Ischaemic stroke of the anterior circulation 36 years after brain irradiation for a neoplasm of the third ventricle: a case report

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Case Report

Cerebral ischaemic events are a rare delayed complication after irradiation for head and neck tumors.
They ususally are due to stenosis of cervical arteries or of large-medium sized arteries that gradually develop in the years following treatment.

The longest time interval reported so far in a comprehensive literature review has been of 35 years.

A 47-yr-old male developed sudden onset of dysarthria and right-sided hemiparesis.
Cardiac (transesophageal echocolordoppler study, Holter ECG) and neck vessel studies were uneventful in showing factors predisposing to the stroke. The patient was a heavy smoker.

Brain MRI confirmed the presence of an acute ischeamic lesion involving the left internal capsule(Fig.1), together with widespread atrophy and bifrontal T2-hyperintense areas in the white matter.

Angio-MRI (Fig.2-3) disclosed multiple narrowings involving the anteriori circulation arteries intracranially, more striking on the left side (middle cerebral artery branches and carotid siphon); the data were confirmed by angio-CT (Fig.4).

At age 11 the patient had developed acute intracranial hypertension with detection of biventricular hydrocephalus due to a CT-hyperdense neoplasm of the 3° ventricle, managed with emergency CSF ventriculo-atrial shunt and displaying homogeneous contrast enhancement. CSF search for malignant cells was negative and the patient was therefore treated with radiotherapy (WBRT, total dose 60 Gy)

Fig.1

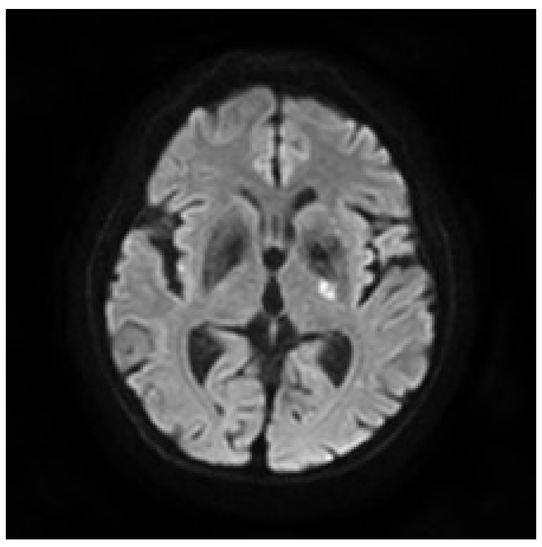


Fig.2

Fig.3

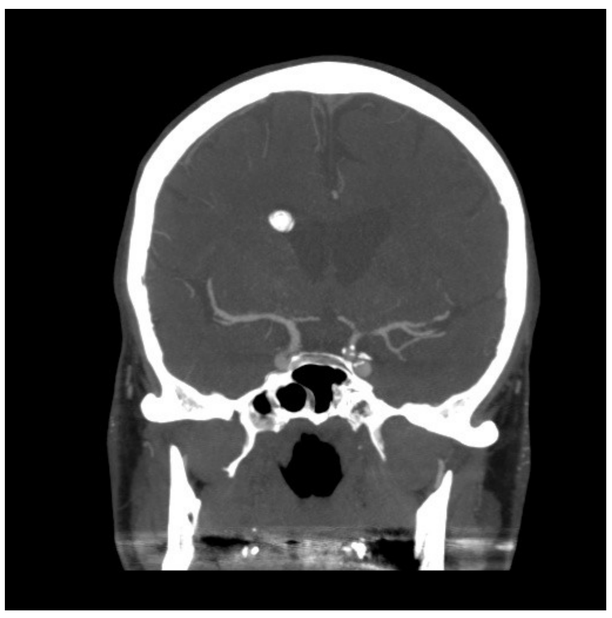
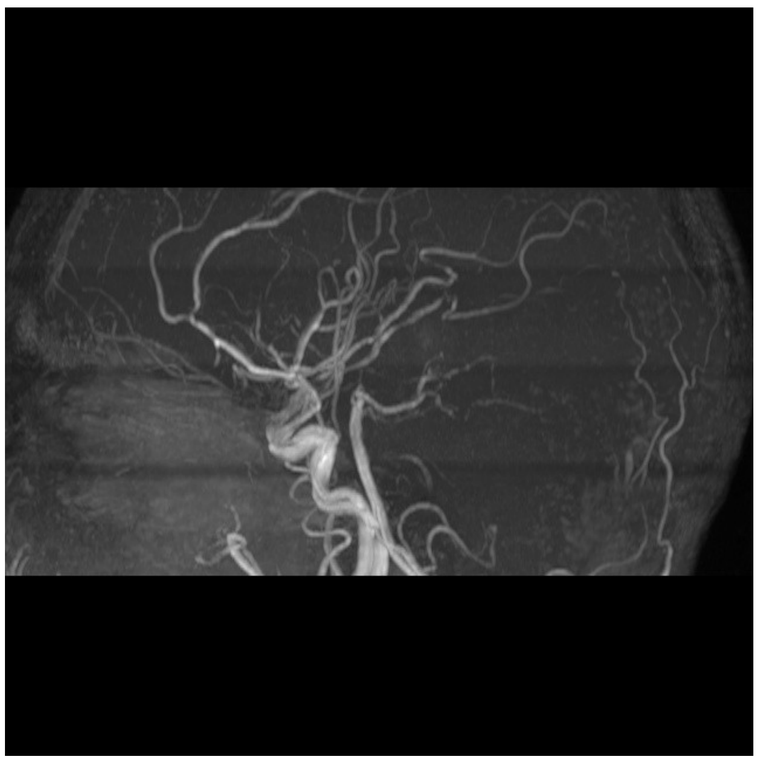


Fig.4



Conclusions

No high level of evidence is available concerning primary or secondary prevention of ischaemic stroke following head/neck tumors treatment with radiotherapy
Our case is one of those with the longest time interval between radiation treatment and ischaemic stroke development.

In patients undergoing WBRT in their pediatric age, aggressive management of risk factors for cerebrovascular disease should be considered.
Our patient smoked 30 cigarettes/day but medical advice to stop or reduce the habit had been unsuccessful/insufficient.

The mechanisms underlying post-radiation vasculopathy range from development of a Moya-moya like vascular abnormality to focal/multifocal narrowings of the vessels due to early atherosclerosis.

References

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