

**AbstractID: 1212 Title: Control of seed migration after I-125 prostate brachytherapy with the aid of color Doppler ultrasound scanner**

Pulmonary seed embolization after prostate brachytherapy is frequently observed. The route of the seed migration via the prostatic veins, the right ventricle, and the pulmonary arteries is recognized. This abstract reports our investigation on the seed migration problem. We started our I-125 prostate brachytherapy program by using all loose seeds (Amersham 6711, Arlington Hts, IL) and then modified the protocol to include Amersham stranded seeds. From November 2001 to February 2004, 244 patients have been studied. To accurately detect the seed migration, we developed a seed-migration detector and a comprehensive seed migration detection program. Our earlier results indicated that the seed migration rate per patient was reduced from 32% with all loose seeds to 23% with the combination of stranded seeds implanted peripherally and loose seeds in the central columns. Since no stranded seed migration has been detected, we hypothesize that the migrated seeds are originally the loose seeds implanted. The seed migration rates per loose seed are 0.5% and 0.8% respectively. In our investigation of using IBt loose and stranded seeds (IBt 1251s, Seneffe, Belgium), the seed migration rate was reduced to 3.5% per patient and 0.2% per loose seed. With the aid of color Doppler ultrasound in the implanting procedure, major blood vessels inside and adjacent to the prostate were identified. By avoiding implanting loose seeds in the major blood vessel regions, improved control of the seed migration is achieved. The investigation continues to explore the benefits of the color Doppler ultrasound in the prostate cancer patient care.