CASE REPORT

An unusual case of basilar artery aneurysm presenting with spastic quadriparesis

Chandramohan Sharma, Banshi Lal Kumawat, Deepika Sagar, Maulik Panchal

Department of Neurology, Sawai Man Singh Medical College and Hospital, Jaipur, Rajasthan, India

Correspondence to

Dr Banshi Lal Kumawat,
kumawatbl04@gmail.com

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SUMMARY

Unruptured aneurysm usually presents with headache and neuro-ophthalmic features; when it ruptures, it presents with subarachnoid haemorrhage. Basilar artery aneurysm represents only 3–5% of cerebral aneurysms. Non-haemorrhagic symptoms and the signs of unruptured aneurysms are manifested as mass effect, thromboembolic phenomenon or epileptical attacks. Clinical presentation of unruptured aneurysm depends on structures which are involved. In our case, the patient had insidious onset headache and spastic quadriparesis with sixth cranial nerve palsy, which implicate involvement of corticospinal pathways at the level of pons.

BACKGROUND

Patients with basilar artery aneurysm usually present with stroke and oculomotor findings. In our case, the patient presented with spastic quadriparesis with bilateral sixth cranial nerve palsy. So, basilar artery aneurysm should be considered as a differential diagnosis in case of spastic quadriparesis presentation.

Figure 1 (A) MRI brain axial view T2-weighted image showing alternate bands of hyperintense and hypointense signal intensities in the prepontine cistern with mass effect on pons. (B) MRI brain axial view T1-weighted image showing heterogeneous hyperintense signals with mass effect. (C) CT angiography of brain vessels shows the top of the basilar artery aneurysm without any contrast leak.

Figure 2 Diagrammatic representation of involvement of bilateral corticospinal tract and sixth cranial nerve by aneurysm (the red area represents aneurysm) at the level of lower pons. .

CASE PRESENTATION

A 40-year-old male patient who is a smoker presented with 2-year history of headache on and off in nature, dull aching pain over the occipital region with gradually progressive weakness of all four limbs since 1 year. Weakness started simultaneously from both lower limbs followed by both upper limbs in the next 2–4 months. There also has been increase in the intensity of headache from last 4 months, waking him from sleep and is partially relieved by medicines. He also developed double vision for distant objects with images side by side for the last 3 months. There was no history of nausea, vomiting, loss of consciousness and bowel bladder involvement. Neurological examination revealed bilateral sixth cranial nerve palsy with normal fundus finding and asymmetric pure motor spastic quadriparesis (left >right, lower limb >upper limb). Power was 4/5 in both upper limbs, 3/5 in left lower limb and 4/5 in right lower limb according to Medical Research Council (MRC) grade. All other systemic examinations were normal.

INVESTIGATIONS

MRI of the brain shows a large well-circumscribed extra axial lesion in the prepontine cistern in the region at the top of the basilar artery, extending into the interpeduncular cistern measuring 32×25×19 mm, showing alternate bands of hyperintense and hypointense signal intensities on T2-weighted image (figure 1A) and heterogeneously

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hyperintense signals on T1-weighted (figure 1B) image associated with mass effect on pons and midbrain suggestive of partially thrombosed, unruptured giant basilar artery top aneurysm. CT angiography of brain vessels confirmed the diagnosis, and the patent lumen of aneurysm is measured as $17.5 \times 10 \times 7.5$ mm, without any contrast leak (figure 1C).

OUTCOME AND FOLLOW-UP

The patient was advised that he would probably need surgical intervention from neurosurgery department but patient attendants refused.

DISCUSSION

Basilar artery aneurysm comprises 5% of total cerebral aneurysms and observed in 1% of the population but are most common aneurysms in the posterior circulation.¹ Angiographically, it has been estimated to be 0.6%. Aneurysms are most commonly located in the proximal basilar trunk close to the junction of vertebral arteries.^{2 3} Aneurysms can be divided morphologically into three different types—saccular, fusiform and dissecting. The aetiology of aneurysms can be atherosclerotic (most common), traumatic, mycotic or vasculitic related.² In our case, basilar artery aneurysm was of saccular type and likely to be related to atherosclerotic aetiology. Patients commonly present with symptoms suggestive of stroke—subarachnoid haemorrhage. Large mid-basilar aneurysms may compress the midbrain and pons causing neuro-ophthalmological signs, including sixth cranial nerve palsies, horizontal gaze paresis, skew deviation, internuclear ophthalmoplegia, lid retraction and nystagmus typically in association with long tract brainstem signs such as hemiparesis or alterations in consciousness. A case of headache resembling trigeminal autonomic cephalgia has also been reported.⁴ In our case, we find a large tip of basilar artery aneurysm at bifurcation. In such a case, the patient commonly presents with oculomotor findings, but in our case the patient presented with spastic quadriparesis along with bilateral sixth

Learning points

- ▶ Basilar artery aneurysms usually present with stroke or oculomotor findings.
- ▶ A large aneurysm which is compressing the brainstem may present with spastic quadriparesis.
- ▶ Timely surgical intervention in such cases may improve the symptoms.

cranial nerve palsy, a rare finding which may be because of mass effect from tip of basilar artery aneurysm causing compression over pons and midbrain leading to quadriparesis. Figure 2 shows a diagrammatic cross section at the level of lower pons showing compression of bilateral corticospinal tracts and sixth cranial nerves by aneurysm. To the best of our knowledge, no such case has been reported in the literature regarding basilar artery aneurysm presenting with spastic quadriparesis.

Contributors Paper concept and writing were performed by CS and BLK. Case writing, literature search and manuscript editing were done by DS and MP.

Competing interests None declared.

Patient consent Obtained.

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