

## **Analysis of Incidence and Risk Factor of Seed Migration After Transperineal Interstitial Prostate Brachytherapy with I-125 Free Seeds**

**Introduction and Objectives:** The purpose of this study was to evaluate the incidence and predictors of seed migration after transperineal interstitial prostate brachytherapy.

**Materials and Methods:** From March 2007 to March 2011, 121 patients with Stage T1-T2 prostate cancer underwent transperineal interstitial prostate brachytherapy. Pre-planning was performed 3 weeks prior to implantation, and the implants were inserted using the standard parallel needle insertion technique. All patients underwent a series of radiographs (chest radiography, kidney-ureter-bladder (KUB) radiography, and a CT scan of the area from the chest to the pelvis) to assess whether seed migration had occurred on postoperative days 1 and 30, and 12 months. As a result, the patients were categorized as migration negative or migration positive, and then their data were analyzed to identify the predictors of seed migration.

**Results:** Seed migration occurred in 31 (25.6%) of 121 patients. A total of 51 of 7883 (0.65%) implanted seeds migrated. Migration was detected on postoperative day 1 in 16 patients, day 30 in 13 patients, and at 12 months in 4 patients (migration occurred at different times in 2 patients). The migrated seeds were found in the lungs, pelvis, heart, mediastinum, kidney, inguinal canal, liver, and sacrum. The number of needles was a statistically significant factor of seed migration.

**Conclusions:** The seeds migrated to many organs. No decrease in the dose administered to the prostate or adverse effects associated with seed migration were noted. The number of needles might be used to predict the risk of seed migration.