



## ANALYSIS OF TREATMENT OUTCOMES WITH LINAC BASED STEREOTACTIC RADIOSURGERY IN INTRACRANIAL ARTERIOVENOUS MALFORMATIONS

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### ABSTRACT

#### INTRODUCTION

Arteriovenous malformations (AVMs) are networks of coiled feeding arteries and draining veins that are not properly connected by capillaries. Radiosurgical treatment of arteriovenous malformations has slow and progressive vaso-occlusive effects. Stereotactic Radiosurgery (SRS) treatment applies controlled radiation dosage to the volume of the brain occupied by the AVM. While this treatment does not require an incision and craniotomy (with their own inherent risks), three or more years may pass before the complete effects are known, during which time patients are at risk of bleeding.

#### MATERIALS AND METHODS

30 patients, 24 male and 6 female with a mean age of 33 years, who underwent LINAC-based SRS for brain AVMs from the year 2003 to 2013 in the Radiation Oncology department at Gujarat Cancer & Research Institute, were retrospectively analyzed for clinical and radiological response. A highly conformal radiotherapy treatment was delivered to a precisely delineated target volume using stereotactic localization techniques. These patients were evaluated for changes in clinical and radiological findings post-treatment.

#### RESULTS

33% of the patients had pre-treatment hemorrhage. Median AVM nidus volume was 2.29 cm<sup>3</sup> (1cm - 4.6cm) and was treated with a mean dose of 15.6Gy at an average of 95% isodose line. Out of 30 patients, 4 patients were either lost to follow-up or no post-operative scans were available. Amongst the 26 patients who were available for follow up at 3 years, 88.5 % patients had complete symptomatic relief. At the mean follow-up of 31 months, 84.6% patients had a complete resolution of their AVM, and 15.4% patients had a partial closure.

#### CONCLUSION

Frame based SRS is an effective modality of treatment for intracranial AVMs which helps to achieve considerable symptom free and overall survival.

**KEYWORDS:** Arteriovenous Malformation, Nidus, LINAC-based Stereotactic radiosurgery, Response.