ORIGINAL ARTICLE

INFLUENCE OF PREVIOUS MANIPULATION IN THE TREATMENT AND LOCAL RELAPSE OF SOFT TISSUE SARCOMAS

LUIZ EDUARDO MOREIRA TEIXEIRA1, IVANA DUVAL ARAÚJO2, RICARDO HORTA MIRANDA3, GUSTAVO ALBERGARIA DE MAGALHÃES4, DANIEL FERREIRA GHEDINI5, MARCO ANTÔNIO PERCOPE DE ANDRADE5

SUMMARY

Objective: Evaluate the influence of previous manipulation in the treatment and local relapse of soft tissue sarcomas. Methods: We evaluated 30 patients submitted to soft-tissue sarcoma (STS) surgery. These patients were divided into two groups: patients with previous unplanned resection of the tumor, and patients referred to a specialized center without any previous surgical treatment. We compared the two groups by the type of surgical treatment, complications and local relapse. Results: Previous manipulation of the STS was seen in 60% of the patients on the series, changing the surgical technique in 66.6% of the cases. The amputation rate was similar between both groups, but three patients were amputated as a result of inappropriate previous resection. Complications were not significantly different between the groups (p = 0.282), as well as for local relapse (p = 0.461). Conclusion: The previous manipulation of soft tissue sarcomas influenced the surgical treatment, but neither influenced post-operative complications nor local relapse.

Keywords: Sarcoma; Cancer; Surgery

INTRODUCTION

The term soft tissues sarcoma (STS) defines a heterogeneous group of extra-skeletal mesenchymal tumors originated from the muscles, fibrous tissue, fascia, tendons, vessels and adipose tissue (1). Peripheral nerves tumors, despite of their neuroectodermal origin, are included in this group because of their similar location, histology and biological behavior. These are relatively rare tumors presenting a large variety of histological subtypes and affected sites of the body, making difficult to obtain consistent information on these tumors’ natural history, prognosis and treatment (2). When STS is suspected, a definitive diagnosis can be confirmed by means of open incisional or puncture biopsy. This procedure is a frequent reason for complications of ST therapies, because it influences the surgical treatment. Although biopsy should be performed in a reference center and by the same surgeon, and all diagnostics were confirmed by anatomocapathological examination of the surgical piece. The study was approved by the Committee of Ethics of both Services where the study was conducted, as a part of the master course monograph “Prognostic Factors for the Development of Metastasis and Local Relapse on Soft Tissue Sarcomas of the Body Ends”, with final approval granted by the UFMG’s Committee on Ethics (opinion report nr. ETIC 002/07).

PATIENTS AND METHODS

Between January 2000 and November 2005, 42 patients diagnosed with extra-skeletal sarcomas at body ends, pelvic and gluteus regions who received care at the Musculoskeletal Tumors Outpatient Facility of the Federal University of Minas Gerais’ Hospital das Clínicas (HC) and at Biocor Institute. Of these, 30 patients were included in the study. Twelve patients were excluded: three of them did not present sufficient data on medical files, three patients missed clinical follow-up, and six showed tumors with different evolution, treatment or prognosis usually not included on STS group, namely: dermatofibrosarcoma (n = 3), rabdomyossarcoma (n = 1), extra-skeletal Ewing sarcoma (n = 1), and non-Hodgkin lymphoma (n = 1).

All patients were submitted to surgical treatment performed by the same surgeon, and all diagnostics were confirmed by anatomocapathological examination of the surgical piece. The study was approved by the Committee of Ethics of both Services where the study was conducted, as a part of the master course monograph “Prognostic Factors for the Development of Metastasis and Local Relapse on Soft Tissue Sarcomas of the Body Ends”, with final approval granted by the UFMG’s Committee on Ethics (opinion report nr. ETIC 002/07).

Of the patients comprised in the sample, the mean age was 47.66 ± 19.1 years, ranging from 18 to 86 years. The mean follow-up time was 29.5 ± 12.2 months, ranging from 12 to 62 months, with 18 (60 %) male and 12 (40 %) female patients. The histological diagnosis is listed on Table 1. Of the 30 patients in the sample, 22 (73.3%) were submitted to conservative procedure sparing the limb, while eight (26.7%) were submitted to amputation.

Surgical margins were free of tumor contamination in 22 (73.4%) of the cases, and contaminated in eight (26.6%) patients.
Figure 1 – Preoperative surgical planning for a sarcoma submitted to inadvertent previous resection (A – Magnetic resonance image of the arm outlining the enlargement area; B – surgical access marking).

Table 1 - Histological diagnosis of STS for 30 patients submitted to surgical treatment at HC-UFMG and Biocor Institute between January 2000 and November 2005.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of patients (n)</th>
<th>Relative Frequency (%)</th>
<th>Accumulated Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malignant Fibrohistiocytoma</td>
<td>7</td>
<td>23.3</td>
<td>23.3</td>
</tr>
<tr>
<td>Synoviossarcoma</td>
<td>7</td>
<td>23.3</td>
<td>46.6</td>
</tr>
<tr>
<td>Lipossarcoma</td>
<td>4</td>
<td>13.3</td>
<td>59.9</td>
</tr>
<tr>
<td>Fibrossarcoma</td>
<td>2</td>
<td>6.7</td>
<td>66.7</td>
</tr>
<tr>
<td>Leiomyossarcoma</td>
<td>2</td>
<td>6.7</td>
<td>73.4</td>
</tr>
<tr>
<td>Neurofibrossarcoma</td>
<td>2</td>
<td>6.7</td>
<td>80.1</td>
</tr>
<tr>
<td>Epithelioid Sarcoma</td>
<td>2</td>
<td>6.7</td>
<td>86.8</td>
</tr>
<tr>
<td>Angiossarcoma</td>
<td>1</td>
<td>3.3</td>
<td>90.1</td>
</tr>
<tr>
<td>Clear cells sarcoma</td>
<td>1</td>
<td>3.3</td>
<td>93.4</td>
</tr>
<tr>
<td>Malignant hemangioepithelioma</td>
<td>1</td>
<td>3.3</td>
<td>96.7</td>
</tr>
<tr>
<td>Idiopathic sarcoma</td>
<td>1</td>
<td>3.3</td>
<td>100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>30</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: SAME – Federal University of Minas Gerais Hospital das Clinicas.

RESULTS

The previous manipulation of STS was seen on 18 (60%) patients, and only 12 (40%) were referred with no previous procedure. Manipulation influenced surgical treatment for changing the access, enlarging margins, or requiring resection of additional compartments in 12 patients (66.6%). Of these, four (22.2%) patients required amputation as a surgical treatment, three of them as a result of the previous procedure. On patients referred without any previous manipulation, only two (16.6%) required amputation (Figure 2). However, amputation surgery was not significantly more frequent for the group submitted to previous manipulation (p = 0.544). Postoperative complications were seen on eight (26.7%) patients, six of them (33.3%) assigned to the group of manipulated patients (Group A), which included three wound dehiscence, one deep infection and one seroma. Complications were seen on two patients (16.6%) of Group B, with a dehiscence and a deep infection of the surgical wound. Similarly, these data were not significant when both groups were compared (p = 0.282).

Local relapse was seen on 10 (33.3%) patients, five of them on Group A and five on Group B (Figure 3). When compared, both groups showed no significant difference (p = 0.461).
tumors on definitive surgical treatment and on local relapse (9).

Many prognostic factors are correlated to local relapse, particularly to previous surgical manipulation (n = 18) and referred prior to any surgical procedure (n = 12).

DISCUSSION

The most common treatment for STS is surgery, whether associated with radiotherapy and chemotherapy or not (2-6, 7). Radiotherapy and surgery are indicated to provide local control, while chemotherapy targets the systemic treatment of the disease, but its indication remains controversial for STS (6). Surgery must be performed through broad access, providing resection of the whole tumor, involved by normal tissue, in a single mass, including the biopsy path and the drainage exit hole when present (2-3). This kind of surgery associated to radiotherapy has been achieving local control in as many as 90% of the cases (6-8).

Many prognostic factors are correlated to local relapse, particularly the margins reached during surgical procedure; however, few studies assess the influence of inappropriate previous manipulation of tumors on definitive surgical treatment and on local relapse (8).

In our series, we saw that 60% of the patients were manipulated prior to referral, which represent a higher frequency compared to other centers, yet consistent with data reported by Mankin et al. (4, 5). Definitive surgery was influenced by manipulation in 66.6% of the cases on this group, either by the modification of the access way, by the enlargement of the operative field, or by the additional resection of contaminated compartments. While the treatment provided with amputation was similar for both patient groups, in three cases of the previously manipulated group, this was indicated as a result of an inappropriate manipulation performed before referral, which was also seen by Siebenrock, et al. (10), who concluded that the inadvertent previous resection of a soft tissue sarcoma leads to more mutilating surgeries and high prevalence of local relapses.

Complications resulting from enlarged dissection patches, such as necrosis and wound dehiscence, as well as seromas and hematomas, are frequently seen in surgical procedures for STS treatment. We didn’t find differences between groups in our study, suggesting that performing a similar surgical technique does not increase the risk of postoperative complications.

The inappropriate manipulation of tumors has been reported as a factor for poor prognosis of relapses (9-11). However, most of the studies show that a surgical review for enlarging surgical margins, when timely performed, can avoid relapses and does not compromise the local control or the survival of patients when compared to patients not submitted to inadvertent resections (7, 11).

In our study, we found that the inappropriate manipulation of STS with amputation was similar for both patient groups, in three cases on this group, either by the modification of the access way, by the enlargement of the operative field, or by the additional resection of contaminated compartments. While the treatment provided with amputation was similar for both patient groups, in three cases of the previously manipulated group, this was indicated as a result of an inappropriate manipulation performed before referral, which was also seen by Siebenrock, et al. (10), who concluded that the inadvertent previous resection of a soft tissue sarcoma leads to more mutilating surgeries and high prevalence of local relapses.

Complications resulting from enlarged dissection patches, such as necrosis and wound dehiscence, as well as seromas and hematomas, are frequently seen in surgical procedures for STS treatment. We didn’t find differences between groups in our study, suggesting that performing a similar surgical technique does not increase the risk of postoperative complications.

The inappropriate manipulation of tumors has been reported as a factor for poor prognosis of relapses (9-11). However, most of the studies show that a surgical review for enlarging surgical margins, when timely performed, can avoid relapses and does not compromise the local control or the survival of patients when compared to patients not submitted to inadvertent resections (7, 11).

In our study, we found that the inappropriate manipulation of STS with amputation was similar for both patient groups, in three cases on this group, either by the modification of the access way, by the enlargement of the operative field, or by the additional resection of contaminated compartments. While the treatment provided with amputation was similar for both patient groups, in three cases of the previously manipulated group, this was indicated as a result of an inappropriate manipulation performed before referral, which was also seen by Siebenrock, et al. (10), who concluded that the inadvertent previous resection of a soft tissue sarcoma leads to more mutilating surgeries and high prevalence of local relapses.

Complications resulting from enlarged dissection patches, such as necrosis and wound dehiscence, as well as seromas and hematomas, are frequently seen in surgical procedures for STS treatment. We didn’t find differences between groups in our study, suggesting that performing a similar surgical technique does not increase the risk of postoperative complications.

The inappropriate manipulation of tumors has been reported as a factor for poor prognosis of relapses (9-11). However, most of the studies show that a surgical review for enlarging surgical margins, when timely performed, can avoid relapses and does not compromise the local control or the survival of patients when compared to patients not submitted to inadvertent resections (7, 11).

In our study, we found that the inappropriate manipulation of STS with amputation was similar for both patient groups, in three cases on this group, either by the modification of the access way, by the enlargement of the operative field, or by the additional resection of contaminated compartments. While the treatment provided with amputation was similar for both patient groups, in three cases of the previously manipulated group, this was indicated as a result of an inappropriate manipulation performed before referral, which was also seen by Siebenrock, et al. (10), who concluded that the inadvertent previous resection of a soft tissue sarcoma leads to more mutilating surgeries and high prevalence of local relapses.

Complications resulting from enlarged dissection patches, such as necrosis and wound dehiscence, as well as seromas and hematomas, are frequently seen in surgical procedures for STS treatment. We didn’t find differences between groups in our study, suggesting that performing a similar surgical technique does not increase the risk of postoperative complications.

The inappropriate manipulation of tumors has been reported as a factor for poor prognosis of relapses (9-11). However, most of the studies show that a surgical review for enlarging surgical margins, when timely performed, can avoid relapses and does not compromise the local control or the survival of patients when compared to patients not submitted to inadvertent resections (7, 11).

In our study, we found that the inappropriate manipulation of STS with amputation was similar for both patient groups, in three cases on this group, either by the modification of the access way, by the enlargement of the operative field, or by the additional resection of contaminated compartments. While the treatment provided with amputation was similar for both patient groups, in three cases of the previously manipulated group, this was indicated as a result of an inappropriate manipulation performed before referral, which was also seen by Siebenrock, et al. (10), who concluded that the inadvertent previous resection of a soft tissue sarcoma leads to more mutilating surgeries and high prevalence of local relapses.

Complications resulting from enlarged dissection patches, such as necrosis and wound dehiscence, as well as seromas and hematomas, are frequently seen in surgical procedures for STS treatment. We didn’t find differences between groups in our study, suggesting that performing a similar surgical technique does not increase the risk of postoperative complications.

The inappropriate manipulation of tumors has been reported as a factor for poor prognosis of relapses (9-11). However, most of the studies show that a surgical review for enlarging surgical margins, when timely performed, can avoid relapses and does not compromise the local control or the survival of patients when compared to patients not submitted to inadvertent resections (7, 11).

In our study, we found that the inappropriate manipulation of STS with amputation was similar for both patient groups, in three cases on this group, either by the modification of the access way, by the enlargement of the operative field, or by the additional resection of contaminated compartments. While the treatment provided with amputation was similar for both patient groups, in three cases of the previously manipulated group, this was indicated as a result of an inappropriate manipulation performed before referral, which was also seen by Siebenrock, et al. (10), who concluded that the inadvertent previous resection of a soft tissue sarcoma leads to more mutilating surgeries and high prevalence of local relapses.

Complications resulting from enlarged dissection patches, such as necrosis and wound dehiscence, as well as seromas and hematomas, are frequently seen in surgical procedures for STS treatment. We didn’t find differences between groups in our study, suggesting that performing a similar surgical technique does not increase the risk of postoperative complications.