Journal of Surgery
2023; 11(5): 107-112
http://www.sciencepublishinggroup.com/j/js
doi: 10.11648/j.js.20231105.14
ISSN: 2330-0914 (Print); ISSN: 2330-0930 (Online)

Surgical Treatment of Malignant Soft Tissue Tumors at the Oncological Surgery Unit of Conakry

Malick Bah*, Toure Alhassane Ismael, Keita Mamady, Souare Mamadou Bobo, Cisse Ibrahima Kalil Conde, Ibrahima Kalil, Traore Bangaly

Oncology Department, Donka National Hospital, Conakry University Hospital, Conakry, Guinea

Email address:
lickmadem@yahoo.fr (Malick Bah)

*Corresponding author

To cite this article:
Malick Bah, Toure Alhassane Ismael, Keita Mamady, Souare Mamadou Bobo, Cisse Ibrahima Kalil Conde, Cisse Ibrahima Kalil, Traore Bangaly. Surgical Treatment of Malignant Soft Tissue Tumors at the Oncological Surgery Unit of Conakry. *Journal of Surgery.* Vol. 11, No. 5, 2023, pp. 107-112. doi: 10.11648/j.js.20231105.14

Received: August 31, 2023; **Accepted**: September 18, 2023; **Published**: October 8, 2023

Abstract: *Introduction*: Malignant soft tissue tumours (MSCTs) are mainly represented by sarcomas, and their incidence varies. The aim of this study was to describe the surgical treatment of MPMT in the surgical oncology unit of the Donka National Hospital. *Materials and Methods*: This was a retrospective study carried out over a period of 14 years (2007 to 2021), covering patients with histologically confirmed malignant soft tissue tumours who had received specific treatment. *Results*: We compiled 83 records of patients with histologically confirmed soft tissue tumours, 12 (14.4%) of whom were treated surgically and 15 (18.1%) medically with chemotherapy. The mean age was 39.4 years. The 40-49 age group accounted for 6 (22.2%) cases. Women predominated in 14 (51.8%) cases. The average consultation time was 26.2 months. The thigh and the knee were the sites represented in 7 (26.0%) and 6 (22.2%) cases respectively. Fibrosarcoma was the most common histological type in 12 (44.4%) cases, followed by rhabdomyosarcoma in 9 (33.3%) cases. Clinical stages III and VI accounted for 13 (48.1%) and 8 (29.6%) cases respectively. Seven (58.3%) cases underwent wide excision and 5 (41.7%) cases underwent amputation. Node dissection was inguinal in 5 (100.0%) cases. Resection was R0 in 8 (66.6%) cases. Post-operative follow-up was good in 11 (91.6%) cases. One case of lymphoedema of the limb and chronic pain was recorded. *Conclusion*: The management of malignant soft tissue tumours is fraught with difficulties in our context, as the diagnosis is usually made at a late stage. Early, planned and correctly performed initial surgical treatment has a major impact on prognosis.

Keywords: Malignant Soft Tissue Tumours, Surgery, Conakry University Hospital

1. Introduction

Malignant soft tissue tumours are a heterogeneous group of rare tumours that arise primarily from the embryonic mesoderm, and most often present as an asymptomatic mass arising from an extremity, but can arise anywhere in the body, particularly the trunk, retroperitoneum or head and neck [1]. The vast majority are sarcomas, which account for around 1% of all adult cancers [2].

In the United States, the annual incidence is around 13,000 cases, with 5,000 deaths per year. [3]. In Guinea, TRAORE B et al [3] found 117 cases of MTPT, representing a frequency of 6.9% between May 2007 and March 2012. Nearly 60% of cases occurred in the extremities. [4].

The clinical manifestations and often the imaging findings of soft tissue sarcomas are not specific. [5].

Magnetic resonance imaging (MRI) has become the gold standard for the identification, characterisation, biopsy planning and staging of MMPTs. It allows both the surgeon and the patient to be optimally prepared before surgery for the likelihood of a negative margin resection and to anticipate the possible sacrifice of adjacent structures and the resulting loss of function. [6].

The prognosis for malignant soft tissue tumours remains poor. It depends on a number of factors such as the size of the lesion, whether it is deep or superficial, whether it is intra- or extra-compartmental, the histological grade and whether surgical excision is complete or incomplete. [4].

The aim of the surgery is to remove the tumour en bloc,

surrounded by a margin of healthy tissue, while preserving the function of the limb.

To achieve this compromise, carcinological surgery with functional preservation, the surgeon must take into account the tumour characteristics (site, size, extension and anatomical relationships, tumour growth and biology); he must also take into account the patient (age, associated diseases), anticipate the consequences of the surgery on the after-effects (morbidity) and their impact on the therapeutic course and, finally, he must take into account the respective impact of other therapeutic means to agree in a multidisciplinary consultation meeting on the most appropriate therapeutic sequence for the patient. [7].

The management of PMDD is fraught with difficulties in our context, as the diagnosis is usually made at a late stage.

The aim of this study is to describe the surgical indications for malignant soft tissue tumours and to determine the prognostic elements of the surgical treatment of these tumours.

2. Materials and Methods

We carried out a retrospective study covering a period of 14 years, from 11 April 2007 to 11 April 2021, in the surgical oncology unit of the Donka National Hospital, concerning 596 cases of malignant soft tissue tumours, of which 27 (32.5%) received specific treatment such as surgery in 12 (14.4%) cases and chemotherapy in 15 (18.1%) cases, for a total of 83 patients with a histologically confirmed malignant soft tissue tumour.

Socio-demographic data (age, sex), clinical characteristics (time to consultation, tumour size, location) were described; histological type, grade and TNM stage were assessed; surgical treatment (type of anaesthesia, type of conservative or radical excision, association with lymph node dissection, type of suture, post-operative follow-up) and associated treatments were reported.

The follow-up time was calculated as the difference between the date of the last news item and the date of the first consultation. The death rate was determined by the ratio of the number of deaths to the number of patients followed up during the follow-up period.

The data were analysed using SPSS 21 software. Qualitative variables were represented as proportions (%); quantitative variables as mean (± standard deviation) or median with interquartile range (IQR).

3. Results

From 11 April 2007 to 11 April 2021, we recorded 596 cases of malignant soft tissue tumours, of which 83 (13.9%) were histologically diagnosed, of which 27 (32.5%) received specific treatment such as chemotherapy (15 (18.1%)) and surgery (12 (14.4%)).

Patients ranged in age from 3 to 90 years, with an average of 39.4±19.2 years. The 40-49 age group accounted for 6 (22.2%) of cases. Females accounted for 14 (51.8%) of cases.

The average consultation time was 26.2 months. The WHO index was less than or equal to 2 in 23 (85.1%) cases. Patients consulted for tumours in 19 (70.4%) cases, pain in 4 (14.8%) cases and ulceration in 3 (11.1%) cases.

The average tumour size was 21.22 ± 14.04 cm. The thigh and knee were the most common sites, accounting for 7 (26.0%) and 6 (22.2%) cases respectively. Eleven (40.7%) cases had locoregional adenopathy.

The histological diagnosis was made on the biopsy specimen in 21 (77.7%) cases, and on the operative specimen in 6 (22.2%) cases. The histological type was fibrosarcoma in 12 (44.4%) cases, followed by rhabdomyosarcoma in 9 (33.3%) cases. (Table 1)

X-rays of the limb were performed in 21 (60.0%) cases, revealing thickening of the soft tissue in 11 (52.3%) and an osteolytic tumour in 10 (41.7%). CT scans were performed in 12 (34.2%) cases, revealing thickening of the soft tissue in 8 (66.6%) and an osteolytic tumour in 4 (33.3%). MRI was performed in only one case. Chest X-rays revealed pulmonary metastases in 8 (23.6%) cases. Patients were stage III in 13 (40.9%) cases.

Table 1. *Anatomoclinical characteristics of patients treated for soft tissue tumours.*

Anatomoclinical characteristics	Workforce	Percentage (%)
Original site		
Thigh	7	26,0
Scapular region	3	11,1
Knee	6	22,2
Foot	3	11,1
Leg	1	3,7
Trunk	2	7,4
Head	3	11,1
Arm	1	3,7
Forearm	1	3,7
Histological type		
Fibrosarcoma	12	44,4
Rhabdomysarcoma	9	33,3
High-grade sarcoma	3	11,1
High-grade fibrosarcoma	2	7,4
Stadium		
Stage I	6	31,3
Stage II	-	-
Stage III	13	48,1
Stage IV	8	29,6

Twenty-seven (32.5%) cases received specific treatment, with chemotherapy in 15 (18.1%) and surgery in 12 (14.4%). Chemotherapy was neoadjuvant in 9 (60%) cases and adjuvant in 6 (40%). Doxorubicin 75mg/m² monotherapy was used in 3 (50%) cases. There were no cases of associated radiotherapy.

The type of anaesthesia used was general in 8 (66.7%) cases and loco-regional in 4 (33.3%). Seven (58.3%) cases underwent wide excision and 5 (41.7%) cases underwent amputation. All amputated patients had inguinal lymph node dissection. All patients underwent direct suturing and the resection margin was R0 in 8 (66.6%) cases.

Post-operative follow-up was good in 11 (91.6%) cases and one (8.3%) complication was chronic pain.

The mean duration of follow-up was 9.99±15.86 months, and we recorded 3 (25%) cases of tumour recurrence, including 2 (66.7%) local and 1 (33.3%) metastatic. Overall survival was 12 months in 13.95% of cases. (figure 1)

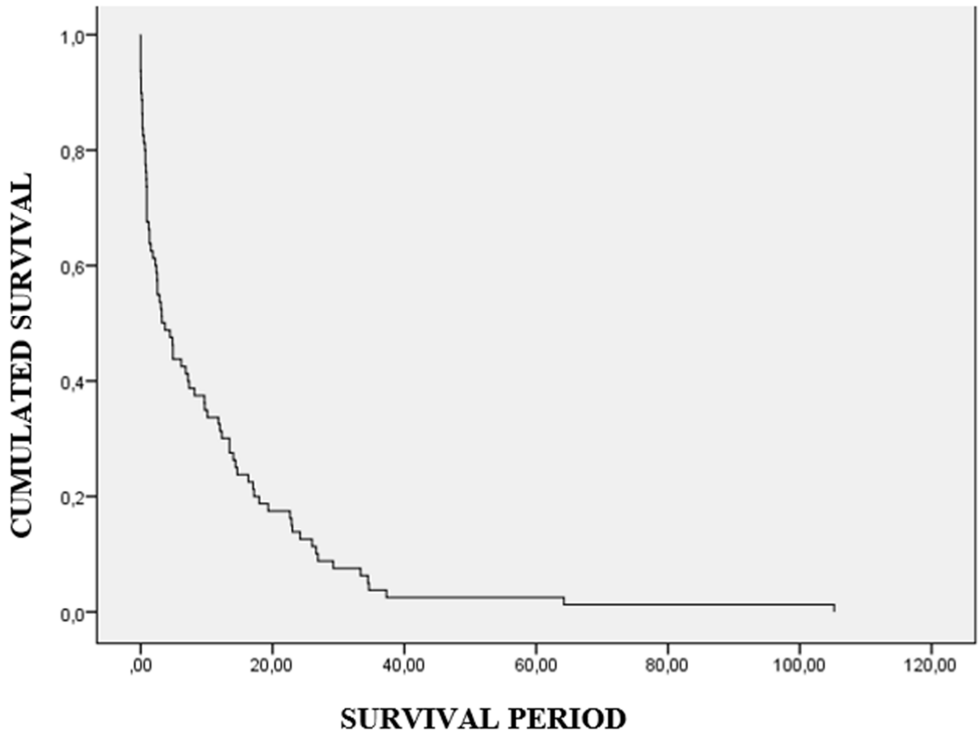

Figure 1. *Survival curve for patients operated on for soft tissue tumours.*

4. Discussion

Our 14-year retrospective cohort identified 83 cases of histologically confirmed malignant soft tissue tumours, of which 12 patients underwent surgical treatment, representing 14.4% of histologically diagnosed cases. Our results are inferior to those reported by studies in Côte d'Ivoire and Morocco, which found 61.1% and 86.6% cases respectively. [8, 9]. In fact, the late discovery of the disease in our context makes it virtually impossible to perform any procedure in the first instance.

More generally, the incidence of soft tissue sarcoma increases in adults with age, and around half of patients are over 50 years of age. [4]. The mean age in our study is similar to that reported by many authors [10, 11]. Depending on the series, the distribution between the two sexes is balanced or shows a discrete female predominance. In some series, this predominance becomes more pronounced over the age of 60. [4].

In our series, patients consulted late. The ignorance of patients, the use of traditional medicine, the high level of poverty, but also the lack of knowledge of the pathology by primary care health professionals are all reasons that contribute to the long delay in diagnosis, which results in locally advanced and metastatic aspects. [8].

Malignant tumours of the soft tissues can form anywhere in the human body, the extremities being the preferred sites, with a clear predominance of the lower limbs [4, 10, 12, 13] as reported in our series.

Biopsy is an essential part of the positive diagnosis, as it enables the diagnosis to be confirmed by anatomopathological examination. In our series, biopsy was conclusive in the majority of cases, confirming malignancy. Fibrosarcoma was by far the most frequent histological type, accounting for 44.4% of cases. In fact, sarcomas present a great pathological diversity with more than 70 histological subtypes and a growing number of molecular subtypes. [14]. However, we did not note any cases of immunohistochemistry, given the unavailability of this technique in our country.

In terms of treatment, multimodal therapies are used to improve local tumour control, reduce the risk of metastases and achieve resectability. Surgery remains the most important treatment modality [15]. In France, the management of soft tissue tumours is defective in almost 50% of cases, due to a lack of knowledge or poor compliance with best practice recommendations. Surgical management can only be envisaged after an appropriate initial diagnostic approach involving characterisation of the soft tissue tumour, assessment of its local spread and investigation of its dissemination. Pluridisciplinarity, a guarantee of the quality of oncology care, and a planned and correctly performed surgical excision from the outset have an impact on the prognosis. [16]. The surgical technique depends directly on the presentation of the

tumour and its spread. Usually, the tumour is removed en bloc, without being seen or opened (no extemporaneous examination), together with its macroscopically healthy neighbouring tissue. Other high-grade or infiltrating tumours will benefit from preoperative treatment, chemotherapy or radiotherapy, aimed at reducing their size or better delimiting them, thus increasing the chances of successful conservative resection. [7, 16, 17]. However, mutilating surgery should not be performed if the patient is metastatic [4]. On the other hand, in locally advanced or metastatic stages, palliative surgery is most often proposed with the aim of improving comfort of life and survival [8].

Involvement of the lymph nodes is rare in sarcomas and limited to a few histological types (clear cell sarcomas, rhabdomyosarcomas), which is why lymph node dissection is not systematic. [7].

Surgical margins independently affect the rate of local recurrence and distant metastases, thus indirectly affecting survival [13].

Given the extent of the excisions performed, postoperative complications are common after surgery for soft tissue sarcoma. They depend on the size of the tumour and its extent, the location of the tumour (with a predominant risk in the root of the thigh), the patient's comorbidity and associated treatments. [18].

The aim of adjuvant chemotherapy was to reduce the incidence of local recurrence and metastases, and thus theoretically improve recurrence-free survival and overall survival. The most commonly used adjuvant chemotherapy regimens are doxorubicin alone or in combination with ifosfamide, cyclophosphamide, deticene and vincristine [17]. In our series, adjuvant chemotherapy was used in approximately 1/4 of cases, with doxorubicin as the main anticancer agent. This low frequency could be explained by the fact that chemotherapy is not free of charge, combined with the lack of social security cover and the high poverty rate in our context.

Preliminary data from EORTC 62931 have shown no benefit from chemotherapy in terms of local control, progression-free survival or overall survival in patients treated with adjuvant chemotherapy. Its role remains to be proven. Although it is not currently considered a standard treatment in the UK, there is conflicting evidence and it may be considered for individual patients with potentially chemosensitive subtypes on the basis that benefit cannot be ruled out, even if it has not been proven. It may also be considered in situations where a local relapse would be incurable or where adequate radiotherapy could not be administered due to the sensitivity of adjacent structures, for example the spinal cord [19].

Postoperative RT should be considered after resections with margins close to soft tissue (<1 cm) or a positive microscopic margin over bone, major blood vessels or a nerve [20]. In our context, we do not have a radiotherapy centre.

The quality of the initial excision influences the occurrence or non-occurrence of a subsequent recurrence. Frequently, patients are operated on without imaging or histological diagnosis, on diagnoses of haematomas or abscesses, leading to inappropriate procedures such as drainage or sometimes liposuction, which encourages local spread and the risk of recurrence [4]. In our series, we have a low recurrence rate, but a high mortality rate. This is indicative of the poor prognosis of these tumours.

5. Conclusion

The management of malignant tumours of the soft tissues is fraught with difficulties in our context, as the diagnosis is usually made at a late stage. Early, planned and correctly performed initial surgical treatment has a significant impact on prognosis. Radiotherapy remains a major challenge in our country, given its key role in the treatment of these cancers.

Appendix

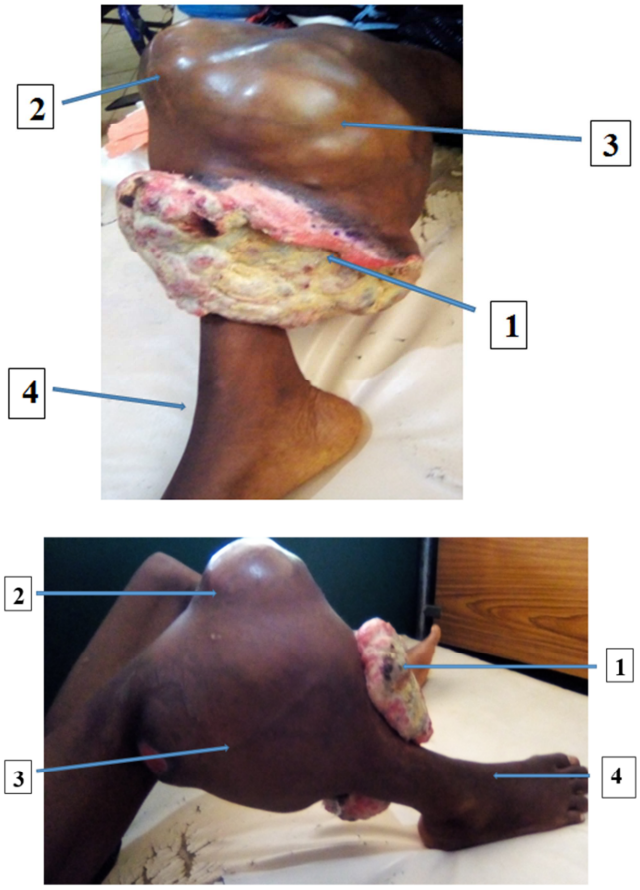

Figure A1. *Low-grade fibrosarcoma of the right knee infiltrating the middle 1/3 of the leg and the lower 1/3 of the thigh in a 27-year-old patient.*

1- Ulcero-necrotic tumour mass; 2- Right knee; 3- Right lateral aspect; 4- Dorsal region of the foot.

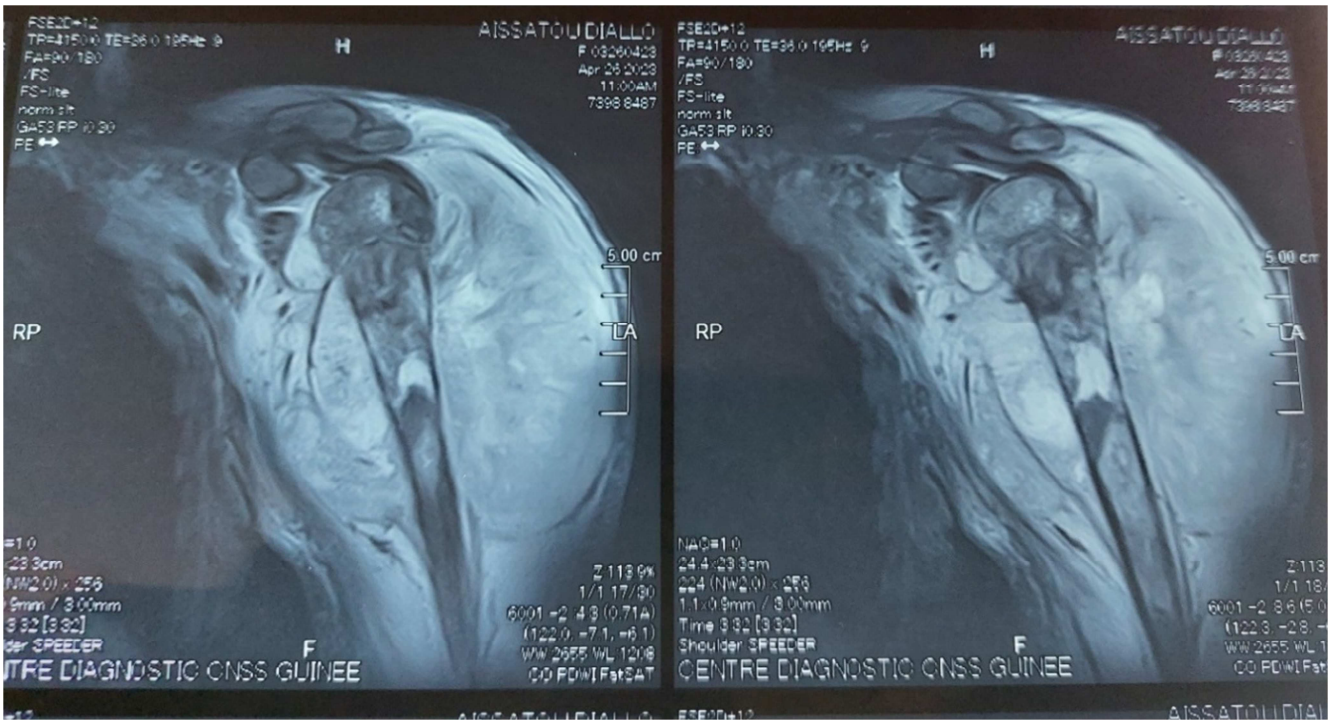

Figure A2. *Voluminous osteolytic tissue mass of the left shoulder developed at the expense of muscular structures of heterogeneous enhancement suspicious in a 35-year-old woman.*

References

[1] Adigun IA, Rahman GA. A review of soft tissue sarcoma. Niger J Med 2007; 16: 94-101. https://doi.org/10.4314/njm.v16i2.37289.

[2] Casali PG, Blay J-Y, ESMO/CONTICANET/EUROBONET Consensus Panel of experts. Soft tissue sarcomas: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. Ann Oncol 2010; 21 Suppl 5: v198-203. https://doi.org/10.1093/annonc/mdq209.

[3] American Cancer Society. Cancer Facts & Figures 2020. Atlanta: American Cancer Society 2020. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2020/cancer-facts-and-figures-2020.pdf (accessed June 19, 2020).

[4] Bonvalot S, Vanel D, Terrier P, Le Pechoux C, Le Cesne A. Principles of treatment of soft tissue sarcomas in adults. EMC - Rheumatology-Orthopaedics 2004; 1: 521-41. https://doi.org/10.1016/j.emcrho.2004.08.001.

[5] Levy AD, Manning MA, Al-Refaie WB, Miettinen MM. Soft-Tissue Sarcomas of the Abdomen and Pelvis: Radiologic-Pathologic Features, Part 1-Common Sarcomas: From the Radiologic Pathology Archives. Radiographics 2017; 37: 462–83. https://doi.org/10.1148/rg.2017160157.

[6] De La Hoz Polo M, Dick E, Bhumbra R, Pollock R, Sandhu R, Saifuddin A. Surgical considerations when reporting MRI studies of soft tissue sarcoma of the limbs. Skeletal Radiol 2017; 46: 1667-78. https://doi.org/10.1007/s00256-017-2745-z.

[7] Stoeckle E, Michot A, Henriques B, Sargos P, Honoré C, Ferron G, et al. Surgery of limb and trunk wall soft tissue sarcomas. Cancer/Radiothérapie 2016; 20: 657–65. https://doi.org/10.1016/j.canrad.2016.07.068.

[8] Kouassi KKY, Touré M, Séka EN, Traoré M, Traoré K, Oséni A, et al. Regard sur la prise en charge des sarcomes des tissus mous (STM): Expérience du service de cancérologie du CHU de Treichville. Rev Int Sc Méd 2017; 19: 185-90.

[9] Diakité A, Bouras Y, Essarouali A, Bennouna D, Fadili M, Ouarab M. Management of limb soft tissue sarcomas (about 30 cases). Rev Maroc Chir Orthop Traumato 2011; 45: 15-20.

[10] Abdou J, Elkabous M, M'rabti H, Errihani H. Soft tissue sarcomas: about 33 cases. Pan Afr Med J 2015; 22. https://doi.org/10.11604/pamj.2015.22.374.8391.

[11] Djehal N, Filali T. Soft tissue sarcomas: a demographic, diagnostic and therapeutic study. Algerian Journal of Medicine 2019; 27.

[12] Honoré C, Méeus P, Stoeckle E, Bonvalot S. Soft tissue sarcoma in France in 2015: Epidemiology, classification and organization of clinical care. J Visc Surg 2015; 152: 223-30. https://doi.org/10.1016/j.jviscsurg.2015.05.001.

[13] Li Y, Niu X, Xu H. Retrospective analysis and prognostic factors of 208 cases of primary soft tissue sarcoma of extremity. Zhonghua Wai Ke Za Zhi 2011; 49: 964-9.

[14] Fletcher CDM, World Health Organization, International Agency for Research on Cancer, editors. WHO classification of tumours of soft tissue and bone. 4th ed. Lyon: IARC Press; 2013.

[15] Jakob J, Hohenberger P. Principles of sarcoma surgery. Pathologe 2019; 40: 431–5. https://doi.org/10.1007/s00292-019-0631-2.

[16] Verhaeghe J, Rios M, Leroux A, Sirveaux F, Henrot P, Blum A, et al. Treatment of adult soft tissue sarcomas: which strategy to optimise treatment. E-Mémoires de l'Académie Nationale de Chirurgie 2011; 10: 48-53.

[17] Grabellus F, Podleska LE, Sheu S-Y, Bauer S, Pöttgen C, Kloeters C, et al. Neoadjuvant treatment improves capsular integrity and the width of the fibrous capsule of high-grade soft-tissue sarcomas. Eur J Surg Oncol 2013; 39: 61-7. https://doi.org/10.1016/j.ejso.2012.10.009.

[18] Baldini EH, Lapidus MR, Wang Q, Manola J, Orgill DP, Pomahac B, et al. Predictors for major wound complications following preoperative radiotherapy and surgery for soft-tissue sarcoma of the extremities and trunk: importance of tumor proximity to skin surface. Ann Surg Oncol 2013; 20: 1494-9. https://doi.org/10.1245/s10434-012-2797-1.

[19] Grimer R, Judson I, Peake D, Seddon B. Guidelines for the management of soft tissue sarcomas. Sarcoma 2010; 2010: 506182. https://doi.org/10.1155/2010/506182.

[20] National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology. Soft Tissue Sarcoma Version 2. 2022 2022. https://www.nccn.org/professionals/physician_gls/pdf/sarcoma.pdf (accessed January 16, 2023).