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Local control after tissue preservation using “in situ preparation” for sarcoma resection

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INTRODUCTION: Wide resection is currently standard treatment in the management of sarcoma, and consequent sacrifice of critical tissues such as neuro-vascular bundle may sometimes result in postoperative dysfunction. “In situ preparation (ISP)” technique was developed by Matsumoto (Int J Clin Oncol, 2002) to preserve safely critical tissues within or adjacent to the tumor. We reviewed local control after preservation of critical tissues using ISP technique in our series.

PATIENTS AND METHODS: Since 2007, 26 patients underwent ISP; 25 soft tissue sarcomas and 1 bone sarcoma. Tissues preserved using ISP technique consisted of 17 nerves, 15 blood vessels, 5 tendons and 1 bone. ISP was conducted according to Matsumoto’s surgical method as follows. We performed en bloc resection with wide surgical margin, but without sacrificing critical tissues. The tumor block with surrounding tissues were lifted together with the continuity of critical tissues and were separated from the surgical field by the vinyl sheet. Then critical tissues were separated and preserved from the tumor block through the nearest approach and treated with alcohol or distilled water soaking. We sacrificed them when identified the tumor involvement during ISP procedure. 3 patients, those surgical specimens were assessed as inadequate surgical margin, underwent postoperative radiotherapy.

RESULTS: Average follow-up was 40 months. There were 3 local recurrences among 26 ISP procedures: 2 UPS and 1 myxofibrosarcoma. 1 patient showed recurrence around the femoral artery preserved using ISP, which we intentionally separated and preserved from within the tumor due to concurrent multiple metastases at initial diagnosis. 2 recurrences were identified away from tissues preserved using ISP. 2 patients showed mild numbness in the lower leg after ISP procedure for sciatic nerve, and there is no other neuro-vascular complication. There are 19 CDF, 4 NED, and 3 DOD.

CONCLUSIONS: ISP is a simple procedure without special instruments to assess surgical margin (tumor involvement into tissues) during the operation. We can achieve both good local tumor control and preservation of critical tissues using ISP technique.