Stroke After Tonsillectomy in a Young Girl

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ABSTRACT

Tonsillectomy is a safe popular surgical procedure with low incidence of mortality and morbidity. We report a very rare cause of stroke in a young girl after a complicated tonsillectomy. Non-specific infective arteritis followed by bilateral internal carotid cartery thrombotic occlusion was assumed responsible for this case.

Stroke in young people account for approximately 4% of strokes in Western countries[1,2] and probably more in developing countries. [3,4] There are several causes of stroke in young adults like cardiac embolism, atherosclerotic cerebrovascular disease, non-atherosclerotic cerebral vasculopathies and haematologic disorders[5]. We describe here a dramatic case of stroke in a teenage girl after neck infection and subsequent bilateral internal carotid artery thrombosis. The diagnostic work-up and possible mechanisms of pathogenesis are described. Up to our knowledge this case appears to be unique.

THE CASE

A 17 year old girl was referred from Yemen as a case of right sided hemiparesis and bradycardia. She was well until four months ago when she underwent difficult tonsillectomy in Yemen. This was complicated by secondary haemorrhage which necessitated another operation to control the bleeding. On the fifth post-operative day she developed right sided weakness which progressed to complete inability to move right side of her body. Due to lack of diagnostic facilities in Yemen, she was referred to Jeddah for further management. On admission to our hospital she was conscious, oriented and pulse rate was 42 per minute. The rest of physical examination was almost normal except for the neurological examination which showed the picture of right sided hemiparesis and hypoesthesia. On the right side muscle power was 3/5 of upper and lower limb. Muscle tone and reflexes were exaggerated. The left side examination was normal. Cranial nerve examination showed upper motor neurone facial palsy. The vascular examination was normal and no carotid bruits were elicited.

Full blood count, chemistry and chest x-ray were normal. ESR was 100 mm at first hour. Creative protein was positive. Test for sickling, VDRL, antinuclear factor and double stranded DNA were negative. Echocardiography was almost normal. Computed tomographic (CT) Scan of brain documented the presence of old infarction at the left basal ganglia and left deep temporoparietal region. The electro encephalography EEG was consistent with an epileptic focus starting from both temporal areas but becoming generalised later on.

Few days later, she developed convulsions affecting right side and became quadriplegic and unconscious. She was started on Valium to abort these attacks and subsequently on Tegretol and Epanutin. The CT scan was repeated and it showed a recent infarct at the distribution of left middle cerebral artery and generalised brain oedema (Fig 1). Aortic arch arteriography to rule out any arch disease was requested. It showed bilateral internal carotid artery occlusion half centimetre above its

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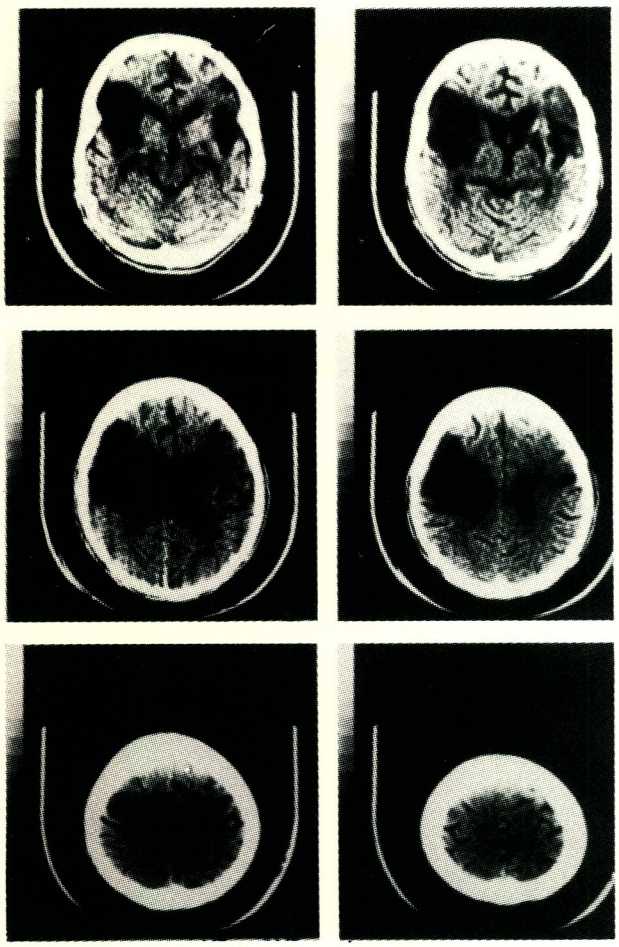

Figure 1. CT Scan of brain showing bilateral cerebral infarction.

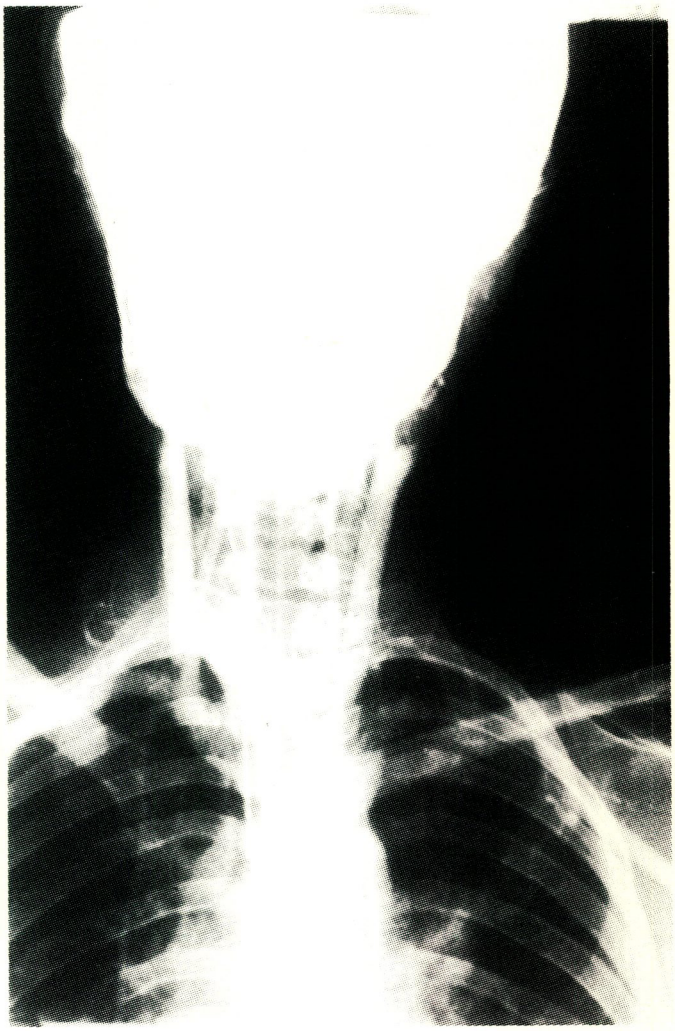

Figure 2. Arch arteriogram showing bilateral internal carotid artery occlusion.

origin. The rest of arch and neck arteries were looking normal (Fig 2). The fact that her problem started following tonsillectomy directed our mind towards iatrogenic injury to the internal carotid possibly ligature. The otolaryngologist was consulted and the examination of the oropharynx was essentially normal. We decided to explore the left carotid artery as a diagnostic procedure. This was carried out through standard vertical neck incision which revealed normal common and external carotid arteries. However, the internal carotid was pulseless half centimeter above its origin and there was no evidence of ligature. Arteriotomy documented the presence of a fixed organised thrombous starting half centimetre above carotid bifurcation and extending up to the skull. Attempt of thrombectomy failed and biopsies were taken from artery and adjacent lymph nodes. The histopathological examination report confirmed the presence of non-specific infective arteritis with organised thrombous, and chronic non-specific lymphadenitis of cervical lymph nodes. The patient was on steroid which was tapered and subsequently stopped. On discharge, she was quadriplegic and on prophylactic anticonvulsant. Follow-up was not possible as she was taken back home for further nursing care.

DISCUSSION

Stroke is mainly a disease of elderly people. However, when it occurs in young people it represents a tragedy and considered a diagnostic challenge since the list of causes is extensive. In the East the risk factors are different from those in the West. Obeid[4] reported more than 80% of cerebral infarction in young and found rheumatic valvular lesions as the main aetiological factor in Saudi females. A proper work-up can usually ascertain the cause in

most of the cases. This includes a neurologic and cardiovascular history and physical examination followed by haematologic testing, chest roentgenography, electrocardiography, echocardiography and cranial computed tomography. In case of cerebral infarction early cerebral angiography is often very helpful in diagnosis and further management with no risk. In our case it provided us with the useful information of bilateral internal carotid artery occlusion and the possible link between this and the recent surgery.

Tonsillectomy is relatively a safe procedure with a very low mortality and morbidity rates. Haemorrhage is the most common complication associated with this surgery and it comes commonly from the ascending pharyngeal, lingual, facial and internal maxillary branches of the external carotid artery. Direct injury to the internal carotid artery is less likely and it mainly occurs if this artery is congenitally tortous. There is a 1% incidence of congenital congenitally tortous, which places it in closed proximity of the superior pharyngeal constrictor instead of its usual location 2 to 3 cm lateral to it.[7]. Carotid laceration and subsequent haemorrhage,[8] arteriovenous fistula[9] and false aneurysm[10] were reported as rare complications of tonsillectomy and adenoidectomy. Internal carotid artery injuries may be avoided if careful palpation of the pharyngeal wall is carried out prior to surgery to exclude the presence of anomalous internal carotid artery.[7]. In our case the otolaryngological examination was normal. However, her problem is strongly related to the recent complicated redo surgery and the stormy postoperative course. The local nature of the problem was documented by the arteriogram which showed complete bilateral internal carotid occlusion. It would seem reasonable to assume that both internal carotids were ligated to control the profuse bleeding and save her life or alternatively she had intraluminal thrombosis. The exploration has excluded the former possibility. The histopathological examination documented the infective aetiology of the problem. Cervical osteomyelitis was reported after tonsillectomy by Tami et al secondary to deep neck infection. [11]. It seems possibly that the same mechanism of pathogenesis has happened in our patient which ended with infective arteritis and subsequent thrombosis.

CONCLUSION

We report a case of non-specific arteritis with organised thrombosis of the internal carotid following post tonsillectomy secondary haemorrhage.

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