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Case report

Carotid artery dissection following adenoidectomy

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ABSTRACT

Carotid dissection and cerebral infarction are extremely rare complications of adenoidectomy. We describe the case of seven year old girl, who suffered from left internal carotid artery dissection following adenoidectomy, leading to right hemiplegia with global aphasia. A CT angiogram confirmed a loop in contralateral right internal carotid artery. It is presumed that a similar loop also existed in left internal carotid artery, which possibly extended medially close to posterior pharyngeal wall and was injured during the course of surgery.

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What is known

The internal carotid artery may bulge medially in coronary plane directly behind the posterior pharyngeal wall where it can be injured during the process of adenoidectomy.

What is new

We have demonstrated the loop in contralateral right internal carotid artery. Since such abnormalities are usually bilateral, it is presumed that adenoidectomy on the left side possibly injured the extended loop and caused dissection of ipsilateral internal carotid artery.

1. Case report

A previously healthy 7 year old girl, with normal developmental milestones, developed right hemiplegia with global aphasia following adenoidectomy at a local hospital. As per referring surgeon, she was taken for adenoidectomy for persistent bilateral otitis media with effusion not responding to medical therapy and adenoid hypertrophy causing nasal obstruction. Her surgical note stated that while removing tissue torus tubarius, sudden bleeding

started. Gauze packs put into the cavity failed to control the bleeding. The surgeon initially tried to clip the vascular pedicle but could not get a secure hold on the vessel. He then used a vessel sealing system (ERBE vessel sealing system—BICLAMP) to seal the vessel. This system uses bipolar current to seal vessels and generates heat with a limited lateral thermal spread. There was no further bleeding after that. When she was recovering from the effect of anaesthesia, weakness of right half of the face was noted. This was associated with a persistent left lateral gaze deviation and inability to follow verbal commands. MRI of brain (Fig. 1) confirmed water shed infarcts in left internal carotid artery (ICA) territory. Next day patient was referred to us for further management. At the time of admission, patient was conscious, globally aphasic with right facial paresis, 0/5 power on right side and left horner's syndrome. CT angiogram (CTA) revealed complete occlusion of left ICA one centimetre beyond the origin which was flame shaped in contour (Fig. 2). The right ICA had a loop extending medially close to posterior pharyngeal wall (Fig. 3a and b). All other extra and intra cranial vessels were normal, which ruled out possibility of vasculitis or fibromuscular dysplasia. The history of adenoidectomy with profuse bleeding during the procedure, a loop in contralateral ICA (which is usually seen bilaterally) and flame shaped contour of occluded vessel suggested the possibility of injury to ICA leading to carotid artery dissection (CAD). However, another possibility of formation of major thrombus occluding ICA could not be ruled out. Rest of the investigations including prothrombotic workup and connective tissue serology were within normal limits. Patient was started on antiplatelet (aspirin) and physiotherapy. With intense physiotherapy and speech therapy, she has made

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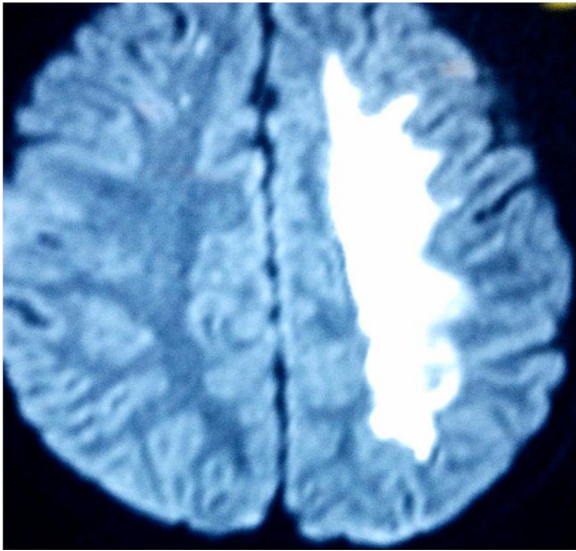


Fig. 1. MRI showing left ICA watershed infarct.

almost complete recovery by the end of three months. The only residual deficit is the left sided horner's syndrome.

Our Institutional Ethics Committee has given approval for publication of this case and proper consent has been taken from the patient's father.

2. Discussion

Carotid artery dissection (CAD) is responsible for about 2% of stroke cases in general population but its incidence is significantly higher in younger patients [1]. The disorder can be spontaneous or traumatic in nature and can affect intracranial or extracranial carotid artery. Traumatic CADs can occur as a result of major penetrating or non-penetrating traumas [2]. Spontaneous CADs are mostly intracranial in location, while traumatic ones are more commonly extracranial [3]. Accidental trauma to internal carotid artery following adenoidectomy, causing dissection and infarction is a rare but potentially serious complication. Very few cases of CAD following tonsillectomy and adenoidectomy have been described in literature [4,5]. As per one meta-analysis, patients of younger age (<12 years) appear to be more prone to such injuries [6]. Sudden-onset Horner's syndrome, particularly if associated with headache or neck pain or with an ipsilateral ischemic stroke in the carotid territory, can be considered to be specific to carotid-artery dissection and should lead to urgent investigation of the cervical arteries [7]. Carotid artery injury can take the form of pseudoaneurysm formation, dissection, thrombosis and occlusion of the vessel. All these can result in serious neurological sequelae due to ischemia. Pathologically, CAD is associated with a haematoma in the wall of the carotid artery, secondary either to an intimal tear or to direct bleeding within the arterial wall caused by ruptured vasa vasorum. The intramural haematoma can expand towards the intima or the adventitia, resulting in stenosis or aneurysmal dilation of the artery producing

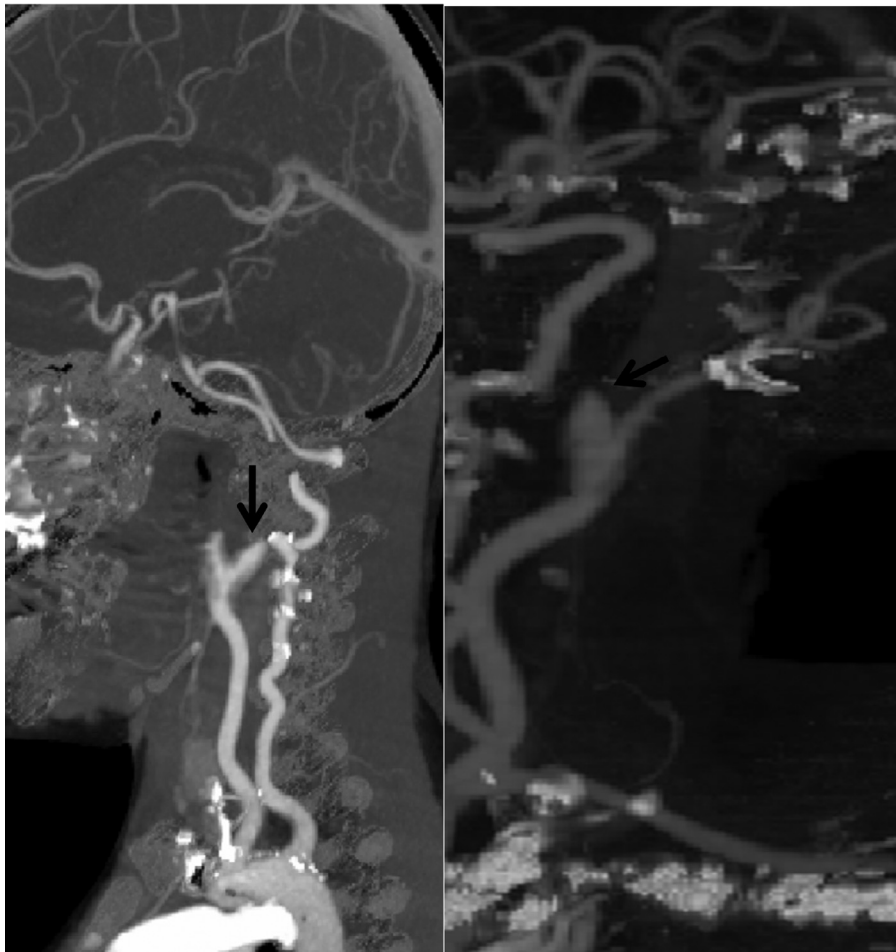


Fig. 2. (A and B) CT angiography reconstructed images demonstrating the "Flame shaped" occlusion of the left internal carotid artery 1 cm distal to its origin suggestive of dissection (arrows).

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