



ORIGINAL ARTICLE – SARCOMA

# Laparoscopic-Assisted, Percutaneous Cryoablation: A Novel Technique for the Treatment of Abdominal Wall Soft Tissue Tumors

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## ABSTRACT

**Introduction.** Percutaneous cryoablation is a first-line therapeutic option for primary neoplasms and metastatic lesions of the musculoskeletal system. Treatment of abdominal wall tumors is challenging as surgical resection can be highly morbid and necessitate complex reconstructive surgery; the efficacy of cryoablation for abdominal wall tumors may be limited by inadequate posterior margins owing to the proximity of intra-abdominal organs. With laparoscopy and insufflation, peritoneal structures can be safely mobilized away from the abdominal wall, allowing for adequate deep margin freeze and visualization of the ice ball. We present two patients with abdominal wall soft tissue tumors treated with a novel approach of laparoscopic-assisted, percutaneous ultrasound-guided cryoablation.

**Patients and Methods.** Patient 1 is a 65-year-old female with metastatic extraskeletal myxoid chondrosarcoma, stable on systemic therapy, who presented with a new soft tissue metastasis to the abdominal wall. Resection would have necessitated a highly morbid complex abdominal wall reconstruction with mesh. Patient 2 is a 35-year-old female with a large abdominal wall desmoid tumor, diagnosed after miscarriage. Resection was relatively contraindicated owing to the morbidity of a complex abdominal wall reconstruction

and concerns regarding potential future pregnancies after surgery.

**Results.** Both patients underwent procedures in the outpatient setting after discussion at multidisciplinary sarcoma tumor board. Laparoscopic enterolysis was performed to mobilize the bowel away from the abdominal wall, to allow direct visualization of the peritoneal aspect of the tumor, and to confirm adequacy of the posterior margin freeze of the lesion. Laparoscopic transversus abdominis preperitoneal (TAPP) blocks with local anesthetic were performed for postoperative pain control. Interventional radiology performed an ultrasound-guided cryoablation consisting of two freeze and thaw cycles. Both patients recovered well without complications and were without radiographic evidence of persistent or recurrent disease at 12 and 18 months postoperatively, respectively.

**Conclusion.** We report a novel approach of laparoscopic-assisted cryoablation for the treatment of abdominal wall soft tissue tumors. This allowed for successful minimally invasive local control of these large tumors that would have otherwise required highly morbid resections with complex abdominal wall reconstruction and mesh repair.

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