

IMRI Guided Cryoablation of Uterine Leiomyoma

PATRICK ELLISON SEWELL JR.¹, Bryan D. COWAN²

¹Univ. of Mississippi Medical Center, Dept. of Radiology, 2500 north state street, Jackson, MS USA; ²University of Mississippi Medical Center, School of Medicine, Room: L325, Jackson, Mississippi United States;

Introduction

Uterine myomas can be identified in nearly 65% of women at menopause, and nearly half of these cases are associated with symptoms. Many of those symptoms are a direct result of the myoma size or bulk. Those symptoms include increasing abdominal girth, urinary stress incontinence, and pelvic pain. We present our early results detailing imri cryoablation of uterine myomas for bulk reduction.

Methods

Women with symptoms attributable to large uterine myomas underwent a diagnostic and operative planning MRI of the pelvis. Women with one to four large myomas that were deemed approachable thru a percutaneous approach were identified and under IRB approval, were enrolled in our study. All women desired no future fertility. Preoperative symptoms were documented and classified for comparison with post treatment symptom resolution. Each patient recieved general anesthesia while one to five MRI compatable cryoprobes of either 2mm or 3mm diameter (GALIL USA, Boston, MA, USA) were inserted via an anterior percutaneous approach and positioned in the substance of the myoma. Submucosal, myometrial, and exophytic myomas were targeted. Multiplanar near realtime imaging was accomplished with a Signa SP IMRI (GENERAL ELECTRIC, Millwalki, WI, USA) utilizing FSPGR, T1 and T2 imaging sequences. Three freeze/thaw cycles were performed at each probe position and the probes were repositioned as needed to treat all targeted tissue using an overlapping technique. After removal of the probes, the access sheath was packed with strips of surgiseal to facilitate hemostasis. The patient was discharged wwithin 24 hrs with clinic followup at one week, one month and every three months thereafter. Post treatment ultrasound and MRI was performed according to protocol.

Results

Ten women underwent percutaneous IMRI guided cryoablation of large symptomatic uterine myomas. Myoma size ranged from 2 to 10 centimeters and the number treated ranged from one to four per patient. After overnight hospitalization, each patient was discharged home with ibuprofen or acetaminophen for pain controll. Pain unresponsive to these medications was not reported. All women returned to normal activity within 48 hours of treatment. All patients noticed significant improvement or complete resolution in their dominant symptoms within 14 days of cryoablation. Follup MRI demonstrated a greater than 50% volume reduction in the treated myoma at 12 weeks post-cryoablation. One major complication (mild foot drop neuropathy) and no minor complications were encountered.

Discussion

Increased awareness of the general public and non-GYN medical community of symptomatic uterine myomas has resulted in the rapid adoption of minimally invasive treatment techniques such as uterine artery embolization for that disease process. UAE is rapidly effective for reversing myoma induced anemia but resolution of symptoms attributable to large bulky myomas is not as rapid. Clinical evaluation of patients symptoms and imaging evaluation of the myoma morpholgy infered that bulk reduction of large symptomatic myomas would result in a measurable clinical benefit. A minimally invasive regional or targeted treatment such as probe directed cryoablation might reduce complications as compared to a global treatment such as UAE. Cryoablated tissue can rapidly decrease in volume as demonstrated and documented in the medical literature. In our ongoing study, the early results demonstrate that symptoms related to myoma bulk rapidly diminish and an impressive volume reduction is measurable on short term followup imaging studies. Our hope is that this therapy will prove to be a valuable addition to the treatment choices for large symptomatic myomas. Long term followup of these patients and many others is needed to better determine morbidity, mortality, treatment success, and treatment failure rates for this new therapy.

References

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