

## **Minimal Adverse Impact of the Extent of Lymphadenectomy on Surgical Results of Nephroureterectomy for Urothelial Carcinoma of the Upper Urinary Tract**

**Introduction and Objectives:** The benefit of lymphadenectomy for urothelial carcinoma of the upper urinary tract (UCUUT) remains unclear. The factors for determining whether lymphadenectomy is indicated for individual patients are not only its advantages but also its disadvantages. In this study, we examined the influence of the extent of lymphadenectomy on the surgical results of nephroureterectomy.

**Materials and Methods:** Until January 2012, 276 patients with UCUUT underwent nephroureterectomy in our department and are the subjects of this study. Of these, 160 patients underwent lymphadenectomy simultaneously. The regional lymph nodes were determined according to our previous study. Complete lymphadenectomy (CompLND) was designated when all the regional sites were dissected. Incomplete lymphadenectomy (IncompLND) was designated when lymphadenectomy did not include all of the regional sites. All lymphadenectomy was performed by the open procedure.

**Results:** One hundred and ten patients (40%) underwent CompLND, and 48 patients (17%) IncompLND. No lymphadenectomy (No-LND) was performed in 118 patients (43%). Operating times were not very different between the groups (CompLND; 407 minutes, IncompLND; 403, No-LND; 345,  $p=0.50$ ). Intraoperative bleeding was also similar between the groups (CompLND; 323 ml, IncompLND; 304, No-LND; 290,  $p=0.51$ ). The day of hospital discharge did not differ among the groups either, (CompLND; day 9, IncompLND; 9, No-LND; 10,  $p=0.44$ ). We also compared the incidences of perioperative complications, and found differences here. CompLND showed a significantly higher incidence of perioperative complications than other two groups (CompLND; 15.4%, IncompLND; 0%, No-LND; 7.6%,  $p<0.01$ ). However, the incidence of major complications (Clavien grade 3 or higher) was not significantly different between the groups (CompLND; 1.8%, IncompLND; 0%, No-LND; 0.8%  $p=0.45$ ).

**Conclusion:** Extended lymphadenectomy may prolong the operating time and increase the risk of perioperative complications, but these influences were minimal. Thus, the indication for performing lymphadenectomy can be primarily determined on the basis of whether the patients benefit from it.