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Common carotid artery dissection: A rare cause for cervical pain

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Abstract
Spontaneous dissections of extracranial carotid arteries occur most frequently in the internal carotid artery. In contrast, common carotid artery dissection (CCA) is a rare cause of cerebral ischaemia with only a few cases having been reported. We present the case of a 59-year-old male patient who was referred to our clinic with left cervical pain. The patient was otherwise asymptomatic. Magnetic resonance imaging (MRI) showed enhancement and double lumen in the left CCA without affecting the carotid bulb, internal carotid artery or aortic arch. We discuss the diagnostic and therapeutic management of the disease, focusing on its differentiation from other causes of cervical pain.

Key words: Carotid Artery, Common; Dissection; Neck Pain

Introduction

Spontaneous dissection of the extracranial carotid arteries is an uncommon but increasingly identified cause of cerebral ischaemia, especially in younger patients. It accounts for up to one fifth of ischaemic strokes in patients younger than 45 years. The internal carotid artery (ICA) is affected most commonly. The clinical features of ICA-dissection include cerebral ischaemia, cervical or cranial pain, Horner's syndrome and cranial nerve palsy.[1]

In contrast, isolated dissection of the common carotid artery (CCA) is rare. So far, only a few cases have been reported.[2,3] Among the reasons for dissection are trauma, fibromuscular dysplasia, Marfan's syndrome and other primary diseases of the arterial wall. However, in most cases the pathogenesis remains unknown.

In dissections of CCA, often the only clinical symptom is homolateral cervical pain, neurological symptoms are less frequent.[4] As the otorhinolaryngologist may be the first specialist to see these patients, it is, therefore, necessary to distinguish the rare CCA-dissections from other conditions presenting with cervical pain as a leading symptom.

Case report

A 59-year-old male patient was referred to our clinic complaining of left cervical pain referred to the left arm and eye. He had no history of previous infection, surgery or trauma. On examination, there was a painful area in projection of the margin of the left sternocleidomastoid muscle. He showed no signs of infection, haematoma, swelling or a wound. There were neither pathological findings on endoscopic examination of the oral cavity, pharynx and larynx, nor signs of cranial nerve palsy or cerebral ischaemia on neurological examination.

MRI, of the neck combined with angiography revealed a mural haematoma and double lumen in the left common carotid artery without affecting the carotid arch, the carotid bulb or internal carotid artery (Figure 1(a), (b)). No significant reduction or occlusion of the arterial lumen was observed by angiography. The diagnosis of dissection of the common carotid artery was confirmed by ultrasonography using Doppler colour flow imaging and duplex sonography. It showed intimal dissection of the arterial wall with formation of a pseudoaneurysm without severe blood flow alterations (Figure 2(a), (b)). The carotid bulb and internal carotid artery were not affected probably due to the lack of further vascular risk factors in our middle-aged, otherwise healthy patient. The patient remained hospitalized (and continued without further symptoms) and was constantly controlled by ultrasonography. Due to the asymptomatic course of the disease and the lack of risk factors and neurological symptoms, no special treatment, including heparin, was necessary, and he was discharged with significant reduction of the mural haematoma on low dose aspirin medication (50 mg/day) only.

Discussion

Most spontaneous carotid artery dissections involve the internal carotid artery or are due to the extension of a dissection into the aortic arch. As mentioned above, isolated dissections of CCA are hardly observed and in this patient may have remained localized due to the lack of any other vascular risk factors such as arteriosclerosis or media degeneration. Due to the relatively asymptomatic course, the diagnosis could be missed easily.[4] It is, therefore, necessary to know about the clinical symptoms and findings to distinguish it from other diseases that manifest themselves in the head-and-neck region. In most cases, these can be ruled out easily by history and clinical findings (duration of symptoms, signs of inflammation, tumour, etc.). Also, there are others that lack typical findings and are often dismissed as pure functional disease. Among these are irritations of neuronal structures such as neuralgia of the superior laryngeal nerve, carotidynia, Eagle's syndrome, cervical spine problems, etc. (Table I).

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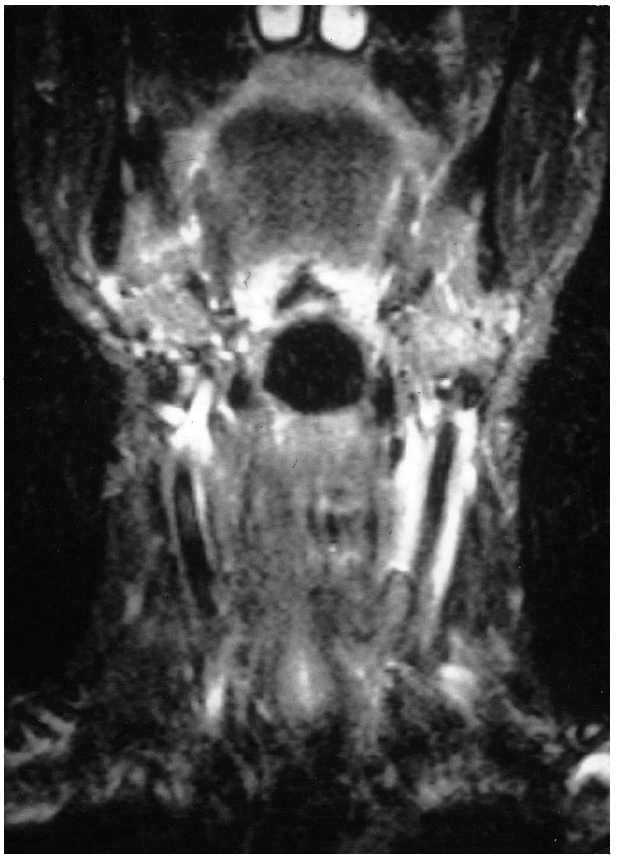
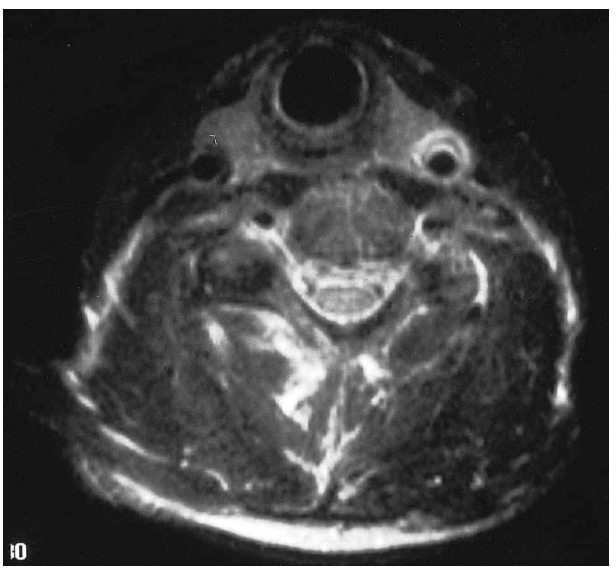


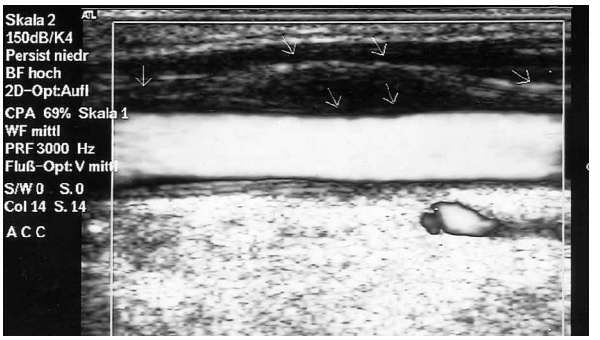
(a)



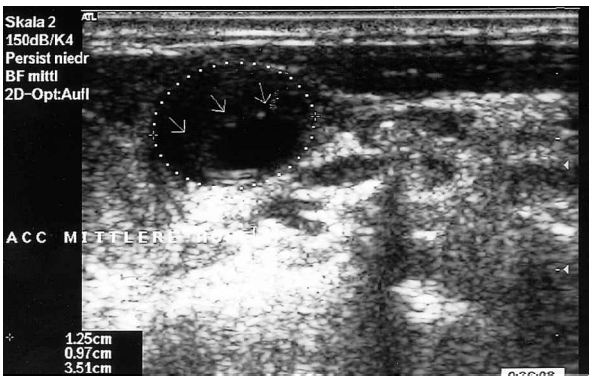
(b)

FIG. 1(a)(b)

MRI of neck: Double lumen and mural haematoma of the left CCA without occlusion in (a) longitudinal and (b) cross-sectional planes.



(a)



(b)

FIG. 2(a),(b)

Duplex-sonography: intimal dissection and mural haematoma (→) of CCA without severe blood flow alterations (remaining lumen approximately 80 per cent), in (a) longitudinal and (b) cross-sectional planes.

These diseases mainly are relatively harmless (but may be very distressing for the patient). In contrast, dissection of CCA is, if unrecognized, potentially dangerous and may lead to cerebral ischaemia through microembolism. Therefore, it should be ruled out by sensitive and specific diagnostic measures.

The favourable natural history of the disease emphasizes the need for a non-invasive approach to the detection, monitoring and follow-up. Among the diagnostic tools are ultrasonography, which enables the physician to identify the double lumen, changes of blood flow or occlusion of the vessel through thrombi, and is especially helpful for follow-up examinations to control extension of residual stenosis or formation of aneurysms. Secondly, imaging MRI can identify and document cerebral infarction.[2,4,5] Treatment measures depend upon clinical findings and history and are, due to the relatively few numbers of common carotid artery dissections described in the literature, not standardized. Initially, heparin is usually given[1] and systemic anticoagulation for at least three months is considered the treatment of choice, although recommendations vary. Our patient showed no signs of formation of thrombus or cerebral ischaemia, and ultrasonographic findings during controls revealed no progress of the dissection nor relevant stenosis. Therefore, no systemic anticoagulation apart from low dose salicylic acid was recommended.

Surgery is necessary in selected patients only and is still controversial.[6] Follow-up is essential and should consist of frequent ultrasonographic examination including duplex and Doppler colour flow imaging.[2]

Conclusion

Due to their asymptomatic course, dissection of CCA is a challenging diagnosis. When presenting with cervical pain only, the otolaryngologist may be the first one to see these patients. It is, therefore, necessary to be aware of the disease and to be able to distinguish it from other conditions affecting the neck, especially when other clinical findings are missing. Doppler- and duplex sonography as well as MRI scan are the main diagnostic tools.

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TABLE I
SELECTION OF RARE DISEASES PRESENTING WITH CERVICAL PAIN AS A LEADING SYMPTOM
('Typical' ENT-diseases are not included, as the paper deals with less known and, with regard to diagnosis and treatment, problematic diseases)

Diagnosis	*Typical findings and diagnostic tools*
Neuralgia of superior laryngeal nerve[7,8]	unilateral paroxysms of pain, involving tongue, throat, ear, larynx *duration:* seconds, sharp character, but prolonged bouts of constant, dull pain may occur induced by swallowing or pressing on the greater cornu of the hyoid or thyrohyoid membrane sometimes accompanied by anatomical or cardiovascular responses (e.g. salivation, bradycardia)
Carotidynia[9]	throbbing pain, unilateral, along the course of the carotid artery, from the mandibular joint to the clavicle *duration:* minutes to hours female predominance
Eagle's syndrome[10] (elongation of styloid process or ossification of stylohyoid membrane	*long* history of dull, nagging pain aggravated by swallowing, hyperextension of the head, yawning etc. recurrent unspecific throat discomfort, vague facial pain, foreign body sensation; palpable styloid process in tonsillar fossa, reproduction of pain on palpation, X-ray
Costen's syndrome[11] (temporomandibular joint dysfunction)	Headache, burning sensation in throat, tongue, nose, non-pulsating, non-paroxysmal during movement of joint, mastication, yawning, tender on palpation, crepitations within the joint caused by ill-fitting dentures, impacted teeth, malocclusion, leading to pressure on the auriculotemporal branch of the mandibular nerve.
Cervical spine problems	Constant pain, diffuse, soreness, tightness of neck and shoulder muscles, X-ray may show bony changes in cervical spine
Giant cell arteritis (Horton's disease)[12]	Continuous, intense, pulsating pain referred to temple, neck, face, ear systemic symptoms such as elevated temperature, elevated erythrocyte sedimentation rate, temporal artery may be palpable, blindness in 50% but: all vessels in the head-and-neck region may be affected
scalenus ant. syndrome	Homolateral painful sensation in head and neck region symptoms may be provoked through turning head or elevating arm paraesthesia and/or paralysis in brachial plexus region

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