



Case Report

Sarcomatoid carcinoma of the stomach: A very rare and extremely aggressive tumor; a case report

Mohamed Amine Elghali^{a,b,*}, Mehdi Ben Abdelkrim^{a,b}, Soumaya Mrabet^c, Emna Aloui^{a,b}, Amal Letaief^{a,b}, Marwa Krifa^d, Mohamed hedi Mraidha^{a,b}, Imtine Belaid^e

^a Department of Surgery, Farhat Hached University Hopital, Sousse, Tunisia

^b Université de Sousse- Faculté de Médecine de, Sousse, Tunisia

^c Department of Gastro-entérology, Farhat Hached University Hopital, Sousse, Tunisia

^d Department of Pathology, Farhat Hached University Hopital, Sousse, Tunisia

^e Department of Oncology Farhat Hached University Hopital, Sousse, Tunisia



ARTICLE INFO

Keys words:

Gastric cancer
Sarcomatoid carcinoma
Evolution
Case report

ABSTRACT

Introduction: Sarcomatoid carcinoma of the stomach is a very rare type of malignant gastric tumor characterized by distinct cell morphology.

Only six cases have been reported in the literature. We report a case which illustrates the great rapidity of evolution and the aggressiveness of this histological type.

Case presentation: A 80-year-old patient was explored for loss of 20 kg and epigastralgia. The explorations showed a non-metastatic antral sarcomatoid carcinoma with celiac necrotic lymph node. The oncologic comitee decision was surgery straight away without perioperative chemotherapy.

4 weeks after his first CT scan the patient was admitted for preparation for surgery. Clinical and morphological examination showed a clear increase in tumor size with associated tumor infection.

The patient had distal gastrectomy. The tumor was perforated and locally advanced.

The final pathological exams confirmed the histological type. Surgery was R0, but 4 months after surgery, local recurrence compressing gastro intestinal anastomosis was occurred.

Clinical discussion: Operative difficulties and rapid recurrence after surgery would have been avoided by faster surgery after diagnosis. However, the surgery time was only 1 month, which illustrates the rapid evolution of sarcomatoid tumors.

Conclusion: Sarcomatoid carcinoma is a rare tumor. These tumors can be aggressive with a large tumoral volume and high rate of locoregional lymph node involvement. Our case illustrate the aggressiveness of this tumor. The benefit of peri-operative treatment is unknown.

1. Introduction and importance

Gastric sarcomatoid carcinoma is an extremely rare biphasic aggressive malignancy characterized by a combination of malignant epithelial and mesenchymal cells [1]. Sarcomatoid carcinoma was first described by Snover et al., in 1982 for thymic tumors [2]. Sarcomatoid carcinomas can occur in a wide variety of sites, including the respiratory tract, digestive tract, genitourinary tract, mammary and thyroid glands [3]. To our knowledge, only 6 cases of primary gastric sarcomatoid carcinoma have been reported in the literature, the majority of which were reported in Eastern countries [4]. Due to the low effectiveness of

chemotherapy and radiotherapy, surgery remains the most effective treatment. Patients with this disease have a significantly worse prognosis due to the metastatic nature of the tumor and its aggressive clinical progression [5].

This article presents a case report of a patient with a very rapidly growing gastric sarcomatoid carcinoma complicated by necrosis and perforation who was treated surgically.

This case report has been reported in line with the SCARE Criteria [6].

* Corresponding author. Farhat hached univerty hospital, Avenue Ibn eljazzar 4000, Sousse, Tunisia.

E-mail address: amine.elghali@gmail.com (M.A. Elghali).

<https://doi.org/10.1016/j.amsu.2022.104014>

Received 5 May 2022; Received in revised form 12 June 2022; Accepted 12 June 2022

Available online 17 June 2022

2049-0801/© 2022 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

2. Case presentation

An 80-year-old patient, with a pacemaker for atrioventricular block, presented for atypical epigastralgia with significant weight loss (20kg in 6 months) without vomiting or digestive bleeding. The patient had no drug history or allergies.

An upper gastrointestinal endoscopy was performed finding non-stenosing gastric antral tumor thickening. Biopsies were performed. The pathological examination of the biopsied fragments shows an aspect of a gastric sarcomatoid carcinoma.

CT scan did not show distant metastasis, with partially stenosing antro-pyloric tumor thickening associated with densification of the mesenteric fat and celiac necrotic lymph node (Fig. 1).

After a multidisciplinary consultation staff and after consulting the literature, it was decided to operate the patient immediately without resorting to perioperative chemotherapy.

The operability assessment was carried out finding a malnourished patient with albuminemia at 30g/l, WHO score at 3, ASA II.

The patient was admitted to the general and digestive surgery department for preparation for surgery with albumin infusion and parenteral nutrition.

The examination on admission showed has a fever, with epigastric pain and a biological inflammatory syndrome (hyperleukocytosis at 33,000 elements/mm³).

An abdominal computed tomography was therefore performed (1 month after the first) finding a considerable increase in the size of the tumor with signs of necrosis and tumor superinfection (Fig. 2).

The patient was put on triple antibiotic therapy (cefotaxime, metronidazole, gentamycin), with close monitoring and operated on 5 days later after correction of the ionic and protein balance.

The surgery was performed by two surgeons experienced in gastric cancer surgery in our university hospital. There was a large perforated antral mass, clogged by the gallbladder. The tumor is locally advanced, adherent to the upper face of the pancreas with the presence of multiple peripancreatic necrotic lymph nodes (Fig. 3). Gastric mobilization was difficult due to inflammatory and tumoral adhesions. Distal gastrectomy was performed. The stomach was severed with a cutting stapler as well as the duodenum. A type D1 cleaning was carried out. Given the operational findings, it was not deemed necessary to carry out a more extensive dissection. a Y-loop anastomosis was performed. Post-operative follow-up was favorable. The patient was discharged 8 days after surgery.

Macroscopically, it was a tumor of 9.5 cm of long, budding, friable and infiltrating perforated with the presence of a false membrane. Histological examination found a poorly differentiated carcinomatous proliferation, made up of extensively necrotic tumor clusters, epithelioid tumor cells associated with spindle cells; in places, there were tumoral glandular structures with large areas of "osteoclastic" type multinucleated giant cells. (Fig. 4) Cytokeratin was expressed at the level of the two cell types; vimentin only at the level of spindle-shaped or oval cells

(Fig. 5). Therefore, it was an undifferentiated gastric carcinoma (sub-type: sarcomatoid carcinoma according to the 5th edition of the WHO classification of tumors of the digestive system), perforated, 9.5 cm long axis, largely necrotic.

Four months after surgery, patient presented epigastric pain and vomiting, CT scan showed tumor recurrence and peritoneal carcinomatosis. Jejunostomy and palliative support were indicated.

3. Clinical discussion

Adenocarcinoma, adenosquamous carcinoma, and squamous cell carcinoma are the most common types of stomach tumor [7]. Sarcomatoid carcinoma is a rare type of primary gastric tumor, and it is difficult to make a definitive preoperative diagnosis in such cases [4]. Carcinosarcoma, pleomorphic carcinoma and anaplastic giant cell carcinoma have previously been used to describe this type of tumor [5]. Today, sarcomatoid carcinoma has become the most accepted term used in diagnostic surgical reports [4].

The understanding of sarcomatoid carcinoma has been hampered by variations in nomenclature and classification. Multiple nomenclatures have been used in the prior literature, including carcinosarcoma, pseudosarcoma, pseudocarcinoma, and spindle cell carcinoma. The multiple names demonstrate the different understandings of this disease, which have resulted in complex definitions regarding this type of tumor [4].

It is emphasized in the current literature that sarcomatoid carcinomas have malignant epithelial and stromal components, and sarcoma components that occupy more than 50% of the elements involved. Sarcomatoid cancer can develop in many locations, including the nasopharynx, lungs, digestive tract, urinary and genital tracts [2,5]. Sarcomatoid cancer, in the skin or mucous membranes, presents similarly to the polyp under the microscope, and IHC can be used to detect the presence of various types of sarcomatoid properties, for example clusters of well-differentiated cells, and the demonstration of intra-epithelial neoplasia without the element of cancer.

The pathogenic mechanisms underlying sarcomatoid carcinoma remain to be elucidated. P53 mutations have been observed in this type of tumor. Some scientists have hypothesized that sarcomatoid carcinoma could be differentiated from stem cells because the carcinomatous and sarcomatoid elements are monoclonal [8]. Studies have reported that a large proportion of sarcomatoid carcinomas have developed in various organs because of treatment for other diseases [9]. For example, these tumors have been found in the urinary system after transurethral resection or chemotherapy and in the liver after arterial embolization or radiofrequency ablation.

This case showed a rapid evolution of the tumor in size with tumor and central lymph node necrosis and tumor perforation, which are not classic for gastric adenocarcinoma. Indeed, the tumor could be very aggressive, as suggested by the high rate of locoregional metastases (33%–65%), a shorter tumor doubling time (2.2–5 months) [10].

The prognosis of sarcomatoid carcinoma is poor, so the patient in this

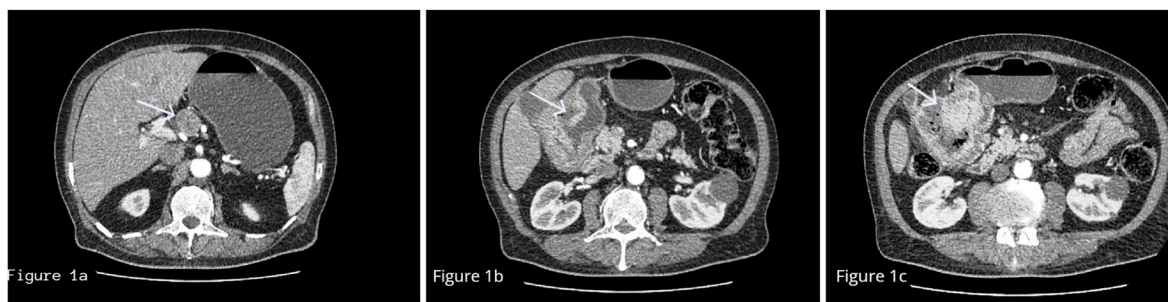


Fig. 1. First CT scan.

1 a large necrotic adenopathy next to the celiac trunk (arrow).

1 b et 1 c: large antro-pyloric tumor.

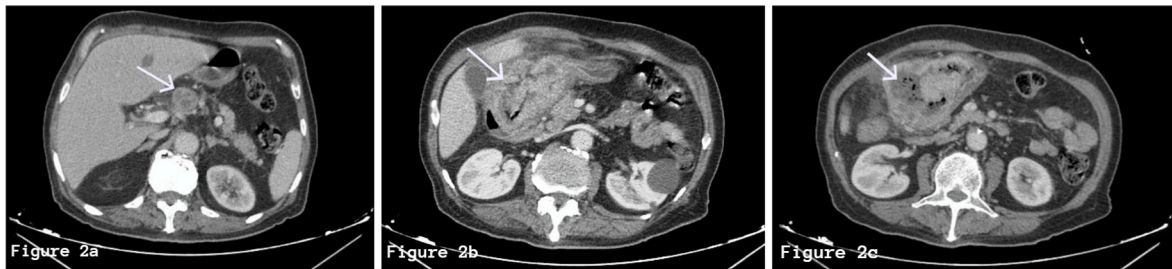


Fig. 2. CT scan 1 months after diagnostic:
Significant increase in tumor volume and infiltration of the peri-gastric region.

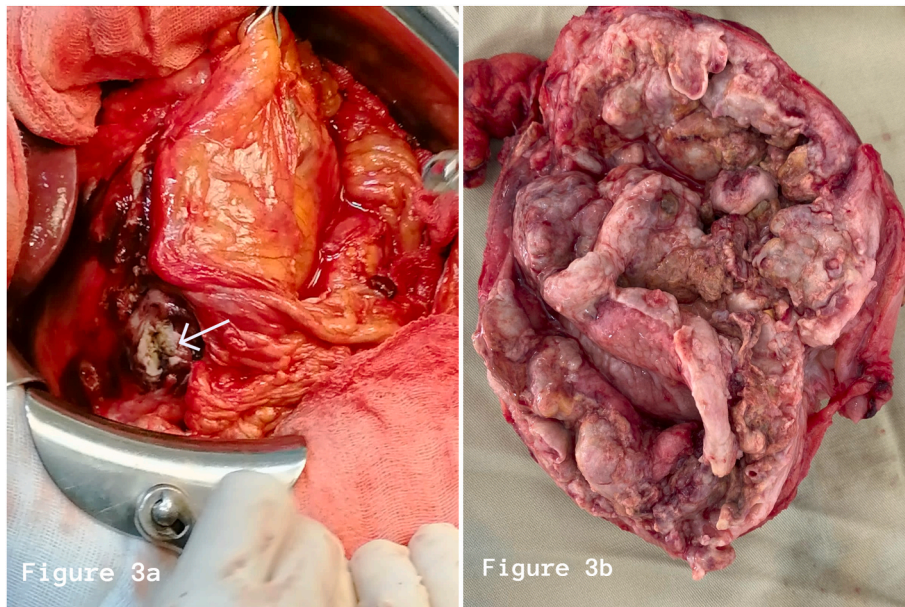


Fig. 3. operative specimen
3a perforated antro-pyloric tumor(arrow) clogged by the gallbladder
3b: gastrectomy specimen: large tumor occupying the entire lumen.

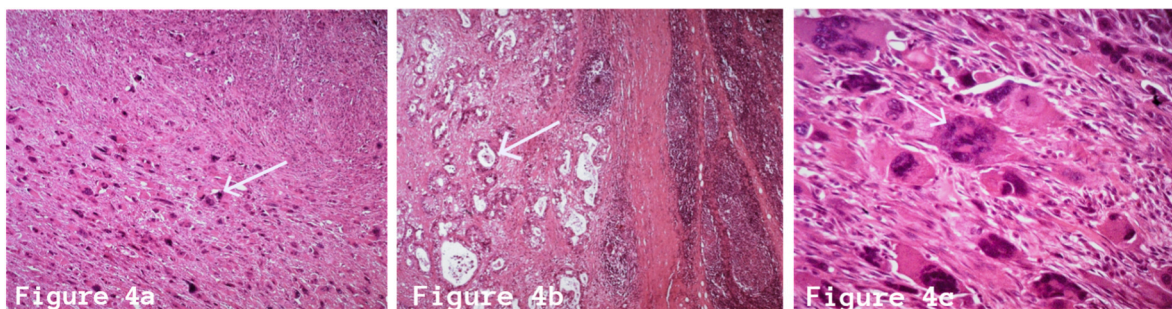


Fig. 4. Pathological exam
4 a: HE*40: poorly differentiated neoplastic cells with deeply eosinophilic cytoplasm and pleomorphic nuclei(Arrow)
4b HE*40: focally some isolated tumour glands (Arrow)
4c: HE*200: sarcomatoid contingent with strongly atypical cells and multinucleated giant cells (Arrow) type “osteoclast-like”.

case may have an unfavorable prognosis. In addition, the large size of the tumor and the involvement of lymph node metastases decrease the likelihood of a favorable prognosis. The thoroughness of surgical resection is the most important factor underlying patient survival. Although sarcomatoid carcinoma is unresponsive to chemotherapeutic drugs [11], some patients have been shown to benefit from chemotherapy with carboplatin, paclitaxel and bevacizumab, with reduction in tumor size [12]. However, whether to treat sarcomatoid gastric

carcinoma with chemotherapy remains a controversial issue. When possible, radical surgical resection is the standard treatment of choice, but average survival is only about 6.5 months, with most recurrences occurring within the first year [1].

4. Conclusion

Sarcomatoid carcinoma is a rare tumor. These tumors can be

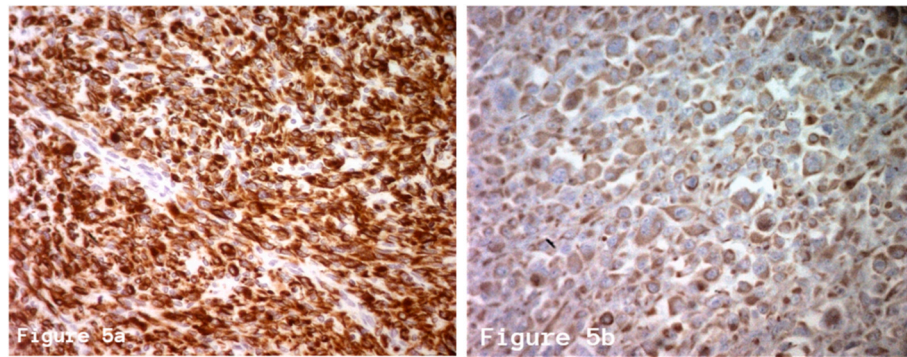


Fig. 5. Immunohistochemistry
 5a: Cytokeratin AE1/AE3 * 100: strongly and diffuse stain in the undifferentiated contingent
 5b: Vimentin *200: weak stain in the sarcomatoid area.

aggressive with a high rate of locoregional lymph node involvement. Surgery and lymph node dissection remain the mainstays of treatment.

Provenance and peer review

Not commissioned, externally peer reviewed.

Sources of funding

None.

Ethical approval

Case reports are exempt from ethical approval in our institution.

Informed consent

Written informed consent was obtained from the patient and family for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Mehdi Abdelkrim, Emna Aloui and Amal letaief collecting patient informations and references. Soumaya Mrabet, Mohamed hedi Mraidha and Imtinene Belaid analyzed and interpreted the patient data. Marwa krifa performed the histological examination and interpreted pathological figures of this manuscript. Mohamed Amine ELGHALI was a major contributor in writing the manuscript. All authors read and approved the final manuscript.

Guarantor

Mohamed Amine ELGHALI.

Declaration of competing interest

All authors declare that there is no conflict of interest in this manuscript.

References

- [1] F. Carboni, G.B. Levi Sandri, M. Valle, R. Covelto, A. Garofalo, Gastricsarcomatoidcarcinoma. *J GastrointestSurg.* nov 17 (11) (2013) 2025–2027.
- [2] D.C. Snaver, G.D. Levine, J. Rosai, Thymiccarcinoma. Five distinctive histological variants, *Am J SurgPathol.* juill 6 (5) (1982) 451–470.
- [3] D.-K. Zhou, B.-Q. Gao, W. Zhang, X.-H. Qian, L.-X. Ying, W.-L. Wang, Sarcomatoidcarcinoma of the pancreas: a case report, *World J Clin Cases* 7 (2) (26 janv 2019) 236–241.
- [4] C.-C. Zhu, M.-R. Li, T.-L. Lin, G. Zhao, Sarcomatoidcarcinoma of the stomach: a case report and literaturereview, *OncolLett* sept 10 (3) (2015) 1385–1389.
- [5] C.-M. Kwok, Sarcomatoidcarcinoma of the jejunumwithgastricmetastases: a case report and review of the literature, *Int J Surg Case Rep* 28 (2016) 161–164.
- [6] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, for the SCARE Group, The SCARE 2020 guideline: updating consensus surgical CASE REport (SCARE) guidelines, *Int. J. Surg.* 84 (2020) 226–230.
- [7] G. Corso, R. Seruca, F. Roviello, Gastric cancer carcinogenesis and tumor progression, *Ann Ital Chir.* juin 83 (3) (2012) 172–176.
- [8] K. Znati, N. Tadlaoui, Z. Bernoussi, A. Mikou, N. Mahassini, A. Jahid, et al., Carcinome sarcomatoïde biphase de la thyroïde : localisation exceptionnelle d'une tumeur rare. *Annales d'Endocrinologie [Internet], MARS* 67 (1) (2006) 64–68.
- [9] N. Badhiwala, R. Chan, H.-J. Zhou, S. Shen, M. Coburn, Sarcomatoidcarcinoma of male urethrawithbone and lungmetastasespresenting as urethralstricture, *Case Rep Urol* 2013 (2013), 931893.
- [10] Pateria P, Muwanwella N, Chai M, Venugopal K. Synchronousoesophageal and gastricsarcomatoidcarcinoma: first reported case in Australia. *BMJ Case Rep.* [Internet]. 26 mai 2018;bcr-2018-225092.
- [11] S.-Y. Huang, S.-J. Shen, X.-Y. Li, Pulmonarysarcomatoidcarcinoma: a clinicopathologicstudy and prognosticanalysis of 51 cases, *World J. Surg. Oncol.* 11 (2 oct 2013) 252.
- [12] T. Sugano, M. Mori, Y. Namba, T. Uenami, S. Kagami, S. Yokota, [A case of sarcomatoidcarcinoma of the lungsuccessfullytreatedwithcarboplatin, paclitaxel and bevacizumab], *Nihon KokyukiGakkaiZasshi.* avr 49 (4) (2011) 304–308.