

**Abstract Title:**

*Impact of Navigated Radiofrequency Ablation (RFA) on Spinal Tumors*

**Author(s)**

---

1. [Amanda Ujkashi, MS](#) (Role: Co-Author)
2. [Mellissa R. Delcont, N/A, MD, MS \(she/her/hers\)](#) (Role: Co-Author)
3. [Tyler Kellett, Student](#) (Role: Co-Author)
4. [Eric Marty, Student](#) (Role: Co-Author)
5. [Caleb Wipf, Student](#) (Role: Co-Author)
6. [David Ou-Yang, MD \(he/him/his\)](#) (Role: Co-Author)
7. [Ryan Lanning, MD](#) (Role: Co-Author)
8. [Christopher J. Kleck, MD \(he/him/his\)](#) (Role: Presenting Author (Person doing the Podium Presentation))

**Abstract**

---

**Abstract**

Introduction: 5-10% of patients with cancer develop spinal tumors (metastasis or primary), causing pain, neurological deficits, and overall decreased quality of life. In the past, radiation therapy, including stereotactic radiosurgery, has been the gold standard; however, radiation therapy has its limitations, including continued local progression and development of new or worsening vertebral fractures. Radiofrequency ablation (RFA) is an emerging treatment to decrease spinal tumor burden, and it has been shown to improve local control when used in combination with radiation therapy. Studies have also demonstrated that local control can be achieved with RFA alone; however, previous studies have been limited to case reports and small case series with limited follow-up. Further determination of whether RFA alone and/or in combination with other therapies improves local tumor control with long term follow up is necessary.

Aim: The purpose of this study is to examine the efficacy of RFA for local spinal tumor control and for decreasing tumor burden through evaluation of clinical and radiological outcomes.

Methods: This retrospective study reviews outcomes in patients who underwent RFA for spinal tumor treatment. There is no control population. All patients between the ages of 18-85 who underwent radiofrequency ablation for spinal tumors at a single institution between October 2013 – July 2020 were included in the study. Outcomes were measured/followed to the extent available in the EMR. Clinical outcomes included ambulatory status and survival rate while patient reported outcomes included pain

scores measured using numeric rating scale and quality of life as determined by pain interference with activities of daily living (ADLs). Radiological outcomes were measured using post-operative imaging to assess tumor bulk and change in size from pre-treatment.

Results: A total of 247 patients underwent RFA for a spinal tumor at our institution. Of this, 151 patients were lost to follow-up. Of the included 96 patients, 50 passed away during the 15-month follow-up time frame with an average survival rate of 5.67 months following RFA. Of the surviving patients over there was over 90% retention rate, during which time there was a significant improvement in pain, improved quality of life as determined by ability to carry out ADLs, and regained or maintenance ambulatory status of patients when compared to pre-operative status.

Discussion: Individuals who underwent RFA for spinal tumors saw improved clinical outcomes following intervention, without adverse outcomes such as new fractures as in the case of radiation therapy. This preliminary data has helped to better understand the potential benefits of RFA as an alternative treatment for cases of metastatic disease. Because of the inherent limitations of retrospective chart review studies, this study is limited to the data collected at time of intervention and follow-up visits which resulted in patients lost to follow-up or with incomplete data. Going forward, additional trials are needed to compare techniques utilizing RFA versus no RFA in the treatment of spinal tumors.