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Case Report: Myxoid Liposarcoma in Retroperitoneum

Janaina Gomes da Silva Cirqueira, Jefferson Luiz Rodrigues Nascimento and Paulo Henrique de Sousa Fernandes
Department of Surgery, Federal University of Uberlandia, Clinical Hospital of Federal University of Uberlandia, Uberlandia - MG, 38402-022, Brazil

Abstract: Liposarcoma is a malignant neoplasm of mesodermal origin, which among sarcomas, 10% to 20% are located in the retroperitoneum. The case presented shows a 50-year-old male patient who initially presented weight loss and abdominal pain in the left iliac fossa. A tumor mass of hardened consistency was palpated in virtually all the abdomen. An abdominal ultrasound and a computed tomography of the abdomen were performed and confirmed the tumor mass. An exploratory laparotomy was performed, with removal of bulky abdominal mass of greasy consistency. A histopathological study of the piece reported myxoid liposarcoma. Clinical and prognostic features, as well as oncologic outcomes, are well known in this group of patients. The patient has been in the outpatient clinic for 7 years without tumor recurrence. Computed tomography is the fundamental study for the diagnosis of imaging. The treatment of choice consists in an aggressive approach aiming the complete resection, which is a major predictor of local and distant recurrence and survival.

Key words: Myxoid liposarcoma, retroperitoneum, surgery.

1. Introduction

RPSs (retroperitoneal sarcomas) are rare tumors which, among sarcomas, 10% to 20% are located in retroperitoneum. The predominant type is liposarcoma (47%), followed by leiomyosarcoma (29%). Liposarcomas can be divided into: well-differentiated; dedifferentiated; myxoid/round cell; and pleomorphic [1]. The extent of differentiation, as reflected by histologic grade, remains the most important determinant of clinical course and of ultimate prognosis for patients with liposarcoma after resection [2].

Myxoid liposarcomas, more commonly, appear in the extremities of young adults. However, retroperitoneum may be the primary site. In order to characterize myxoid liposarcoma as the primary retroperitoneum it is necessary to exclude that they are not metastatic lesions, since extremity myxoid liposarcoma frequently metastizes to retroperitoneum [3]. The mean annual incidence is of approximately 2.7 cases per 106 people and does not change significantly over time [4]. It occurs mainly in men between 50 and 60 years [5].

Pathological characteristics are tumors with uniform round to oval-shaped primitive nonlipogenic mesenchymal cells and a variable number of small or signet-ring lipoblasts in a prominent myxoid stroma with or without delicate arborizing vasculature. Pure myxoid liposarcoma are considered low grade. High histologic grade was defined as greater than 5% round cell areas [2].

The diagnosis of retroperitoneal liposarcoma is generally late because of the retroperitoneal space's ability to accommodate a much larger volume of unchanged tumor mass than the thigh is capable of, for example. Clinical presentation of liposarcoma located in the retroperitoneum is different from liposarcomas of other localities, besides presenting abdominal mass; it may have other symptoms, such as urinary and intestinal obstruction, to the tumor to reach these structures [6].

The prognosis of retroperitoneal sarcoma, when compared to other types of sarcomas, is scarce of evidence. These tumors show great power of invasion and generally reach large dimensions. Resection

Corresponding author: Janaina Gomes da Silva Cirqueira, medical student, research fields: trauma and general surgery.

surgery is the best healing option, however due to its high degree of malignancy; both local and distant recurrences still pose a great challenge in the disease treatment.

Among the challenges of therapeutics, we find the doubt about the real efficacy of the use of chemotherapy, both adjuvant and neoadjuvant, and radiotherapy, including intraoperative. Within the surgical part, there is debate about how to determine microscopic margins free of disease and how much surgical aggressiveness impacts on morbidity and mortality.

The definition of ideal margin is still a matter of discussion. For limb sarcomas it is demonstrated that tumor resection approaching tissue without disease involvement has better local control. This concept of compartmentalization could be applied to retroperitoneal sarcoma, where the rim of normal tissue corresponds to the adjacent viscera and aponeurosis. In the presented case the resection was enlarged, involving structures not directly invaded by the neoplasia. Compartmental surgery is something different and has long been advocated by some of the sarcoma surgeons who participated in the study. Performing complete compartmental surgery led to a 3.29-fold decrease in the local recurrence rate compared with simple complete resection, with a 3-year recurrence rate of 10% as compared with 50% with standard procedures [4].

Although there are studies that positively correlate chemotherapy and survival, current chemotherapy is not effective and radiation is limited by toxicity to adjacent structures. Thus, complete surgical resection remains the most effective modality for selected primary and recurrent disease [7].

2. Case Report

A 50-year-old man, with a history of weight loss of 6 kg in 3 months, is associated with bulky abdominal mass of rapid growth and mild pain in left flank region with no other comorbidities or antecedent of surgical procedures. He denies smoking and alcoholism.

The patient presented with moderate malnutrition, associated with the difficulty of feeding due to the gastric and intestinal compression promoted by the abdominal tumor, which also caused difficulty to ambulation due to the weight of the neoplasia. At examination the abdomen was distended with diminished airflow sounds, palpable mass in the left hypochondrium, right hypochondrium, right iliac fossa and umbilical region, the consistency is hardened. Abrupt decompression, piparote and giordano are absent.

Laboratory tests revealed alpha-fetoprotein of 0.609; CA 19-9 of 3.95 and CEA of 0.458. Ultrasonography found a large, heterogeneous hyperechogenic mass with imprecise limits occupying the entire abdomen, with no free fluid in the cavity. Computed tomography showed a large abdominal mass occupying almost all quadrants. There was right renal compression.

Two biopsies were performed and no conclusive diagnosis was obtained. We then chose to perform an exploratory laparotomy to verify the possibility of removal of the tumor mass. The hypothesis previous to surgery was GIST (gastrointestinal stromal tumor) and LS (liposarcoma).

During the surgery a giant retroperitoneum tumor was found adhered to the kidney and right ureter, right colón, hepatic capsule and inferior vena cava, occupying the whole abdomen of greasy consistency (Fig. 1). The tumor was removed in a compartmental resection with right kidney and right colon. An ileal-colon anastomosis was performed with a linear 75 mm stapler. Metallic clips were placed in regions of adhesions of the tumor. Small suture was performed in the inferior vena cava and also raffia of the second portion of the duodenum due to tumor adherence. The cavity was drained with a tubular drain. The approach was done by a xyphopubic incision (Fig. 1).

The specimen was referred to the pathology. The macroscopic examination showed a surgical specimen measuring 48 × 36 × 22 cm completely covered by a

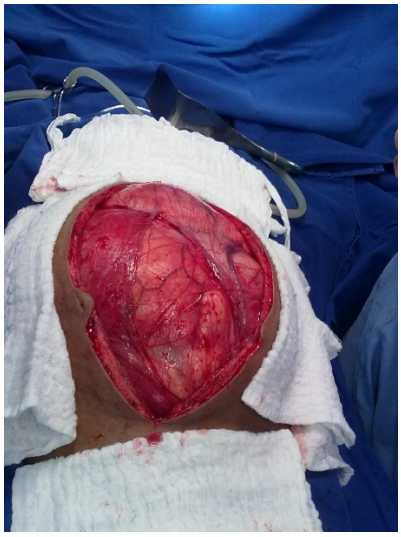

Fig. 1 Visualization of the tumor after opening the cavit.

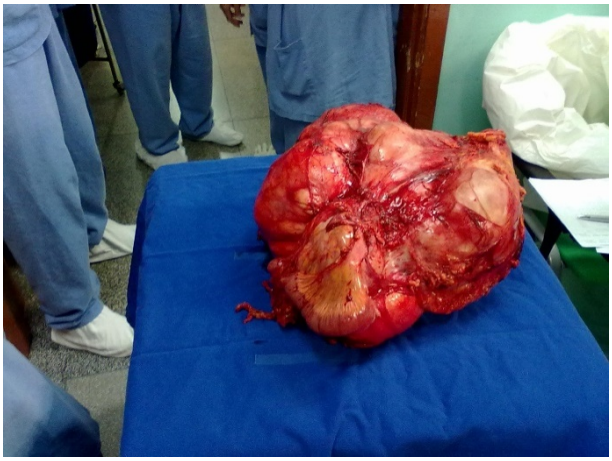

Fig. 2 Excision of the mass in block with surrounding tissues. Tumor + right colon + terminal ileum.

thin transparent membrane, allowing a lobulated mass to be seen (Fig. 2). In one of the extremities a segment of the small intestine, measuring 35 cm in length and 5 cm in diameter, has its distal and proximal edges sutured by metal clasps, terminal ileum, measuring 18 cm in length, 5 cm of greater perimeter and cecum and ascending colon measuring 17 cm in length and 6 cm in perimeter, vermiform appendix measuring 7 cm in length and 0.8 cm in diameter. In one of the poles of the neoplasia, we can see a deformed kidney measuring 13 × 8 × 2.5 cm with a ureter measuring 15 × 0.4 cm. In the sections, there is extensive encapsulated, yellowish, soft tissue neoformation with areas of gelatinous aspect, of probable necrosis and fibrous traces measuring 48 cm of larger diameter, apparently affecting the kidney, and weighing 12.43 kg.

The microscopic diagnosis was histological G2 myxoid liposarcoma in the retroperitoneum. The resected mass had the following characteristics in the anatomopathological report: 48 cm in the largest diameter, capsule, necrosis present in less than 10% of the tumor area. No vascular or lymphatic invasion was observed in the sample. The tumor did not infiltrate the kidney, nor the intestine segments sent.

Patient progressed well after surgery. It was decided not to perform chemotherapy or adjuvant radiotherapy, due to the free microscopic margins obtained by the surgery and proven by the pathological study of the part. Outpatient follow-up was initially every three months, then every six months, and is currently monitored annually. The imaging examination for follow-up was tomography, with one of the thoraxes and one of abdomen performed at each return. Patient has been under follow-up for 7 years, with no signs of local recurrence or distance.

3. Discussion

Neoplasia is an increasingly common condition in the medical environment. With population aging, the incidence is expected to keep rising. Among the most common are prostate, lung and colon/rectum in man; and breast, lung and colon/rectum in women [8]. This case report is a rare neoplasm, usually more common in specialized medical centers, which do not appear routinely, like the others previously mentioned. However, as for all neoplasias, early diagnosis is a prognostic factor, it is necessary to know and know how to conduct rarer cases.

Liposarcoma is a malignant neoplasm of adipocytes. Among sarcomas, it is the most common soft tissue in adults. The main site of origin is the thigh (13-60%), while retroperitoneum is involved in 10% to 36% of cases. The most common histological subtype is myxoid LS (56.2%) [9]. The mean annual incidence of retroperitoneal sarcomas was 2.7 cases per 10 (6)

people and did not change significantly over time (2.6 in 1973 vs. 2.8 in 2001, $p = 0.92$) [10].

Retroperitoneal/intra-abdominal sarcomas should be conducted by multidisciplinary teams with expertise in sarcomas. Even if it is a rare condition, the approach taken should follow the available evidence, which, although scarce, shows that it is possible to achieve success, with increased disease-free survival, as portrayed by the above case.

Soft tissue sarcomas manifest with abdominal pain and bulky masses found in the imaging examination. Computed tomography and/or nuclear magnetic resonance are recommended in all guidelines. A biopsy is not necessary before surgery, except in cases where neoplasms other than sarcomas are suspected. Biopsy is indicated for patients who are candidates for chemotherapy and/or preoperative radiotherapy, and Image-guided core needle biopsy is preferred [11].

Computed tomography and/or nuclear magnetic resonance imaging of the thorax, abdomen and pelvis is indicated, evaluating the feasibility of resection of the tumor and the existence of metastases. For resectable tumors, the surgery can be indicated directly, without the biopsy diagnosis, as was done in the case described, already doing wide margin, in order to obtain favorable cancer margins. The diagnosis is made through the pathology, and the main differential diagnoses are GIST (gastrointestinal stromal tumor), desmoid tumors and other sarcomas, which include liposarcoma and osteosarcoma, for example.

In the postoperative period, a strict follow-up is indicated, due to the high rates of relapse, both local and distant. Abdominal and pelvic computed tomography or magnetic resonance imaging are used every 3-6 months for 2-3 years, then every 6 months for the next 2 years, then annually [12]. For the patient of this case, we performed the follow-up with chest and abdomen tomography. During the first year, the follow-up was done every four months. During the second and third years, the follow-up was done semiannually, and subsequently annually.

Surgery is the “gold standard” treatment for retroperitoneal sarcomas. These are challenging tumors to treat, being surgical resection the only modality capable of providing a cure. Most patients with liposarcoma have no symptoms until the tumor is large and impinges on neighboring structures, causing tenderness, pain, or functional disturbances [13]. In the case reported, at the time of diagnosis the abdominal mass was already 40 centimeters in its largest diameter and the symptomatology was poor, being only abdominal pain. The retroperitoneal space is where the liposarcoma is detected later, due to the greater capacity of accommodation of this anatomical region [14]. There is little hope of improving the rate of early detection. No screening options are reported in any studies.

In the CT of the total abdomen of the patient, a heterogeneous mass is observed, the myxoid component has a lower attenuation than the soft tissues. Within the tumor it is possible to observe hypodense septa, fat pockets with evident attenuation, and in some cases calcifications (Fig. 3).

Although it is indicated for all patients with suspected retroperitoneal sarcoma, computed tomography presents limitations in relation to the final diagnosis. Because of fat attenuation it is not possible to distinguish, through imaging, liposarcoma from other soft tissue tumors. Sometimes this tumor may appear in the images in cystic form [15]. Therefore, immediate pathological diagnosis is essential, as in the case of Image-guided core needle biopsy, so that in the surgical procedure, the entire affected portion can be resected leaving a safety margin. In conducting this case, we performed two image-guided core needle biopsies, and a conclusive diagnosis was not possible. The risk of a needle tract metastasis after core needle biopsy for retroperitoneal sarcoma is very low but not zero. Local recurrence rate is not altered after doing a core needle biopsy [16].

Survival is directly related to the status of the surgical margin. It is a consensus among the studies that

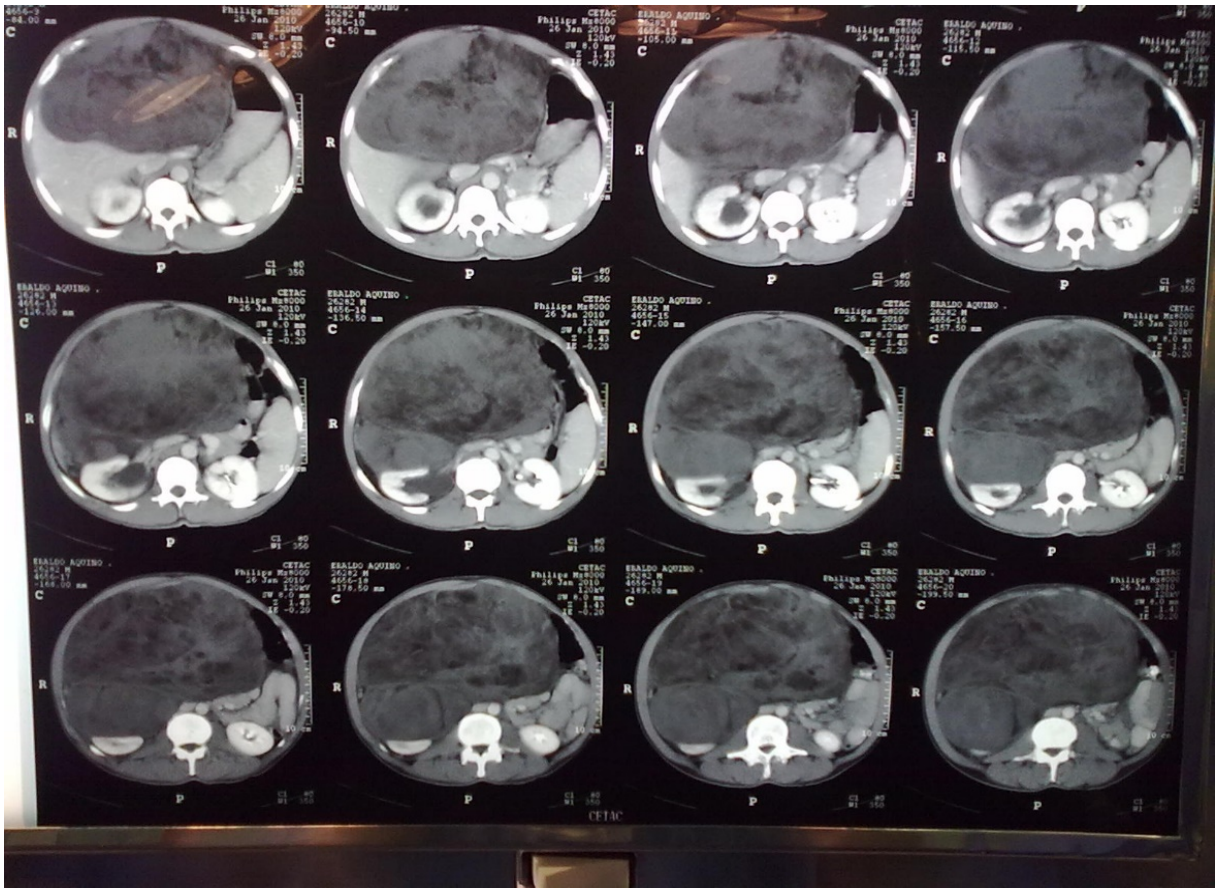

Fig. 3 Tomography of the patient showing large volume mass with heterogeneous density.

surgery remains the best curative alternative for resectable tumors, and incomplete resection is indicated only to relief the symptoms in unresectable cases [7, 17-19]. Median survival was 72 months for patients with primary disease, 28 months for those with local recurrence, and 10 months for those with metastasis. For patients with primary or locally recurrent tumors, unresectable disease, incomplete resection, and high-grade tumors, the survival time was significantly reduced [7].

The determination of the ideal margin is the target of several analyzes, since this is the factor that most interferes in the overall survival. The surgical technique changed at the beginning of the 21st century, from a simple excision of the tumor mass (approach only of areas with tumor) for a systematic excision of the mass in blocks with surrounding tissues (for example, the kidney, part of the colon and the psoas, depending on the anatomical location), even when not infiltrated. This shift towards a more aggressive approach was not accompanied by any significant additional surgically related morbidity [20]. In some cases it is necessary the intervention of several surgical teams to resect the tumor, as in this case in which the tumor affected large noble areas of the circulation, such as vena cava, and also a part of the renal system as in the ureter case.

Other factors that interfere in disease-free survival are tumor grade, microscopic margin status, and tumor size. No significant difference in overall survival was observed for the histological subtype, neoadjuvant chemotherapy or neoadjuvant radiation [21].

The data available in the literature on both preoperative and postoperative radiotherapy are controversial. Preoperative radiotherapy is advantageous for radiosensitive subtypes in which

tumor shrinkage allows complete surgical resection [11]. The myxoid liposarcoma is a radiosensitive type, in the case reported, despite the large size of the tumor it was possible to obtain margin with the block resection surgery, for the reason of the non-indication of preoperative radiotherapy. Some studies show that a combination of preoperative radiation, surgical resection and intraoperative radiation produces excellent local control of the disease for retroperitoneal sarcomas, but has no effect on overall survival [22, 23].

Postoperative radiotherapy should be considered for large and deep tumors that are incompletely resected, especially if adjacent to vital structures that may restrict further surgeries in the future. In the management of this case, although it was a large and deep tumor, it was decided not to perform adjuvant radiotherapy, since the margins were free in the anatomopathological result. In addition, for retroperitoneal sarcomas, as in the case, there is little evidence of benefits to the local control rate, with the use of adjuvant radiotherapy [24]. Patients who have undergone compartment resection or amputation do not require adjuvant irradiation, assuming that the margins are clear [11].

For adjuvant chemotherapy the data are even less stimulant, since a real benefit of the use in soft tissue sarcomas is not bought. The use of doxorubicin and ifosfamide in soft tissue resected sarcoma showed no benefit in relapse-free survival or overall survival [25]. However, there is conflicting evidence, and its use may be considered for individual patients with potentially chemosensitive subtypes, such as myxoid liposarcoma, based on the fact that the benefit cannot be excluded, although it has not been proven. The data favorable to adjuvant chemotherapy are related to local recurrence, recurrence at distance, general relapse and overall survival, being the base of adjuvant chemotherapy doxorubicin [26, 27].

Due to the controversial data found in the literature, no chemotherapeutic or radiotherapeutic treatments were indicated for this patient. We maintained the idea that the best predictor of local or distant recurrence is compartmental surgery with free microscopic margins. The favorable evolution of the patient happened due to radical surgery, since in this case the complete elimination of the primary tumor was possible.

Therefore, complete surgical resection should continue to be the main tool for the treatment of retroperitoneal liposarcomas, with emphasis on block excision, seeking negative microscopic margins.

In the presented case, there is a survival of 7 years, evidencing an excellent prognosis in relation to the cases described in the literature. Thus, when surgery reaches good resection margins, survival tends to increase considerably. After surgery, the patient did not present local recurrences or distant metastases, which demonstrates that the surgical resection reached negative microscopic margin with block excision, compatible with the data discussed.

4. Conclusions

The present study demonstrates that, despite the high degree of malignancy of the retroperitoneal liposarcoma, and due to the lack of evidence on the real role of adjuvant and neoadjuvant therapies, surgery remains the main treatment of these neoplasias. When resection with free margins is possible (even dealing with bulky tumors and multivisceral resections, as is the case), survival increases considerably.

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