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Sarcomatoid Carcinoma of the Stomach: A Case Report

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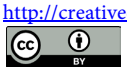

Abstract

Sarcomatoid carcinoma is a rare and aggressive tumor that can occur in various organs, including the stomach. We aim to present a case of metastatic gastric sarcomatoid carcinoma and highlight the challenges in its diagnosis and treatment. We report the case of a 72-year-old female patient with metastatic gastric sarcomatoid carcinoma. The patient presented with intractable nausea, vomiting, abdominal pain, and significant weight loss. Imaging studies revealed a large tumor in the antro-pyloric region with metastases. Immunohistochemical analysis confirmed the diagnosis of sarcomatoid carcinoma. Despite hospitalization and supportive care, the patient's condition deteriorated rapidly, leading to her death two weeks after admission. Sarcomatoid carcinoma of the stomach is a rare and highly aggressive malignancy with a poor prognosis. Early detection and novel therapeutic strategies are crucial for improving patient outcomes.

Subject Areas

Oncology

Keywords

Sarcomatoid Carcinoma, Gastric Carcinoma, Biphasic Tumor, Immunohistochemistry, Case Report

1. Introduction

Sarcomatoid carcinoma, first described in 1982 by Snove *et al.* [1], is an uncommon and aggressive malignant tumor characterized by a biphasic nature comprising mesenchymal and epithelial components. It can occur in various anatomical sites, including the respiratory, digestive, genitourinary tracts, the breast, and

thyroid glands. It is more frequently observed within the digestive system in the esophagus and liver, with gastric occurrences notably rare. Only six cases have been reported in the English literature [2].

Gastric sarcomatoid carcinoma typically manifests in the sixth decade of life and predominantly affects men. It can originate from any part of the stomach and is often diagnosed at an advanced stage due to its aggressive nature and nonspecific symptoms [3] [4]. Given the poor efficacy of chemotherapy and radiotherapy, surgery remains the primary treatment modality, though the prognosis remains unfavorable [5].

We report a case of metastatic gastric sarcomatoid carcinoma in a 72-year-old female patient, emphasizing the rapid progression and challenges in managing this rare malignancy.

2. Case Report

A 72-year-old female with a history of hypertension presented with intractable nausea, vomiting, persistent upper abdominal pain, and a five-month history of weight loss. The vomiting had progressively worsened, limiting her oral intake in the four weeks before the presentation. She reported a 10 kg weight loss over five months. There was no family history of cancer.

Abdominal computed tomography (CT) revealed a 12 cm circumferential tumor in the antro-pyloric region, with associated cystic lesions in the pancreatic tail, multiple hepatic and peritoneal metastases, and moderate peritoneal effusion (**Figure 1**). Chest CT revealed no abnormalities.

Figure 1. Computed tomography scan data revealed a 12 cm-diameter mass in the antro-pyloric region, with secondary hepatic locations.

Laboratory tests showed hypoalbuminemia and elevated tumor markers, including CA19.9 (9527 UI/ml) and CEA (19.61 ng/ml).

A liver biopsy revealed malignant tumor proliferation composed of spindle and epithelioid cells. Immunohistochemical staining was positive for cytokeratin AE1/AE3 and vimentin, consistent with sarcomatoid carcinoma.

The patient was hospitalized for pain management and nutritional support, with plans for chemotherapy if her condition improved. However, her health rapidly deteriorated, complicated by a pulmonary embolism, leading to her death two weeks after admission.

The patient was hospitalized for pain management and nutritional support, with plans for chemotherapy if her condition improved. However, her health rapidly deteriorated, complicated by shortness of breath and tachycardia. A thoracic CT angiography was performed, revealing an extensive pulmonary embolism, which ultimately led to her death two weeks after admission.

3. Discussion

Sarcomatoid carcinoma is a rare, biphasic tumor with both mesenchymal and epithelial components. It is highly aggressive, with a high propensity for metastasis and poor survival rates [6] [7]. In the upper gastrointestinal tract, it is most commonly found in the gallbladder and esophagus. Symptoms vary depending on the tumor's location and size, often including pain, obstruction, and bleeding [8].

A retrospective analysis from August 2011 to April 2020 identified only five cases of gastric sarcomatoid carcinoma out of 753 patients with confirmed sarcomatoid carcinoma [2].

Key diagnostic criteria include the presence of a genuine sarcomatous component, lack of a transitional zone between the carcinomatous and sarcomatous components, and positive immunohistochemistry for mesenchymal markers with negative results for epithelial markers in the sarcomatous component [9].

Immunohistochemical studies revealed pleomorphic cells positive for cytokeratin AE1/AE3, CAM 5.2, and vimentin while negative for desmin, muscle-specific actin, CD34, DOG1, c-kit, and S-100 [10]. Vimentin, an interfilament protein present in mesenchymal cells, was detected in 90% of documented cases of sarcomatoid carcinomas of the gastrointestinal tract [7] [11].

To achieve an accurate diagnosis of sarcomatoid carcinoma, histology alone is insufficient, immunohistochemistry is instrumental in distinguishing between leiomyosarcoma, GIST, angiosarcoma, and schwannoma during the differential diagnosis process.

In this case, immunohistochemical analysis confirmed the diagnosis, highlighting the importance of this technique in distinguishing sarcomatoid carcinoma from other similar malignancies.

Surgery is currently the mainstay of treatment, although the prognosis remains poor, with a high risk of recurrence due to the sarcomatous component. The average survival is only 6.5 months, with most recurrences occurring within the first year [12].

Chemotherapy and radiotherapy have shown limited efficacy. Chemotherapy, particularly involving 5-FU and/or cisplatin, has not shown enhanced survival rates [7].

Emerging research on immunomodulators offers hope for future therapeutic

developments. In an initial assessment of immune checkpoint inhibitors (ICIs) for sarcomatoid carcinoma, Domblides *et al.* found that patients with lung sarcomatoid carcinoma had high response rates and longer overall survival (OS) when using ICIs [13]. The overexpression of PD-L1, originating from the sarcoma component, is associated with the presence of tumor-infiltrating macrophages and lymphocytes.

Also, Zhang *et al.* initially observed a distinct manifestation of the PD-L1 protein in the primary sarcomatoid carcinoma of the jejunum, suggesting the potential for employing immunotherapy targeted at PD-L1 for gastrointestinal sarcomatoid carcinomas [14].

4. Conclusion

Sarcomatoid carcinomas of the stomach are rare and carry a poor prognosis. Surgical resection remains the primary treatment, though recurrence rates are high, and survival is limited. Further research into novel therapeutic strategies, including immunotherapy, is essential to improve outcomes for patients with this aggressive malignancy.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Conflicts of Interest

The authors declare no conflicts of interest.

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