CRANIAL IRRADIATION LINKED TO CEREBRAL AMYLOID ANGIOPATHY

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Background: Cranial radiation can cause endothelial damage, which can lead to subsequent disruption of the blood-brain barrier and other late vascular effects, such as telangiectasia, microvascular dilatation, and thickening and hyalinization of the vessel wall. This results in ischaemic stroke or brain haemorrhage including microbleeds and these effects may occur months to years after brain radiation(1).

Methods: 67 year old male presented to GP in 2003 with tiredness, headache and persistent coldness in both arms and feet. CT brain showed numerous hyperdense foci in both cerebral and cerebellar hemispheres. Subsequent PET CT did not show any primary neoplastic lesion. Neurosurgical team felt that biopsy could not be possible. He was treated empirically as metastatic disease with unknown primary. Palliative radiotherapy was given to the patient.

He was admitted to our hospital in May 2017 with worsening memory loss and unsteadiness of gait. Physical examination was normal apart from unsteady gait. Blood tests were normal and CT brain appearances in keeping with haemorrhagic metastasis or amyloid angiopathy. MRI confirmed the diagnosis of Cerebral Amyloid Angiopathy.

Patient continued to deteriorate in the ward with intermittent drowsiness and subsequent CT showed new haemorrhagic lesions. He was treated palliatively and died peacefully in the ward.

Results: Previous studies shown relationship between radiotherapy and development of micro bleeds(2). Study showed micro bleeds developing after few years of radiotherapy to treat CNS tumors(2).

In our case we fell that cranial radiation has worsened the patient’s pre-existing amyloid bleeds.

Conclusion: Brain radiation is a risk factor for worsening of amyloid angiopathy. Patients should be counselled for possibility of bleeding risk in future when offering cranial radiation.

References
1. Jorg dietrich, Vinai Gondi, Minesh Mehta: Delayed complications of cranial irradiation - UpToDate.