

MRI Guided Cryo-Ablation of Prostate Cancer in Patients Having Undergone Abdominal Perineal Resection for Rectal Cancer

Introduction and Objective: Prostate cancer (Paca) is 2nd only to lung cancer in the number of cancer deaths for men; colorectal cancer is 3rd in attributed deaths. Some survive rectal cancer to later develop Paca with fewer treatment options. Many men with rectal cancer are treated with rectal resection followed by radiation. The development of Paca presents a clinical dilemma. Surgery after prior rectal resection is difficult with greater possibility of surgical morbidity, and most are not candidates for further radiation in the pelvis. One alternative treatment strategy for Paca is presented.

Materials and Methods: We present a retrospective analysis of two patients with prior rectal cancer resection and development of Paca treated by MRI guided percutaneous cryoablation. Each patient underwent general anesthesia & 8-10 cryoprobes were placed using perineal guidance and intermittent MR imaging. Once probe position was confirmed a urethral protective catheter was placed and warmed to 43C. Cryoablation x3 (freeze-thaw cycles) was performed. Cryoablation was monitored with intermittent MRI every minute. Once iceball coalescence/margins were achieved, freezing was stopped and thawing initiated. Post-ablation imaging was performed with multiplanar T2 & T1 TSE imaging and post-gadolinium imaging.

Results: Two patients presented after surgery/radiation/chemotherapy for rectal cancer and subsequently developed Paca detected by slowly rising PSA and trans-gluteal biopsies. MR imaging showed bilateral glandular abnormalities in both patients. CT guided trans-gluteal biopsy produced (+) results but only from 1 side in each patient. In view of MRI results and concern for bilateral/multifocal disease, whole gland therapy was done in both patients. Using intermittent MRI & a perineal guidance grid, 10 cryoneedles were placed into the 1st patient & 8 into the 2nd patient's prostate. Maximal iceball growth covered the entire prostate. Post-ablation MR imaging showed a lack of enhancement within the prostate gland. MR guidance and monitoring during the ablation was technically successful in both patients. Follow-up MR imaging at 3 months, demonstrates no prostate gland enhancement.

Conclusions: Whole gland cryoablation of the Paca using MRI guidance is feasible for patients with prior rectal cancer treated with rectal resection/radiation/chemotherapy. In these two patients, morbidity from this procedure was minimal.