A Case of Embolic Infarction caused by Spontaneous CCA Dissection

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Introduction

Spontaneous carotid dissection can be an important cause of strokes usually in the young populations. It is encountered usually in the cervical ICA. Spontaneous dissection of the CCA is an extremely rare cause of ischemic stroke. Most of CCA dissections are caused by an extension of aortic dissection, and direct traumas or iatrogenic etiologies, such as vascular procedures, are known to be relatively less common causes. However, a purely isolated spontaneous CCA dissection is extremely rare, and only a few cases are reported in the literature. Its etiology is not yet known. When the continuity of the intima and media is disrupted, thrombus formation occurs in the false lumen. It can lead to a stenosis of the true lumen, thereby causing hemodynamic infarction. In other cases, the local thrombus within the lesion can be a significant source of embolism, causing multiple embolic infarctions or even intracranial large vessel occlusions. Although medical treatment could be the standard for those who promptly respond to anticoagulation or antiplatelet therapy, an emergent endovascular recanalization may be required for those with concomitant intracranial large vessel occlusion, and endovascular stenting for those with significant stenosis causing recurrent ischemic attacks.

Herein, we report on a rare case of embolic infarction caused by a spontaneous CCA dissection, and describe the course of diagnosis and treatment.

Materials & Methods

An 83-year-old male presented with dysarthria and transient left hemiparesis. He was admitted to the department of neurology. His MRI revealed multi-focal infarctions on the right hemisphere (Fig 1). Moderate stenosis was seen from mid to distal right CCA on neck MRA (Fig 2) and its source view (Fig 3). The cross section of his carotid doppler showed a lumen in a semilunar shape and thrombus in the remaining semilunar portion (Fig 4). The carotid doppler six months previously did not demonstrate such findings.

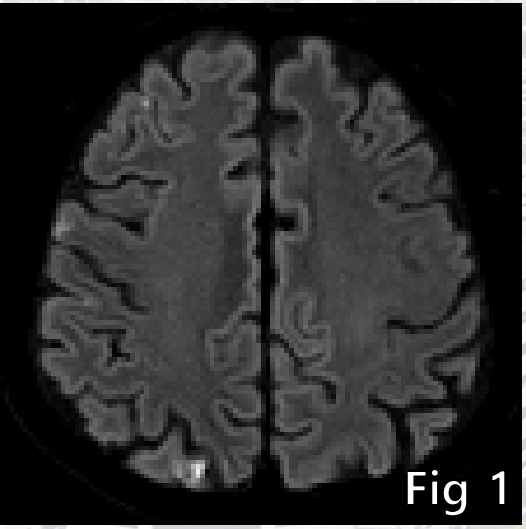
Fig 1

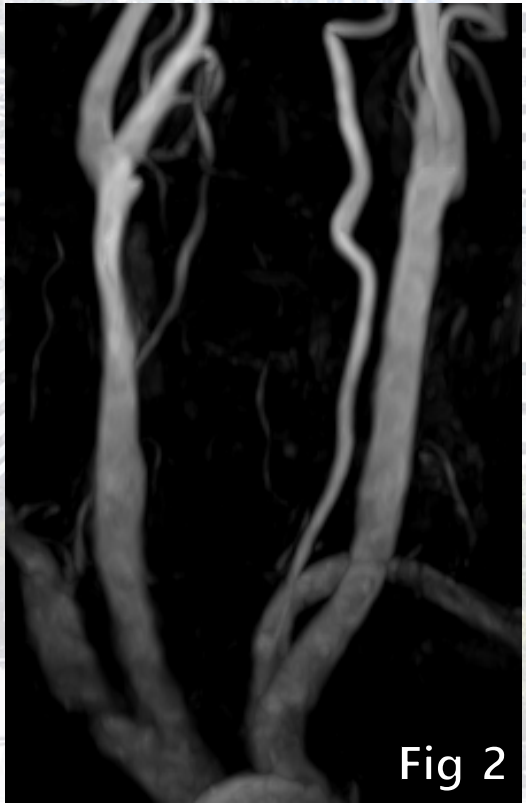
Fig 2

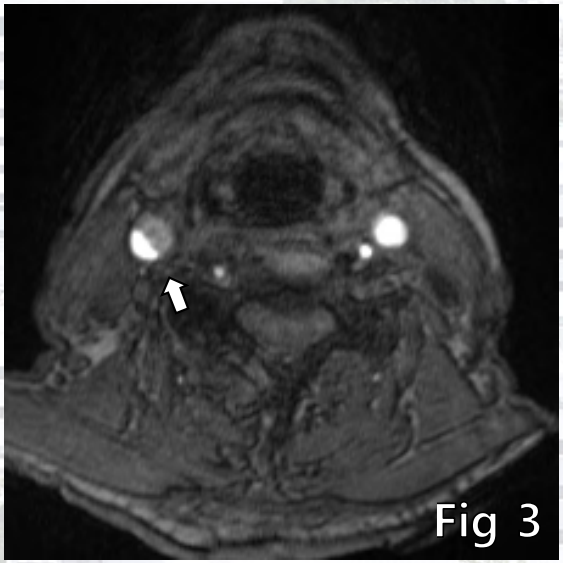
Fig 3

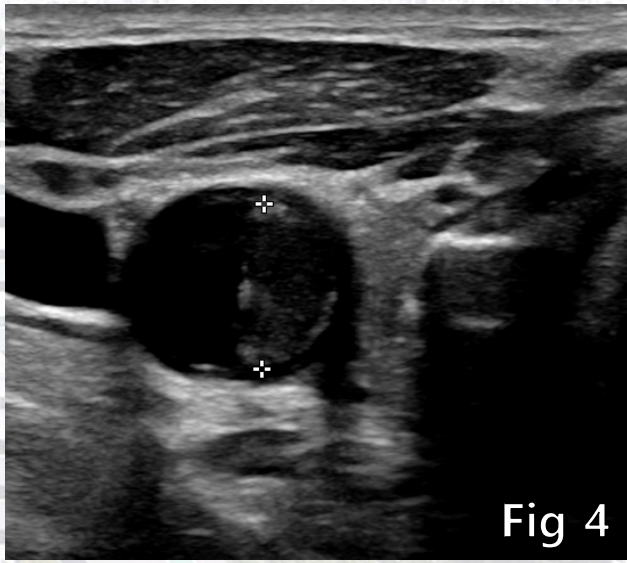
Fig 4

대구파티마병원

Materials & Methods

The MRI on the fourth day showed increased number of multi-focal infarctions (Fig 5). The neck MRA showed newly developed flow in the false lumen where the preexisted thrombus had probably migrated away (Fig 6). The patient was transferred to the neurosurgery. Carotid angiogram showed an irregular intimal flap with the false lumen, as well as remaining mural hematoma (Fig 7). The NASCET ratio was 69.83%.

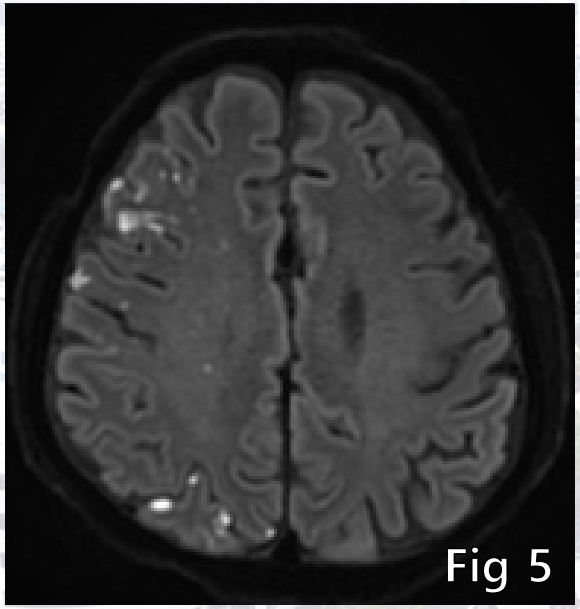

Fig 5

Fig 6

Fig 7

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Results

Due to persistence of embolic events, carotid stenting was performed using two stents in a telescoping configuration fully covering the long segment lesion. The false lumen was completely collapsed and the true lumen was fully enlarged without remaining stenosis (Fig 8). The patency of carotid stent was evidenced by head neck CT angiography a week later (Fig 9). The patient showed full neurological recovery.

Fig 8

Fig 9

대구파티마병원

Conclusion

Spontaneous carotid dissection has been emphasized as an importance cause of stroke and described quite well in the previous literature. Yet, this disease is frequently misdiagnosed. The radiological findings of dissection such as the intimal flap and mural hematoma could be veiled by collapsed true lumen, and it may be difficult to notice its presence at first. The clinical course should be monitored carefully with detailed inspection of imaging study for suspicious lesions.

Spontaneous carotid dissection often leads to a unstable stenosis causing recurrent embolic events. Stenting is frequently required to stabilize the lesion unless prompt and full response to medication is evidenced. To treat such a long segment dissection, telescoping multiple stents can be a feasible option.