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STEREOTACTIC RADIOSURGERY FOR VEIN OF GALEN ARTERIOVENOUS MALFORMATION: OUTCOMES FROM A SINGLE-CENTER STUDYSTEREOTACTIC RADIOSURGERY FOR VEIN OF GALEN ARTERIOVENOUS MALFORMATION: OUTCOMES FROM A SINGLE-CENTER STUDY

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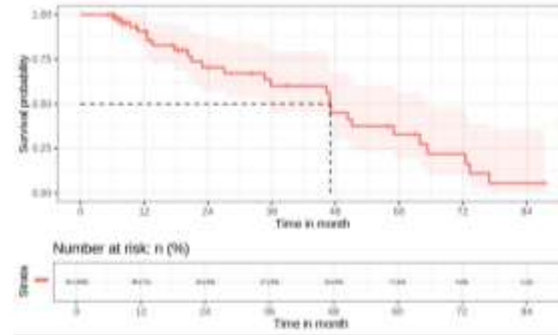
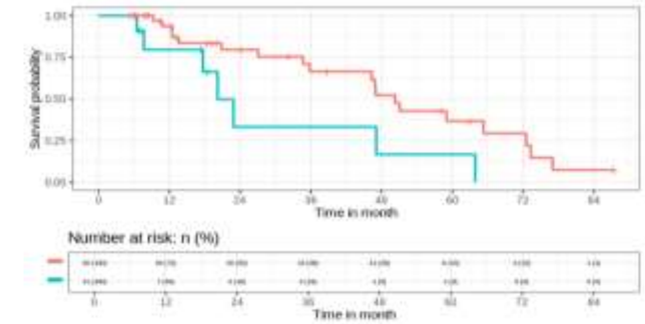
Introduction: Vein of Galen arteriovenous malformation (VGAM) is a rare congenital vascular anomaly. This study evaluates the efficacy and safety of stereotactic radiosurgery (SRS) for VGAM.

Materials & Methods: A retrospective analysis was performed on **69 patients** with VGAM treated with SRS. The median target volume was **2.03 cm³**. Radiosurgery modalities included Gamma Knife (8.7%), CyberKnife (79.7%), and TrueBeam STx (11.6%). The median prescription dose was **20.19 Gy**. Prior endovascular embolization was performed in 76.8% of cases.

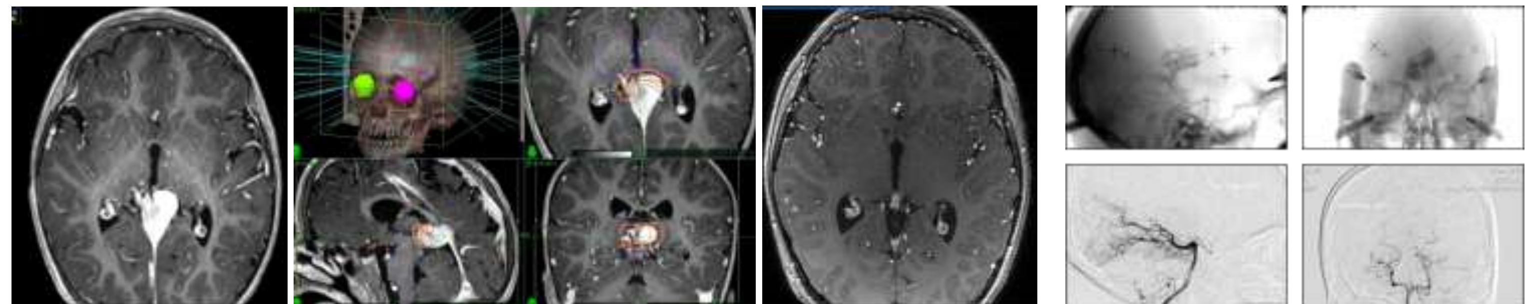
Objective: The median follow-up was **36 months**. Complete obliteration was achieved in **50% of patients**, while 39.1% showed a reduction in malformation size. The median obliteration-free survival was **47 months**. The obliteration-free survival probability at 87.4 months was **0.054**. Post-SRS hemorrhage occurred in **1.6% of patients**. No radiation-induced edema, necrosis, or adverse reactions were reported. No significant correlation was found between obliteration and gender, target volume, prior hemorrhage, dosimetric parameters, or the SRS device used.



Probability of survival without obliteration



Probability of survival without obliteration with prior endovascular glue-embolization (red line) and without it (green line)



Conclusion:

SRS is a safe and effective treatment for VGAM, demonstrating a high obliteration rate with minimal complications. Prior embolization does not negatively impact outcomes. SRS can be considered as a definitive or adjuvant treatment, particularly in pediatric and young adult populations.