

Hyperextension of Neck: An Uncommon Presentation of Dissecting Aneurysm of the Intracranial Vertebral Artery

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Abstract: *Dissecting intracranial vertebral artery aneurysm is a rare entity in clinical practice. Involvement of posterior circulation at the level of the foramen magnum even rarer. Vertebral artery aneurysm is usually presented with headache, neck pain and vertigo with vomiting. Here we are describing a rare case with uncommon presentation.*

Keywords: Aneurysm, vertebral artery, hyperextension of neck, intracranial, dissecting

1. Introduction

Intracranial arteries are the most common site of aneurysm. Regarding their pathological appearance intracranial aneurysm classified into three categories; saccular (berry) aneurysm is the most common constitute 95% of cases followed by fusiform and dissecting aneurysms.^[1] Thus dissecting aneurysm is a rare in clinical practice, with rarely involve vertebral artery. 0.5 to 3% cases of Vertebral artery aneurysm have been reported of total intracranial aneurysms and 20% of posterior circulation aneurysms.^[2] Here we are reporting a case of vertebral artery aneurysm in adult male with uncommon presentation. However patient can be stay asymptomatic clinically.^[3]

2. Case History

A 16 year old male patient was admitted in department of medicine in SP medical college Bikaner with the chief complain of sudden onset of syncope and hyperextension of neck 3 days back. Initial presentation of the patient was hyperextension of neck, after admission patient experienced sudden onset of severe headache and neck pain. Pain was severe and localized at the upper cervical and sub occipital region. Pain was associated with vertigo and vomiting. Patient experienced sudden onset of vertigo followed by vomiting during movement of neck. No history of alter sensorial was present. No focal neurological sign and symptoms were present. Neurological examination was normal. Physical examination revealed hyper extended stiff neck. Pain and vertigo was increased during movement of neck. No sign of meningeal irritation was present. Patient was conscious cooperative and well oriented with time place and person. Higher mental function was normal.

There was no previous history of similar episodes, hypertension, or other significant illness. There was no family history of same illness. There was no history of seizure, nystagmus and other cerebellar sign. Patient was unable to stand because of vertigo. There were no cranial or neck bruits. Blood pressure was 130/80 mm of Hg, pulse 78 per minute regular and heart sounds were normal. Respiratory rate was 16 per minute regular abdomino thoracic. Patient was maintained saturation at room air and temperature was 98.8 degree fahrenheit by axilla. Chest was clear on auscultation. Digital X-ray of cervical spine was normal. Routine blood investigations were normal in range

including blood urea, sugar, serum creatinine, electrolytes and blood cell line. Serology of hepatitis B, C and syphilis were negative. Anti nuclear antibody was negative.

Computed tomography with or without contrast was normal. On the basis of pain in the back of neck and head vertebral artery and SAH was suspected. Lumbar puncture was done which was hemorrhagic. Then CT angiography of brain was performed. There is well defined lobulated enhancing lesion of size approximately 15x11x9 mm showing attenuation similar to arterial contrast noted abutting left vertebral artery at the level of foramen magnum suggestive of aneurysm.(figure 1) Bilateral carotid was normal. No anomaly was detected in other branches of the vertebro-basilar system. Imaging of brain shows intra-ventricular dissection of hemorrhage.(figure 2)

3. Discussion

Intracranial arteries are the most common site of aneurysm in the population approximately 1-8%.^[1] Dissection of vertebral artery usually associated with cerebral infarction or subarachnoid hemorrhage.^[4,5] Typically vertebral artery dissection presented with pain in the back of neck and head. In our patient pain and stiffness of neck and headache with hyper-extension of neck may be due to subarachnoid hemorrhage. Intracranial vertebral artery dissection can occur from the entry of the vertebral artery through the Dura mater at the level of foramen magnum to join the basilar artery. In some patients intracranial vertebral artery dissection may extend to sub-adventitia may lead to rupture of vessels in to subarachnoid space and SAH. Because of risk of re-bleeding of intracranial vertebral artery dissection, have poor prognosis. In our case intra-ventricular and SAH is the cause of hyperextension and pain in the neck and head. Intracranial aneurysm is commonly occur at bifurcation apex of the vessels because maximum hemodynamic stress is present here make it favorable site for aneurysm. The pressure here is 2 to 3 time more than proximal main artery lumen.^[6] according to classification of intracranial aneurysm saccular aneurysm(95% of cases) far more common than fusiform and dissecting. Vertebral artery dissections are classified in two categories: extra-cranial and intracranial vertebral artery dissection. Extra-cranial vertebral artery dissection more common than intracranial and generally have a good prognosis.^[7,8] The location of aneurysm is far more common in anterior circulation(85-90%) than posterior

(10-15%) in brain. In posterior circulation bifurcation basilar artery and the origin of the posterior inferior cerebellar artery (PICA) are commonly involved.^[1] Asymmetry of the intracranial parts of the vertebral artery play an important role in the etiology of the vertebra-basilar insufficiency.^[9,10] It is known that left VA is usually larger than the right one.^[9,10] in present case left vertebral artery is involved, it may be due to hypoplasia of left vertebral artery. Magnetic resonance imaging and MRA are currently preferred non-invasive tools for establishing the diagnosis of vertebral artery dissection, but conventional angiographic techniques remain the gold standard.

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Figure 1: CT angiography of brain showing aneurysm of left vertebral artery

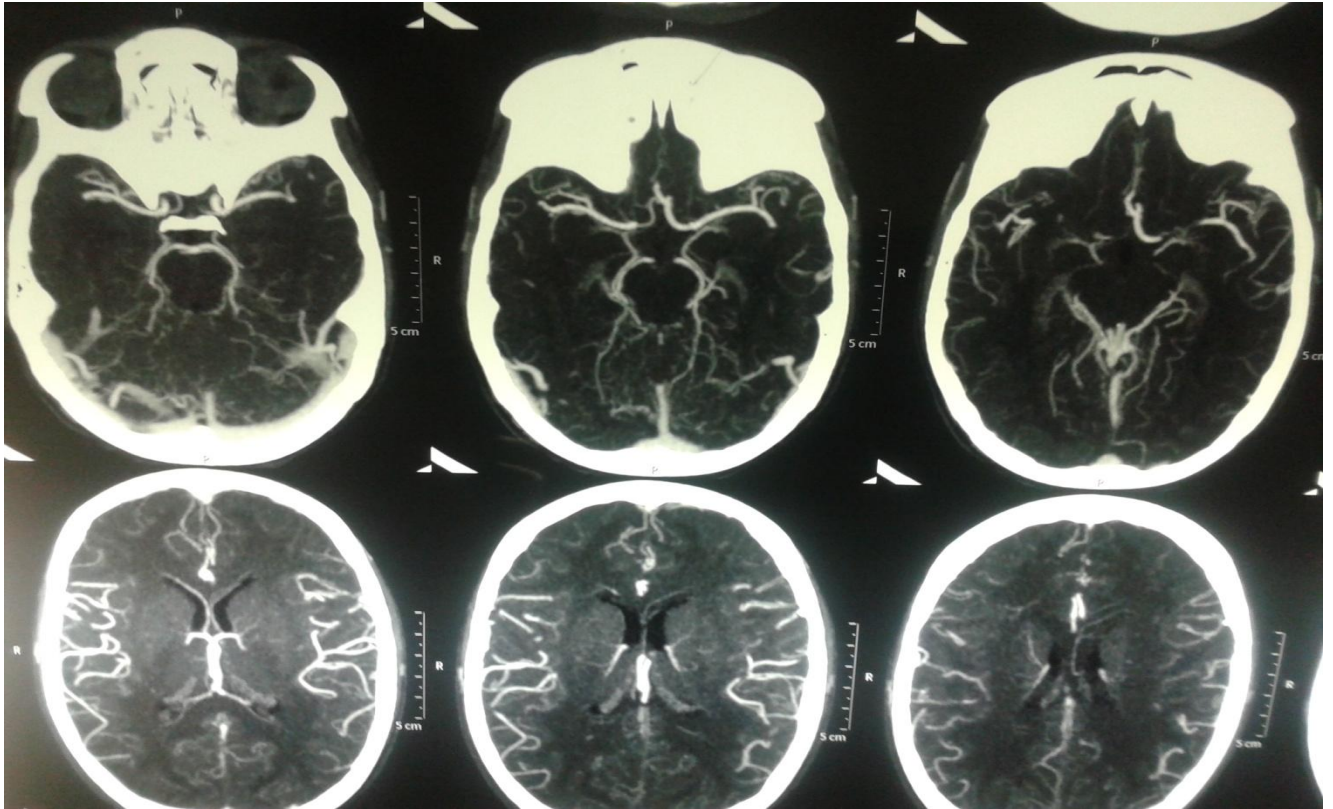


Figure 2: MRI brain showing intraventricular dissection of hemorrhage