REVISION ARTICLE

SPONTANEOUS COMMON CAROTID ARTERY DISSECTION

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A search of titles indexed in Scopus, from 1960 to date, was conducted using the following index terms: "common carotid artery dissection", "common carotid artery dissections", "common carotid dissection" and "common carotid dissections". Abstracts were analyzed and those articles not making clinical, imaging or therapeutic reference to common carotid artery dissection (CCAD) were excluded. The complete text of the remaining articles was analyzed. Out of the 86 articles found, 16 were excluded (3 due to duplication and 13 because they corresponded to other pathologies) leaving 70 articles[1-70]. The total number of CCAD cases was 127 patients. Twenty-four cases of spontaneous CCAD were counted, and the rest of the articles referred to CCAD related to other causes. In addition to case reports, several presentations of medium and small series were found. The most numerous series corresponded to CCAD due to extension from an aortic dissection, the most common cause[1,71]. Charlton-Ouw *et al*[28] found, through the color Doppler ultrasound (CDU) of neck vessels in patients diagnosed with aortic dissection, that, out of 179 patients, 43 (24%) presented carotid dissection and only 8 of them (18%) presented stroke or related symptoms, while 35 were asymptomatic.

A description will be made of those referring to the cases reviewed. The average age of the 127 patients was 49.8 (range between 15 and 89 years old). As regards frequency by gender, in those reports containing this information there was clear predominance of the male gender over the female gender – 70% and 30%, respectively. Treatment was varied, with antithrombotic therapy being mainly used. One case, of the second oldest patient, was of iatrogenic etiology and was managed in a very remarkable way (stenting with access from the temporal artery)[70].

SPONTANEOUS CCAD GROUP

The average age of the 25 individuals with spontaneous CCAD, including our case[2-22] was 50.8 (range between 34 and 89 years old). The left side prevailed in those mentioning the affected side (n = 22) (15 left and 7 right). The frequency by gender, stated in 22 patients, was 16 men and 6 women. The carotid artery was affected in its proximal section in 5 cases, in its middle section in 3 cases, in its distal section in 5 cases, and completely affected in 3 cases (data provided in 16 patients). The most prevalent signs and symptoms were motor deficit of a hemibody and cervical pain or cephalea. *Table 1* contains the frequency for the cases describing the clinical picture (n = 22).

CDU results in the 17 reported cases included double lumen (7 patients), intramural hematoma (5 patients), intimal flap (3 patients), carotid occlusion (3 patients), flow changes (3 patients), hyper or hypoechoic lesions (3 patients) and aneurysm (2 patients). The final diagnosis of those patients with occlusion was made through MRI and MRA (2 cases) and DSA (1 case).

In 19 cases, in addition to CDU, digital subtraction arteriography (DSA), magnetic resonance angiography (ARM) or computed angiotomography (CAT), as well as a combination of these techniques, were conducted. As for the etiological factors analyzed, in only one case a DSA revealed fibrous dysplasia[2]. In only one case, biopsy was sent to the pathologist, who objectivized the dissection and ruled out cystic medial degeneration[3].

There was full recovery in most cases (63.7%). Mortality was low (1 case). Unlike the treatment of the other CCADs, aggressive management (surgery or stenting) prevailed over drug management

Clinical manifestations	N (%)
Hemiparesis	13 (59.1)
Alterations of consciousness	3 (13.6)
Cephalea/Cervicalgia	10 (45.5)
Aphasia	6 (27.3)
Unilateral visual field deficit	4 (18.3)
Sensory deficit	1 (4.5)
Vertigo	1 (4.5)
Visual deficit	2 (9.1)
Carotid bruits	1 (4.5)
Dysarthria	3 (13.6)
Oculomotor paresis	2 (9.1)
Pain	2 (9.1)
Cognitive changes	1 (4.5)

Table 1. Clinical manifestations of spontaneous common carotid artery dissection.

n=22	Full recovery (%)	Persistent deficit (%)	Death (%)	Total (%)
Anticoagulation	4 (18.2)	3 (13.6)	-	7 (31.8)
Antiplatelet agents	2 (9.1)	1 (4.5)	-	3 (13.6)
Surgery	7 (31.8)	3 (13.6)	-	10 (45.6)
Stenting	*1 (4.5)*	-	-	*1 (4.5)*
Unspecified	-	-	1 (4.5)	1 (4.5)
Total, n (%)	14 (63.7)	7 (31.8)	1 (4.5)	22(100)

Table 2. Treatment and results of spontaneous common carotid artery dissection.

(50.1% vs 45.4%, respectively). There was evidence of recurrence only in our case under antiplatelet therapy. Treatments and their results are included in *Table 2*.

There is much to learn about this specific topic, spontaneous CCAD. Given its exceptional presentation, it is difficult to draw clear conclusions. The bibliographical references found offer no evidence and therefore there are no recommendations for CCAD management. For this reason, we present data obtained from the studies found, represented by case reports or small series. Therefore, in light of the reports found, it is not possible to obtain quality scientific evidence. We observed predominance in men within the global group of CCADs, which was maintained for the subgroup of interest (spontaneous CCAD). Recurrences are very rare in all CCADs; their treatment would require increased aggressiveness. CCAD is mainly due to an extension from an aortic dissection. It is, then, a complication[1,71].

CCAD is a very rare condition, possibly explained by the anatomy of this artery section and adjacent structures, with their own resistance and covered by muscle protection, associated with lower mobility of this sector[2,3,72,73].

The subgroup of spontaneous CCAD is even more rare. Since the first case described by Burkland in 1970[22], only 24 more cases, including ours, have been added to the literature, demonstrating that this a unique pathology. Even if there is some genetic factor promoting the dissection of this sector, it would be exceptional and therefore of little relevance. The clinical and diagnostic approach is identical to that of spontaneous internal carotid dissection.

Finally, we stress that repair surgery plays an important role in CCAD, with lower morbidity and mortality than internal carotid dissection and vertebral artery dissection, due to simpler surgical access and because it neither compromises the area linked to the skull base nor extends to the intracranial area. Therefore, it appears that the treatment of choice for CCAD is surgery. It should not be postponed in case of recurrence of clinical elements under proper medical treatment. ■

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