E-Poster

EP-836

Delayed Ischemic Stroke as a Rare but Severe Complication After Gamma-Knife Radiosurgery for Arteriovenous Malformation: A Case Report and Literature Review

Topic: Complications/Sequelae (ie Spasticity, Immobilization and Frailty)

Mónica Jorge[1], Inês Ribeiro Sanches[2], Sofia Castro Flores[3], Sofia Delgado[2], Luís Rito Cruz[4], Catarina Matos[3], André Rêgo[2]

[1]*Adults Rehabilitation Department 3, Centro de Medicina de Reabilitação de Alcoitão, Lisbon, Portugal*
[2]*Neurology, Hospital Fernando Fonseca, Unidade Local de Saúde Amadora Sintra, Lisbon, Portugal*
[3]*Physical Medicine and Rehabilitation, Hospital Fernando Fonseca, Unidade Local de Saúde Amadora Sintra, Lisbon, Portugal*
[4]*Neuroradiology, Hospital Fernando Fonseca, Unidade Local de Saúde Amadora Sintra, Lisbon, Portugal*

BACKGROUND

Gamma-knife radio-surgery (GKRS) is a widely accepted treatment for deeply located cerebral arteriovenous malformations (AVMs), with a high success rate. However, radiation-induced vasculopathy can occur as a side effect. To the best of our knowledge, only two cases have been reported in the literature regarding delayed ischemic injuries in small artery following GKRS. Although delayed-onset of cerebral infarction after GKRS is uncommon, it can be a devastating complication.

CASE DESCRIPTION

A 48-year-old male presented to the emergency room with acute-onset left-sided numbness, lower lip paresthesia, impaired coordination of left extremities, and gait instability. His medical history included a right pulvinar AVM treated with GKRS eight years prior, following an episode of acute headache and left-sided body numbness. At that time, imaging had revealed a hemorrhagic stroke in the retrolenticular portion of the internal capsule and pulvinar thalamus regions. As a sequela, he developed residual homonymous left inferior quadrantanopia. On the present episode, neurological examination was significant for a left-sided sensory ataxia and hemisensory loss. A brain computed tomography (CT) showed a hypodensity and volumetric reduction of the right thalamus, accompanied by a subtle posterior-inferior linear hyperdensity. Given the uncertainty regarding an acute hemorrhagic event, thrombolytic therapy and aspirin were withheld. The patient was admitted in the Neurology Department for further evaluation. Subsequent magnetic resonance imaging (MRI) confirmed a lesion in the posterior right thalamus, suggesting radial necrosis and late perilesional ischemia. Cerebral angiography ruled out residual or recurrent AVM. Based on these findings, we concluded that most probable etiology of this ischemic lesion was a delayed adverse effect of the GKRS performed eight years earlier. The patient was subsequently enrolled in a rehabilitation program due to a significant functional impairment of the left upper limb, due to a severe sensorial ataxia, and an important gait instability. Therapy focused on sensory re-education, global and fine motor exercises, postural stability, and gait training. Gradual improvements in motor function were achieved. Additionally, neuropathic pain in the left upper limb required optimization, for which pregabalin was titrated. He was later referred to an inpatient rehabilitation center to continue a comprehensive rehabilitation program.

CONCLUSION

This case highlights the possibility of delayed cerebral infarction after GKRS for AVMs, even years later. Long-term follow-up is essential for early complications detection. Rehabilitation plays a key role in functional recovery. Further research on delayed radiation-induced vasculopathy is crucial to enhance prevention, optimize re-evaluation timelines, and improve treatment strategies.

Statement of Disclosures

None

Doi: 10.5606/archisprm.2026.EP-836

Corresponding Author:
Mónica Jorge
Adults Rehabilitation Department 3, Centro de Medicina de Reabilitação de Alcoitão, Lisbon, Portugal
Email: monica.c.jorge@scml.pt