CASE REPORT

Do not forget the contralateral side: late onset bilateral carotid dissecting aneurysms

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Dr Murat Velioglu,
muratvelix@yahoo.com**SUMMARY**

Internal carotid artery dissection may occur spontaneously or following a blunt or penetrating trauma to the head and/or neck. Bilateral dissections and pseudoaneurysm formations are extremely rare and usually detected simultaneously. In this report, we present a trauma case with bilateral dissecting pseudoaneurysms of the carotid arteries; in whom, the one side was initially occult and then developed during the follow-up of the contralateral side.

BACKGROUND

Bilateral carotid artery dissecting pseudoaneurysms are rare following trauma. They usually occur and are detected at the same time. In the present case, there was a delayed and gradual onset of bilateral dissecting pseudoaneurysms. It is important to keep in mind that initially occult dissections may progress and are detected even in a very late term follow-up.

CASE PRESENTATION

A 53-year-old man was hospitalised for a head and neck injury incurred in a traffic accident. On admission, he was neurologically intact, but somnolent. CT revealed a small left frontal lobe contusion and no other cranial or cervical pathology. He was discharged after 6 days with no neurological deficit. Three months later, he was admitted to our hospital with sudden-onset right upper extremity weakness, which lasted 20 min. MRI showed no diffusion restriction and aneurysm formation on the left internal carotid artery (ICA). Digital subtraction angiography revealed a C-shaped loop in the distal cervical segment of the right ICA before

the petrous segment, which was considered a variation (figure 1A,B). There was no contour irregularity, pseudoaneurysm or luminal narrowing of the right ICA. The left ICA showed a pseudoaneurysm that began 2 cm from its origin and extended upward without significant luminal narrowing (figure 1C,D). Subsequently, the patient was put on antiplatelet therapy (300 mg acetylsalicylate daily). Follow-up CT angiography (CTA) performed 26 months after the accident showed that the left ICA findings persisted, and there was a new pseudoaneurysm on the distal cervical right ICA just before the entrance to the skull, with marked luminal narrowing (figure 2A). We could not find any concurrent disorder (eg, Ehler Danlos syndrome, Marfan syndrome, etc), which could be the possible reason for spontaneous dissection. We interpreted this new finding as the progression of occult right ICA dissection (ICAD). The patient was continued on antiplatelet therapy for 1 year. Thirty-eight months after the trauma, the imaging findings were similar, with no progression or regression of the bilateral dissecting pseudoaneurysms (figure 2B,C).

DISCUSSION

Blunt trauma to the head and neck can cause carotid dissection. The estimated incidence of ICAD among all patients with blunt trauma is 1–1.7%.¹ The distal cervical ICA just proximal to the skull base is a common traumatic dissection site. Bilateral dissections and pseudoaneurysm formation are rare and are usually detected simultaneously.²

Cerebral infarction is the most frequent and severe manifestation of extracranial ICAD. A stroke

Figure 1 Right internal carotid artery (ICA) anteroposterior (A) and lateral (B) subtracted images show no luminal narrowing, pseudoaneurysm and dissection. Left ICA anteroposterior subtracted (C) and native (D) image shows a medially oriented pseudoaneurysm.

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Figure 2 Reformatted images on the 26 (A) and 38 (B) months after trauma show right internal carotid artery (ICA) dissection with pseudoaneurysm. Three-dimensional reconstruction image (C) shows bilateral ICA dissecting aneurysms.

usually occurs in the first few days, but can occur up to 1 month later.^{3,4}

Digital subtraction angiography is still the gold standard imaging modality for diagnosing dissection. However, MR angiography and CTA also have high sensitivity and specificity, and can be used for simultaneous evaluation of the soft and bone tissues of the head and neck region.^{5,6} If the dissection is subadventitial and does not narrow the vessel lumen, digital subtraction angiography images may appear entirely normal; the paravascular haematoma must be detected on cross-sectional imaging.

The risk for a recurrent spontaneous dissection is 2% within the first month and decreases to 1% annually.⁷ Nevertheless, in the long-term follow-up of a carotid dissection, the other cervical and intracranial vessels should always be evaluated. Therefore, initially occult dissections could be detected and even might change the patient's management.

Learning points

- ▶ Bilateral carotid dissections and pseudoaneurysm formations are rare.
- ▶ Stroke usually occurs in the first few days, but can occur up to months later.
- ▶ If the dissection is subadventitial and does not narrow the vessel lumen, digital subtraction angiography results can appear entirely normal.
- ▶ Even in the long-term follow-up of carotid dissection, the other cervical and intracranial vessels should always be evaluated.

Contributors MV and FC were involved in the analysis and interpretation of data and writing of the manuscript. MS was involved in manuscript editing, figure selection and preparation.

Competing interests None.

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REFERENCES

- 1 Fleck SK, Langner S, Baldauf J, *et al.* Incidence of blunt craniocervical artery injuries: use of whole-body computed tomography trauma imaging with adapted computed tomography angiography. *Neurosurgery* 2011;69:615–23.
- 2 Gaskill-Shiple MF, Ernst RJ. Cerebrovascular trauma. *Semin Ultrasound CT MR* 2001;22:148–61.
- 3 Biousse V, D'Anglejan-Chatillon J, Touboul PJ, *et al.* Time course of symptoms in extracranial carotid artery dissections. A series of 80 patients. *Stroke* 1995;26:235–9.
- 4 van Wessem KJ, Meijer JM, Leenen LP, *et al.* Blunt traumatic carotid artery dissection still a pitfall? The rationale for aggressive screening. *Eur J Trauma Emerg Surg* 2011;37:147–54.
- 5 Kirsch E, Kaim A, Engelter S, *et al.* MR angiography in internal carotid artery dissection: improvement of diagnosis by selective demonstration of the intramural haematoma. *Neuroradiology* 1998;40:704–9.
- 6 Leclerc X, Godefroy O, Salhi A, *et al.* Helical CT for the diagnosis of extracranial internal carotid artery dissection. *Stroke* 1996;27:461–6.
- 7 Patel RR, Adam R, Maldjian C, *et al.* Cervical carotid artery dissection: current review of diagnosis and treatment. *Cardiol Rev* 2012;20:145–52.

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