The Value of Frozen Section Examination During Transurethral Resection in Patients with T1 Bladder Cancer

Introduction and Objectives: Transurethral resection of bladder tumor (TURBt) remains the gold standard for management of bladder cancer, but there is evidence of a high rate of understaging for T1 tumor after primary resection. Muscle in the specimen is important for the accurate bladder staging. However, nearly 40% resected bladder specimens were failed to be found muscle after the initial TURBt even done by the sophistic urologists. Therefore a second TURBt was justified for correcting the staging error and removing the residual tumors. The frozen section examination can provide a rapid microscopic analysis of a specimen. In this study, we prospectively investigated the tumor base and whether muscle was present in the specimen using frozen section examination, and discussed its value in the initial TURBt.
Material and Methods: From Sep 2009 to Oct 2011, a total of 95 consecutive patients with T1 bladder cancer were included in this study. A standard TURBt was performed. Once the tumor was removed, the tumor base was either biopsied using cold-cup biopsy forceps or resected. An aliquot of resected tumor as well as the tumor base were both sent for pathological frozen section examination in a separate, appropriately labeled pot. Then a repeat resection was performed based on the pathological findings either if cancer cells were present in the tumor base or the muscle was not present in the specimen. The results, including positive tumor base, presence of muscle in the specimen, tumor stage, residual tumor and concordance between frozen section and paraffin embedded section were compared.
Results: There were 26(27.4%) patients who had a positive tumor base. There were 54 (56.8%) tumor bases found muscle in the specimen while 34 (35.8%) were not found and 7 (7.4%) were difficult to diagnosis because of the over-cauterization of the base specimen. Of 52 (54.7%) patients who underwent a repeat resection, 18 (34.6%) were found residual tumor and 15 (27.8%) were upstaged to muscle invasive tumor. The paraffin embedded section demonstrated 32 (61.5%) specimens were found muscle in patients undergoing the repeat resection. The concordance of muscle in the specimen between the frozen section and paraffin embedded section was 94.7%.
Conclusion: The frozen section examination was justified for the diagnoses of positive tumor base and muscle in the specimen, and it can help to remove the residual tumors and decrease the staging error for T1 bladder cancer during the initial TURBt.