J Bras Patol Med Lab, v. 52, n. 5, p. 345-348, October 2016

10.5935/1676-2444.20160054

Angiosarcoma of small intestine: case report and literature review

Angiossarcoma de intestino delgado: relato de caso e revisão da literatura

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ABSTRACT

Introduction: Angiosarcomas are rare pathologies, and their appearance in the small intestine is extremely unusual. **Case report:** Female patient presenting vomiting, colic, abdominal distension and peritoneal irritation. An exploratory laparotomy and an enterectomy were performed. Histopathology revealed vascular neoplasm; immunohistochemistry, markers CD31, p53 and cell proliferation antigen Ki-67. The patient developed diffuse sarcomatosis and died two months after the onset of symptoms. **Conclusion:** This case demonstrates the difficulty in early diagnosing this pathology, due to its nonspecific clinical presentation. The disease aggressiveness, its unestablished predisposing factors and the controversy around the adequate treatment engender the poor prognosis.

Key words: angiosarcoma; small intestine; immunohistochemistry.

INTRODUCTION

Primary tumors of the small intestine are very rare: they account for 3%-6% of all neoplasms of the gastrointestinal tract, and most are represented by benign pathologies. Malignant neoplasms correspond to less than 2%. Among these, the most common is adenocarcinoma, followed by carcinoid tumors and lymphoma[1, 2]. Angiosarcomas (in any primary site) are equally rare pathologies, representing 1%-2% of all sarcomas[3]. They most commonly involve the skin and the subcutaneous tissue, exceptionally occurring in the liver or the spleen[3, 4]. The appearance of this neoplasm in the gastrointestinal tract as a whole is very uncommon, and its location in the small intestine is described in few cases of the world literature[5].

The risk factors for this condition are still not well clarified. The described symptoms are nonspecific and varied[6], what makes clinical diagnosis very difficult. Diagnosis requires the use of immunohistochemistry, displaying the presence of markers such as CD31 and CD34[3-14]. There is no standard treatment, with surgery being recommended; adjuvant treatments, such as chemotherapy and radiotherapy, are also prescribed, yet without demonstrated efficacy[3, 4, 6]. Prognosis is poor, and patients generally survive less than one year after diagnosis[7].

CASE REPORT

A 37-year-old female patient had already been treated at Instituto Oncológico/Hospital 9 de Julho, in Juiz de Fora (MG), for breast cancer (clinical stage IIB). She had undergone mastectomy, and, later, adjuvant chemotherapy and radiotherapy. She was now admitted to the same hospital presenting acute abdomen with vomiting, colicky abdominal pain, abdominal distension, and peritoneal irritation. Exploratory laparotomy was carried out that revealed a 3-cm perforated poorly-defined hematoma-like lesion, in a small intestine wall (**Figure 1**).

The patient underwent enterectomy with 5-cm margins and stapled side-to-side enteroenterostomy. The pathology report described a neoplastic process of intestinal wall measuring 3.5 × 2.3 cm, consistent with vascular lineage (**Figures 2** and **3**), besides tumor-free margins. Immunohistochemistry revealed positivity for markers CD31, p53 and cell proliferation antigen

First submission on 05/03/16; last submission on 19/06/16; accepted for publication on 24/07/16; published on 20/10/16

Ki-67 (**Table**), confirming the tumor to be angiosarcoma arising from small intestine wall.

As the patient developed recurrent hemorrhagic ascites, five procedures of relief paracentesis were necessary. Two months after the first intervention, she presented intestinal obstruction. A computed tomography (CT) of abdomen and pelvis showed nodular thickening, measuring 2.2 × 1.4 cm, anterior to the common iliac arteries, suggestive of tumor progression. A new laparotomy was conducted that showed diffuse sarcomatosis with several points of obstruction in the small intestine (**Figure 4**). The patient died two weeks after the second surgical procedure.

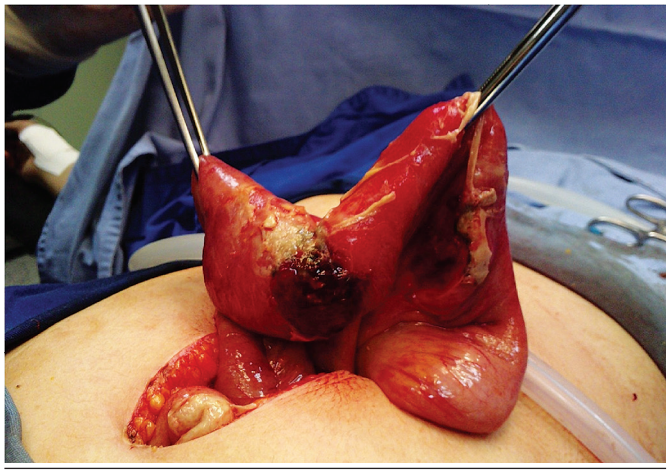

FIGURE 1 – *Hemorrhagic lesion, with ill-defined borders and small intestine perforation*

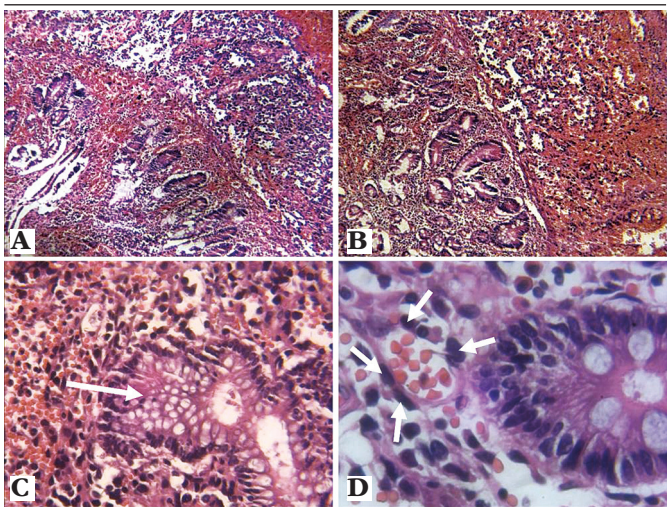

FIGURE 2 – *Histological sections of intestinal tissue observed through an optical microscope: A and B) on the left, normal intestinal tissue. In contrast, on the right, malignant mesenchymal neoplasm composed of anastomosing vascular channels lined by atypical cells and mitotic figures (HE, 100×); C) intestinal crypt (arrow), surrounded by neoplastic tissue of vascular origin (HE, 400×); D) malformed vascular channel containing erythrocytes, composed of pleomorphic cells (arrows), beside intestinal tissue of normal histology (HE, 1,000×)*

HE: hematoxylin and eosin.

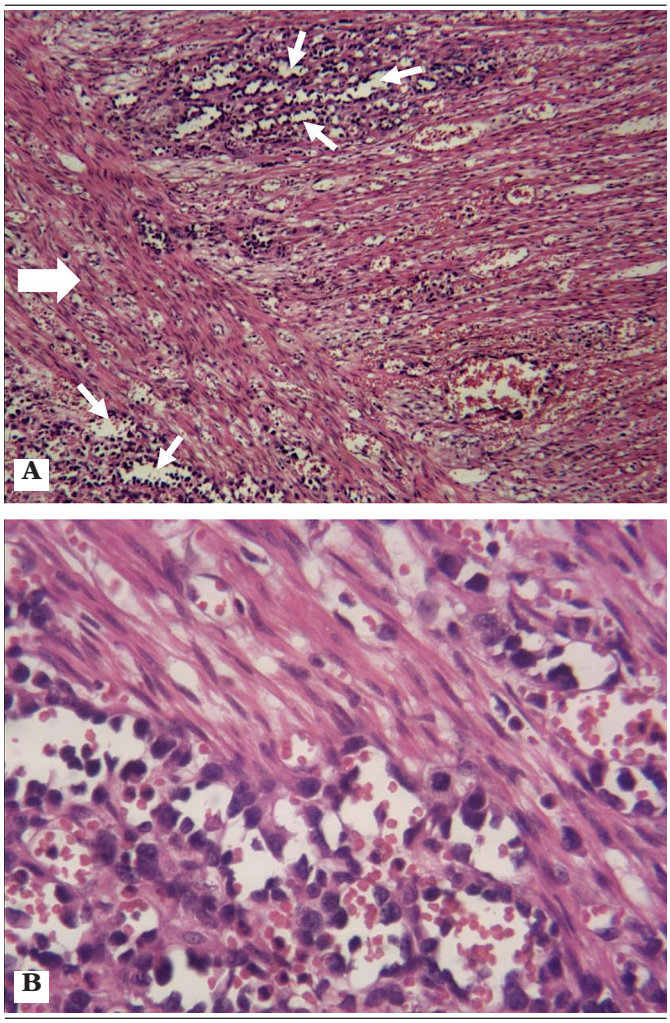

FIGURE 3 – *Histological sections of intestinal neoplasm infiltrating muscular layer, observed through an optical microscope: A) neoplasm of vascular origin, invading muscular layer. One can observe muscle fibers (long arrow) and malformed vascular channels with atypical cells around them (short arrows) (HE, 100×); B) contrast between normal muscle cells and mesenchymal neoplastic tissue (HE, 400×)*

HE: hematoxylin and eosin.

TABLE – Immunohistochemical study. Indirect immunoperoxidase method with DAB and heat- or protease-induced antigen retrieval

Employed antibody	Clones	Reactivity
CD31	JC/70A	+
CD34	BIRMA-K3	-
Pan cytokeratin	AE1/AE3	-
p53 protein	BP53-12	+
Ki-67	MIB-1	+

DAB: diaminobenzidine; CD31: endothelial cell marker; CD34: marker for hematopoietic stem cells and endothelial cells; pan cytokeratin: marker of epithelial origin; p53 protein: wild and mutant types; Ki-67: cell proliferation-associated antigen.

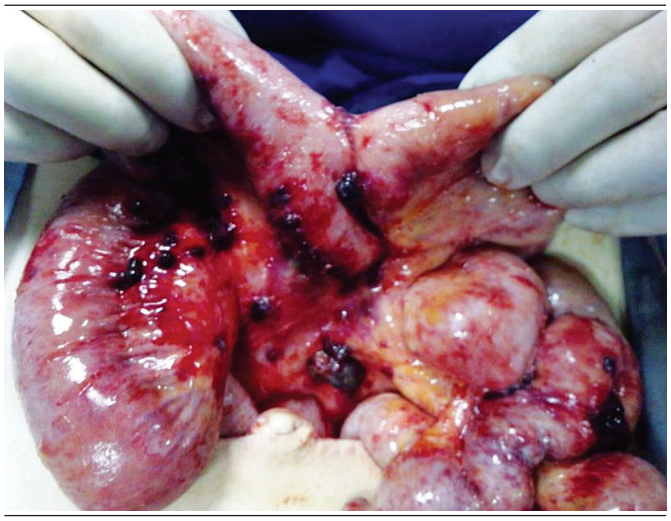

FIGURE 4 – *Diffuse sarcomatosis*

DISCUSSION

Angiosarcoma is a malignant neoplasm of the vascular endothelium[1], considered of very low prevalence. It exhibits a slight male predominance and it may arise in any age group[4-12]. The predisposing factors of this kind of tumor in the gastrointestinal tract are not well defined[6], but exposure to agents such as polyvinyl chloride[6, 8, 10], thorium dioxide, and arsenic[8, 11], and previous radiation therapy[6, 8, 9] are implicated. In the occurrence of angiosarcoma associated with radiotherapy, the neoplasm is generally found in the previously irradiated site or in adjacent tissues. In the current case, the only predisposing factor to this pathology seems to be radiotherapy. However, the tumor did not arise in the irradiated site.

Its clinical presentation is nonspecific, and the reported signs and symptoms are abdominal pain[4, 7, 11], nausea[4, 7], gastrointestinal bleeding[3, 4, 6, 10], anemia[3, 5, 10, 11], melena[5, 6, 11], abdominal distension[9], fever, vomiting, weight loss[7], change in bowel movements[10], obstruction[12], and intestinal perforation[14]. In our report, the patient initially presented with vomiting, colicky abdominal pain, abdominal distension and peritoneal irritation. Intestinal perforation, which led her to an acute abdomen, is a very rare manifestation[5, 10, 14]. Intestinal obstruction occurred late, after the first surgical procedure, probably as a result of the neoplastic dissemination to the abdominal cavity. Grossly, these tumors present as nodules[3, 8], hemorrhagic lesions[5], ulcers[6], and tumor masses[10]. Histopathological examinations report a variety of findings, such as the well-differentiated aspect, in which the vascular structure can be recognized[3, 4, 8], or a highly undifferentiated neoplasm[3, 11], as well as the presence of epithelioid patterns[3, 10] and nuclear pleomorphism[3, 6, 8, 11].

The diagnosis of this neoplasm generally requires, as in our conduct, the use of immunohistochemistry[3-14]: the disease is confirmed by staining for markers such as CD31[3, 5, 7-14] (present at the immunohistochemistry report of our patient) and CD34[4-6, 10].

There is no established standard treatment, and treatment itself becomes difficult owing to late detection (inaccessible site) and the nonspecific symptoms. The conduct is generally surgical, and it also involves chemotherapy and radiotherapy[4], although surgery is the only associated with longer survival[3]. Patients seem not to benefit much from adjuvant therapies[3, 4], probably because diagnosis is often late, favoring early dissemination of disease, what makes adequate treatment difficult. In our case, the treatment option consisted of surgical resection of the lesion with tumor-free margins (what was confirmed by the pathology study), as the literature recommends.

Prognosis is poor, and average survival time does not exceed two months, with cases of death occurring few days after diagnosis[3]. Instances of survival longer than one year are extremely rare[7]. Confirming what is found in the literature, our patient survived little longer than two months after diagnosis, despite having received the most adequate treatment.

CONCLUSION

Our case illustrates the difficulty in reaching an early diagnosis of the presented disease due to its acute and nonspecific clinical manifestations. Imaging exams, histopathology, and, principally, immunohistochemistry are useful in diagnosis, but since predisposing factors are still not well elucidated, prevention for this clinical condition is a challenge, adding to the fact that the pathological process is very aggressive. The negative outcome of our patient emphasizes the poor prognosis of the few cases presented in the world literature, demonstrating that, just as propedeutics, the current treatments are still not efficient.

RESUMO

Introdução: *Angiossarcomas são patologias raras, e o aparecimento deles no intestino delgado é extremamente incomum.* ***Relato de caso:*** *Paciente do sexo feminino apresentando vômitos, cólica, distensão abdominal e irritação peritoneal. Foram realizadas laparotomia exploratória e enterectomia, evidenciando-se neoplasia vascular ao anatomopatológico e marcadores CD31, p53 e antígeno de proliferação celular Ki-67 à imuno-histoquímica. A paciente evoluiu com sarcomatose difusa e faleceu dois meses após o início dos sintomas.* ***Conclusão:*** *Demonstra-se a dificuldade em diagnosticar precocemente essa patologia devido à sua clínica inespecífica. A agressividade da doença, seus fatores predisponentes indeterminados e a controvérsia referente ao tratamento adequado suscitam seu péssimo prognóstico.*

Unitermos: *angiossarcoma; intestino delgado; imuno-histoquímica.*

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