

SARCOMATOID CARCINOMA OF THE STOMACH WITH HETEROLOGOUS ELEMENTS

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We report a unique sarcomatoid carcinoma of the stomach that, in addition to having carcinomatous and sarcomatous components, also contained foci of heterologous cartilaginous differentiation. Gastric sarcomatoid carcinomas were reviewed by Iezzoni and Mills, but cartilaginous differentiation was not seen in any of their 30 cases.¹ Robey-Cafferty and associates have also reported three cases, but none of them contained heterologous cartilaginous elements.² One case report from Korea, however, mentions the presence of cartilage in a carcinosarcoma of the stomach.³

Case Report

A 46-year-old Saudi man was admitted to Asir Central Hospital with recent onset of dyspepsia, anorexia and weight loss. An endoscopic examination of the stomach was performed and a biopsy was taken. This initial biopsy was unsuccessful in demonstrating the tumor. On explorative laparotomy, however, a large tumor was found, necessitating total gastrectomy and splenectomy.

The gastrectomy specimen measured 22 cm in length and 9 cm in diameter across the body of the stomach. When the stomach was opened along the greater curvature, a large ulcer was noted in the antral region, measuring 4x3 cm. The margins of the ulcer were edematous and elevated, with loss of mucosal rugosities around its circumference. The wall of the stomach beneath the ulcerated lesion was thickened (2.5 cm), with grayish-white homogeneous cut surfaces. Six lymph nodes were found along the greater curvature of the stomach, ranging in size from 0.4 to 0.9 cm in maximal dimension. The spleen measured 10x5.5x4 cm, and was grossly unremarkable. Microscopically, the ulcerated lesion of the stomach showed a biphasic tumor invading the full thickness of its wall. The tumor was composed of two distinct components, one being a moderately differentiated adenocarcinoma and the other being a sarcoma (Figure 1).

The carcinomatous component consisted of irregular glands that were lined by stratified columnar cells containing hyperchromatic nuclei. These neoplastic glands were separated from each other by a sarcomatous stroma of pleomorphic spindle-shaped cells exhibiting frequent mitotic figures. There were clear-cut foci of chondroid differentiation among the sarcomatous elements, exhibiting significant nuclear atypia. Transition between carcinomatous and sarcomatous components was not seen, but the sarcomatous foci merged imperceptibly with cartilaginous foci. The tumor invaded deeply in the muscularis propria. A random section taken at a distance from the main tumor displayed foci of intestinal metaplasia and dysplasia. Gastric margins of resection, the lymph nodes and spleen were not involved by the tumor.

Discussion

Chondroid differentiation is rare in sarcomatoid carcinomas of the stomach, but it is not uncommon in those tumors that arise from the esophagus, small intestine¹ and colon.⁵ In the 30 cases reviewed by Iezzoni and Mills,¹ the average age of the patients with gastric sarcomatoid carcinoma was 52 years, and 64% were males. These tumors arose from all portions of the stomach, but had a predilection for the pyloric region. Microscopically, the carcinomatous component ranged from well-differentiated adenocarcinoma to anaplastic carcinoma. The sarcomatous component consisted of spindle-shaped cells and bizarre giant cells, but chondroid differentiation was not described in any of them. Robey-Cafferty et al.² documented three cases of carcinosarcomas of the stomach without mention of heterologous cartilaginous elements. Our tumor was unique because, in addition to the carcinomatous and sarcomatous components, heterologous cartilaginous elements were also present. One similar case in a 66-year-old man was presented by Cho et al.³ from Korea. An antral tumor of 4 cm diameter contained foci of chondroid differentiation in the sarcomatous component.

There is considerable controversy between the traditionalists and neoterics regarding the origin of the cartilage in sarcomatoid carcinomas. The cartilage is heterologous to the stomach and, therefore, must either have been produced by totipotent cells capable of differentiating into different directions, or must have

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developed through metaplastic changes in the sarcomatous stroma. Chondroid metaplasia is also sometimes seen in the stroma next to a carcinoma. The tumors that contain heterologous cartilaginous elements usually occur in the female genital tract, but now they have been documented in many other organs as well, such as the lung,⁹ liver,¹⁰ prostate,¹¹ and breast.¹²

The nosological concept is equally debated between various authors. These tumors have received a variety of appellations, such as mixed müllerian (mesodermal) tumors when seen in the female genital tract,^{7,8} but carcinosarcomas when they occur in the lung, liver or prostate.⁹⁻¹¹ Neoplasms of the breast that are identical to these tumors are not usually designated as carcinosarcomas, but rather are referred to as metaplastic carcinomas.^{12,13} Wick and Swanson¹⁴ favor the term sarcomatoid carcinoma. They present a lengthy argument that these phenotypically biphasic tumors are actually examples of carcinomas with varying degrees of divergent differentiation. Immunohistochemical studies and behavioral attributes of these tumors support their point of view.

The intestinal metaplasia and mucosal dysplasia that we and others² have observed in random sections of the stomach may shed meaningful light on the etiology and pathogenesis of gastric sarcomatoid carcinomas. These mucosal changes are considered to be a precursor lesion of the intestinal type of gastric carcinoma, but not of the diffuse type.¹⁵ The intestinal metaplasia is produced by as yet uncertain external environmental carcinogenic factors, such as those present in food or those produced by *H. pylori* infection. Thus, it would be reasonable to conclude that gastric sarcomatoid carcinomas are etiologically related to the intestinal type of gastric carcinomas, inasmuch as intestinal metaplasia was seen in our case and is also described by Robey-Cafferty et al.²

Sarcomatoid carcinomas of the stomach need to be distinguished from gastrointestinal stromal tumors (GIST),¹⁶ and from inflammatory fibroid polyps.¹⁷ The presence of neoplastic glands and lack of myogenous markers testify against tumors of smooth muscle origin. Inflammatory fibroid polyps lack the cytological anaplasia and abnormal mitotic figures that are present in the sarcomatoid carcinomas.

The behavior of sarcomatoid carcinomas is very aggressive and gastrectomy is the most common treatment.¹ Data concerning overall mortality of gastric sarcomatoid carcinomas are sparse; however, one report cited a mortality rate of 100%.¹⁸ Unfortunately, our patient has been lost to follow-up.

Our report showed a unique gastric sarcomatoid carcinoma that, in addition to having carcinomatous and sarcomatous components, also possessed foci of heterologous cartilaginous differentiation.

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