumor types are present, but the stromal component is of a different character.[2] In our patient, the two tumor components were overlapping. A sarcomatous component with spindle cells was observed in large regions. Dysplasia and intestinal metaplasia were found. This case conforms to the type 2 group according to IHC staining characteristics.

The histogenesis of biphasic tumors is not clear. Some researchers have argued that a primary carcinoma stimulates excessive stromal proliferation, resulting in a carcinosarcoma.[2] Other researchers, however, are of the opinion that the spindle cell component reflects anaplasia within the carcinoma.[1-4] There are findings supporting the idea that gastric biphasic tumors are epithelial in origin.[1,2,4] In a number of reports, cells of an appearance intermediate between the epithelial and sarcomatous components were seen, and these cells have been reported to stain positively with epithelial differentiation markers such as CEA. However, there have been cases in which spindle cells are differentiated as entirely smooth muscle or cartilage. In the literature, gastric carcinosarcomas differentiated as rhabdomyoblastic, neuroblastic or osteoblastic are reported.[5-7] A combination of carcinosarcoma and carcinoid tumor with neuroendocrine malignity has been reported in two cases.[5,8] Therefore, it may be that these tumors developed in the beginning with diverse differentiations of a multipotent stem cell. We observed staining with CEA only in the epithelial component in the case presented. Vimentin, desmin and SMA positivity suggest that spindle cells are differentiated as smooth muscle.

Gastric carcinosarcomas have a low incidence of metastasis, but mortality is high.[1-8] In cases presented in Japanese sources, the mortality rate is 100%.[9] In our patient, widespread Ki-67 and p53 positivity confirm the high proliferation and malignant potential of these tumors. Carcinosarcoma metastases may be entirely carcinomatous, sarcomatous or biphasic in appearance.[1] The metastatic tumor in the case we present was epithelial in appearance.

References

1. *Robey-Cafferty SS, Gringon DJ, Ro JY, et al:* Sarcomatoid carcinoma of the stomach. A report of three cases with immunohistochemical and ultrastructural observations. Cancer 65: 1601-1606, 1990.
2. *Bansal M, Kaneko M, Gordon RE:* Carcinosarcoma and separate carcinoid tumor of the stomach. A case report with light and electron microscopic studies. Cancer 50: 1876-1881, 1982.
3. *Fenoglio-Preiser CM, Noffsinger AE, Stemmermann GN, et al:* Gastointestinal Pathology. Second ed, 1999; Philadelphia, pp: 262.
4. *Xu LT, Sun CF, Wu LH, et al:* Clinical and pathological characteristics of carcinosarcoma of the esophagus: report of four cases. Ann Thorac Surg 37: 197-203, 1984.
5. *Tsuneyama K, Sasaki M, Sabit A, et al:* A case report of gastric carcinosarcoma with rhabdomyosarcomatous and neuroendocrinal differentiation. Pathol Res Pract 195: 93-97, 1999.
6. *Nakayama Y, Murayama H, Iwasaki H, et al:* Gastric carcinosarcoma (sarcomatoid carcinoma) with rhabdomyoblastic and osteoblastic differentiation. Pathol Int 47: 557-563, 1997.
7. *Matsukuma S, Wada R, Hase K, Sakai Y, Ogata* S, Kuwabara N: Gastric stump carcinosarcoma with rhabdomyosarcomatous differentiation. Pathol Int 47: 73-77, 1997.
8. *Melato M, Bucconi S, Grillo BP, et al:* Carcinosarcoma and separate neuroendocrine malignant tumor of a malignancy promoter, the gastric stump. Anticancer Res 13: 2485-2488, 1993.
9. *Tanimura H, Furuta M:* Carcinosarcoma of the stomach. Am J Surg 113: 702-709, 1967.