**Appendix**

**Table A1.** Univariate and multivariate analyses of response to neoadjuvant therapy.

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| **Characteristics (N = 36)** | | **PR (/n)** | **Univariate1** | | **Multivariate2** | |
| Histology | UPS | 1 (/11) | p = 0.21 | p = 0.54 | |
| MFS | 3 (/13) |
| SS | 0 (/4) |
| DDL | 2 (/4) |
| Others | 2 (/4) |
| Length | <5 cm | 1 (/7) | p = 0.78 | NA | |
| 5–10 cm | 5 (/20) |
| >10 cm | 2 (/8) |
| Location | Lower extremity | 5 (/30) | p = 0.03 | p = 0.263 | |
| Upper extremity | 0 (/3) |
| Trunk | 3 (/3) |
| Sex | Male | 4 (/21) | p = 0.56 | NA | |
| Female | 4 (/15) |
| Lesion status | Primary | 7 (/33) | p = 0.63 | NA | |
| Recurrence | 1 (/3) |
| FNCLCC grade | Grade 2 | 1 (/4) | p = 0.89 | NA | |
| Grade 3 | 7 (/32) |
| Biopsy method | Needle | 3 (/14) | p = 0.93 | NA | |
| Open | 5 (/22) |
| Depth | Superficial | 2 (/13) | p = 0.46 | NA | |
| Deep | 6 (/23) |
| Neoadjuvant therapy | RT | 0 (/3) | p = 0.56 | NA | |
| Cx | 6 (/19) |
| RT + Cx | 2 (/14) |

1 Chi-squared analysis; 2 mutiple logistic regression analysis; 3 analyzed using dummy variables to differentiate between patients with and without lower extremity location. UPS, undifferentiated pleomorphic sarcoma; MFS, myxofibrosarcoma; SS, synovial sarcoma; DDL, de-differentiated liposarcoma; FNCLCC, French Federation of Cancer Centers; RT, radiotherapy; Cx, chemotherapy; NA, not analyzed.

**Table A2.** Univariate and multivariate analyses of the disappearance of tail-like lesions.

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| --- | --- | --- | --- | --- |
| **Characteristics (N = 36)** | | **Disappearance of tail-like lesion (/n)** | **Univariate1** | **Multivariate2** |
| Histology | UPS | 2 (/11) | p = 0.32 | NA |
| MFS | 5 (/13) |
| SS | 1 (/4) |
| DDL | 1 (/4) |
| Others | 1 (/4) |
| Length | <5 cm | 1 (/7) | p = 0.36 | NA |
| 5–10 cm | 8 (/20) |
| >10 cm | 3 (/8) |
| Location | Lower extremity | 8 (/30) | p = 0.04 | p = 0.063 |
| Upper extremity | 1 (/3) |
| Trunk | 3 (/3) |
| Sex | Male | 8 (/21) | p = 0.56 | NA |
| Female | 4 (/15) |
| Lesion status | Primary | 12 (/33) | p = 0.20 | p = 0.20 |
| Recurrence | 0 (/3) |
| FNCLCC grade | Grade 2 | 1 (/4) | p = 0.71 | NA |
| Grade 3 | 11 (/32) |
| Biopsy method | Needle | 5 (/14) | p = 0.81 | NA |
| Open | 7 (/22) |
| Depth | Superficial | 3 (/13) | p = 0.33 | NA |
| Deep | 9 (/23) |
| Neoadjuvant therapy | RT | 0 (/3) | p = 0.32 | NA |
| Cx | 8 (/19) |
| RT + Cx | 4 (/14) |

1 Chi-squared test; 2 mutiple logistic regression analysis; 3 analyzed using dummy variables to differentiate between patients with and without lower extremity location. UPS, undifferentiated pleomorphic sarcoma; MFS, myxofibrosarcoma; SS, synovial sarcoma; DDL, dedifferentiated liposarcoma; FNCLCC, French Federation of Cancer Centers; RT, radiotherapy; Cx, chemotherapy; NA, not analyzed.

**Table A3.** Univariate and multivariate analyses of achievement of R0 resection.

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| **Characteristics (N = 36)** | | **R0 resection (/n)** | **Univariate1** | **Multivariate2** |
| Histology | UPS | 7 (/11) | p = 0.20 | p = 0.40 |
| MFS | 8 (/13) |
| SS | 4 (/4) |
| DDL | 4 (/4) |
| Others | 4 (/4) |
| Length | <5 cm | 5 (/8) | p = 0.63 | NA |
| 5–10 cm | 4 (/20) |
| >10 cm | 2 (/8) |
| Location | Lower extremity | 23(/30) | p = 0.15 | p = 0.163 |
| Upper extremity | 1 (/3) |
| Trunk | 3 (/3) |
| Sex | Male | 14 (/21) | p = 0.56 | NA |
| Female | 13 (/15) |
| Lesion status | Primary | 25(/33) | p = 0.73 | NA |
| Recurrence | 2 (/3) |
| FNCLCC grade | Grade 2 | 2 (/4) | p = 0.22 | p = 0.57 |
| Grade 3 | 25 (/32) |
| Biopsy method | Needle | 10 (/14) | p = 0.69 | NA |
| Open | 17 (/22) |
| Depth | Superficial | 9 (/13) | p = 0.55 | NA |
| Deep | 18 (/23) |
| Neoadjuvant therapy | RT | 2 (/3) | p = 0.01 | p = 0.06\*4 |
| Cx | 18 (/19) |
| RT + Cx | 7 (/14) |
| Histological response | G1 | 11 (/15) | p = 0.63 | NA |
| G2 | 9 (/13) |
| G3+4 | 7 (/8) |
| RECIST1.1 | SD + PD | 19 (/28) | p = 0.06 | p = 0.09 |
| PR | 8 (/8) |
| Disappearance of tail-like lesion | Yes | 9 (/12) | p = 1.0 | NA |
| No | 18 (/24) |
| Skin reconstruction | Yes | 9 (/14) | p = 0.24 | p = 0.26 |
| No | 18 (/22) |
| Prosthesis use | Yes | 2 (/2) | p = 0.40 | NA |
| No | 25 (/34) |
| Manipulation of major AVN | Yes | 15 (/22) | p = 0.24 | p = 0.13 |
| No | 12 (/14) |

1 Chi-squared test; 2 mutiple logistic regression analysis; 3 analyzed using dummy variables to differentiate between patients with or without lower extremity location. 4 analyzed using dummy variables to differentiate between patients with and without chemoradiotherapy. UPS, undifferentiated pleomorphic sarcoma; MFS, myxofibrosarcoma; SS, synovial sarcoma; DDL, dedifferentiated liposarcoma; FNCLCC, French Federation of Cancer Centers; RT, radiotherapy; Cx, chemotherapy; SD, stable disease; PD, progressive disease; PR, partial response; NA, not analyzed.

**Table A4.** Univariate analysis of oncologic outcomes.

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| --- | --- | --- | --- |
| **Characteristics (N = 36)** | | **Univariate1** | **P-value** |
| Sex (male > female) | OS | HR = 0.50, 0.12–2.0 | p = 0.332 |
| L-RFS | HR = 1.03, 0.09–11.49 | p = 0.978 |
| D-RFS | HR = 0.49, 0.16–1.48 | p = 0.208 |
| FNCLCC grade (grade 2 > 3) | OS | HR = 0.96, 0.12–7.84 | p = 0.971 |
| L-RFS | HR = 0.04, not calculated | p = 0.667 |
| D-RFS | HR = 0.76, 0.17–3.49 | p = 0.743 |
| Depth (superficial > deep) | OS | HR = 0.84, 0.20–3.55 | p = 0.813 |
| L-RFS | HR = 0.69, 0.06–7.63 | p = 0.761 |
| D-RFS | HR = 1.02, 0.07–1.52 | p = 0.970 |
| Histological response(grade 3+4 > 1+2) | OS | HR = 0.03, 0.00–32.70 | p = 0.331 |
| L-RFS | HR = 0.02, 0.00–240.53 | p = 0.413 |
| D-RFS | HR = 0.23, 0.03–1.75 | p = 0.153 |
| RECIST 1.1 (PR > SD + PD) | OS | HR = 0.38, 0.12–1.23 | p = 0.106 |
| L-RFS | HR = 0.55, 0.05–6.13 | p = 0.627 |
| D-RFS | HR = 0.03, 0.08–6.11 | p = 0.198 |
| Disappearance of tail-like lesion (yes > no) | OS | HR = 0.64, 0.13–3.20 | p = 0.590 |
| L-RFS | HR = 1.01, 0.09–11.22 | p = 0.992 |
| D-RFS | HR = 0.34, 0.07–1.52 | p = 0.158 |
| Margin status (R0 > R1) | OS | HR = 0.69, 0.16–2.97 | p = 0.624 |
| L-RFS | HR = 0.79, 0.07–8.78 | p = 0.847 |
| D-RFS | HR = 1.24, 0.34–4.51 | p = 0.743 |

1 Log-rank analysis. Although multiple logistic regression analysis was performed, there were no statistically significant differences. The range indicates the 95% confidence interval of the hazard ratio. HR, hazard ratio; OS, overall survival; L-RFS, local relapse-free survival; D-RFS, distant relapse-free survival; FNCLCC, French Federation of Cancer Centers; SD, stable disease; PD, progressive disease; PR, partial response.

**Table A5.** Basic characterstics of the patients with or without neoadjuvant therapy.

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| --- | --- | --- | --- | --- |
| **Characteristics**  **(N = 36)** | | **With Neoadjuvant Therapy (n = 24)** | **Without Neoadjuvant Therapy (n = 24)** | **P-value** |
| Histology | UPS | 11 | 8 | p = 0.3761 |
| MFS | 13 | 16 |
| Neoadjucant therapy | RT | 3 | 0 | NA |
| Cx | 8 |
| RT + Cx | 13 |
| Age at diagnosis (mean, SD) | | 61.8, 10.5 | 70.8, 14.0 | p = 0.0142 |
| Tumor length (median, IQR) | | 76.0, 37.5-113.3 | 48.0, 34.0–78.0 | p = 0.0712 |
| Tail-like lesion’s length (median, IQR) | | 30.0, 24.5-48.3 | 21.5, 18.0**-**35.0 | p = 0.0142 |
| Tail-like lesion’s thickness (median, IQR) | | 6.5, 2.2-8.8 | 4.0, 4.0–11.5 | p = 0.0762 |
| Location | Lower extremity | 20 | 11 | p = 0.0241 |
| Upper extremity | 2 | 8 |
| Trunk | 2 | 5 |
| Sex | Male | 16 | 14 | p = 0.5511 |
| Female | 8 | 10 |
| Lesion status | Primary | 22 | 22 | p = 1.01 |
| Recurrence | 2 | 2 |
| FNCLCC grade | Grade 1 | 0 | 7 | p = 0.0151 |
| Grade 2 | 4 | 2 |
| Grade 3 | 20 | 15 |
| Biopsy method | Needle | 12 | 15 | p = 0.3441 |
| Open | 12 | 9 |
| Depth | Superficial | 9 | 15 | p = 0.0831 |
| Deep | 15 | 9 |
| Surgical margin | R0 | 15 | 14 | p = 0.7681 |
| R1 | 9 | 10 |

1 Chi-squared test; 2 Mann-Whitney U test. UPS, undifferentiated pleomorphic sarcoma; MFS, myxofibrosarcoma; SD, standard deviation; IQR, interquartile range; FNCLCC, French Federation of Cancer Centers; RT, radiotherapy; Cx, chemotherapy; NA, not analyzed.