LETTERS

Floating thrombus in the common carotid artery

We read with interest the report by Pagliariccio et al. [1] regarding the floating thrombus in the common carotid artery (CCA). This report raises some important issues.

CCA occlusion is a rare finding seen in no more than 2% of patients evaluated for cerebrovascular diseases [2]. The clinical presentation may range from completely asymptomatic to a devastating stroke [3,4]. In acute ischemic stroke, the nature and extent of mostly thromboembolic acute internal carotid artery (ICA) occlusions have been described. Acute CCA thrombosis has rarely, if ever, been reported in detail in patients with acute cerebral ischemia. Acute thrombus in a large artery like CCA may be considered to represent a 'high clot-burden'. However, ischemic stroke presentations are usually due to the embolization of a small fragment into the intracranial arteries (tandem lesion), often amenable to intravenous thrombolysis in eligible patients. Our group has previously reported experience with intravenous thrombolysis in acute ischemic stroke patients with acute CCA thrombi [5]. All the patients in our study were diagnosed as cardioembolic strokes due to atrial fibrillation and tandem intracranial arterial occlusions were noted on computed tomographic angiography and cerebrovascular ultrasonography (cervical duplex and transcranial Doppler). We treated them with intravenous thrombolysis since all of them presented within the therapeutic window. Interestingly, 2 out of 3 patients who achieved recanalization of the occluded intracranial arteries during thrombolysis attained excellent clinical outcomes despite persistent occlusion of CCA. We believe that ischemic stroke patients with CCA thrombus and without an obvious etiology should be subjected to prolonged close monitoring for paroxysmal atrial fibrillation, a finding that can decide the long term therapeutic approach.

Symptoms occurring due to hypoperfusion are considered uncommon and occur in patients with insufficient collateral supply. The clinical presentation of the case described by Pagliariccio et al. [1] does not appear related to regional cerebral hypoperfusion, as evidenced by no significant change in the neurological findings after surgical intervention. Acute occlusions of the carotid arteries in acute ischemic strokes have been reported to be associated

with poor outcomes. However, given the potential for an intracranial recanalization, eligible patients with acute CCA thrombotic occlusions and accompanying tandem lesions should be offered systemic thrombolysis [6].

We agree that various interventional approaches are possible, alone or in combination with optimal medical therapy and the therapeutic decision should be individualized. However, no definite guidelines for the optimal management of patients with acute CCA thrombotic occlusions are available. It is important to assess the hemodynamic changes in cerebral perfusion as well as the role of artery-to-artery embolization. These pathogenic mechanisms may be evaluated reliably with transcranial Doppler [7]. While patients with cerebral regional hypoperfusion may benefit from minimal lowering of blood pressure, maintenance of fluid balance, and the 'head-down' position (with a zero-degree elevation of the head) [8], aggressive anticoagulation and removal of the CCA thrombus constitute the essential therapeutic approach if artery-to-artery embolization is the underlying etiopathogenic mechanism.

Ischemic stroke presentations in patients with acute CCA thrombi and resultant occlusions are largely related to the tandem intracranial arterial occlusions due to artery-to-artery embolization. All efforts should be made to achieve recanalization of the intracranial arteries and patients with acute CCA thrombosis and occlusion should not be considered as always associated with poor outcome and a contra-indication for systemic thrombolysis if acute ischemic stroke patients meet standard time-clinical–CT criteria for systemic thrombolysis.

References

- [1] Pagliariccio G, Catalini R, Zingaretti O, Mancinelli L. Idiopathic floating thrombus of the common carotid artery: diagnosis and treatment options. *Journal of Ultrasound* 2010;13:57–60.
- [2] Riles TS, Imparato AM, Posner MP, Eikelboom BC. Common carotid occlusion. Assessment of distal vessels. *Ann Surg* 1984;199:363–6.
- [3] Levine SR, Welch KMA. Common carotid occlusion. *Neurology* 1989;39:2084–93.
- [4] Cull DL, Hansen JC, Taylor SM, Langan 3rd EM, Snyder BA, Coffey CB. Internal carotid artery patency following common carotid artery occlusion: management of the asymptomatic patient. *Ann Vasc Surg* 1999;13:73–6.
- [5] Sharma VK, Tsivgoulis G, Lao AY, Flaster M, Frey JL, Malkoff MD, et al. Thrombotic occlusion of the common carotid artery (CCA)

- in acute ischemic stroke treated with intravenous tissue plasminogen activator (TPA). *Eur J Neurol* 2007;14:237–40.
- [6] El-Mitwalli A, Saad M, Christou I, Malkoff M, Alexandrov AV. Clinical and sonographic patterns of tandem internal carotid artery/middle cerebral artery occlusion in tissue plasminogen activator-treated patients. *Stroke* 2002;33:99–102.
- [7] Yeo LL, Sharma VK. Role of transcranial doppler ultrasonography in cerebrovascular disease. *Recent Pat CNS Drug Discov* 2010;5:1–13.
- [8] Wojner-Alexander AW, Garami Z, Chernyshev OY, Alexandrov AV. Heads down: flat positioning improves blood flow velocity in acute ischemic stroke. *Neurology* 2005;64:1354–7.

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A reply to Tai and Sharma on "Idiopathic floating thrombus of the common carotid artery: Diagnosis and treatment options"

We appreciate the comments of Drs. Tai and Sharma on our article "Idiopathic floating thrombus of the common carotid artery: Diagnosis and treatment options" (*Jus* 13(2): 57–60, 2010). This is indeed an interesting subject with important implications for clinical practice.

In our article, we intended to call attention to the possibility of a *floating* rather than an *occluding* thrombus of the common carotid. These two conditions produce different pathological pictures and must be managed in different ways.

However, they also have certain features in common, such as the "artery-to-artery embolization" mechanism, which are often the cause of the clinical manifestations of this condition.

As far as occluding thrombosis of the common carotid is concerned, we agree with Drs. Tai and Sharma: thrombolysis is widely agreed to be very useful in improving the outcome of these cases. In the presence of a floating thrombus, however, this approach does not appear to offer any benefits in terms of the risk of cerebral hemorrhage. In fact, medical (i.e., anticoagulant) or surgical treatment carries a lower risk and produces good results.

In the absence of specific treatment guidelines, treatment strategies must be defined on a case-by-case basis. In this setting, we would like to underline the value of Transcranial Doppler. This method, which is often underused in clinical settings, can be of great help in choosing an appropriate treatment strategy and in monitoring the evolution of the thrombus during treatment and in later phases of follow-up.

To provide the best treatment possible, cases of this type must be managed in a Stroke Unit by a multidisciplinary team that includes not only a neurologist but also a vascular surgeon, an internist, and a neuroradiologist.

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