Author's response to reviews

Title: Surgical Clipping of A1 Dissecting Cerebral Aneurysms. Case Report and Literature Review

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To:

The Journal of Medical Case Reports Editorial Team

we are honored to submit the revised version of our manuscript entitled: "\textit{Surgical Clipping of A1 Dissecting Cerebral Aneurysms. Case Report and Literature Review.}"

We carefully considered and addressed the reviewer's comments.

Looking forward to hearing from you soon,

Oreste de Divitiis

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Dissecting aneurysms of the cerebral arteries are infrequent pathological conditions. Most of the dissecting aneurysms occur in the extracranial vessels and are most common due to traumatic events.

Nowadays, despite their relatively rare occurrence, intracranial aneurysmal dissections are more frequently diagnosed due to better awareness and increased availability of modern imaging techniques and particular attention has been paid to their pathogenesis, natural history and optimal management. Etiology and pathogenesis of most the dissections involving intracranial vessels are still unclear.

Regarding the specific origin site, dissecting aneurysms of the cerebral arteries tend to occur most commonly in the internal carotid artery (ICA), the middle cerebral artery (MCA), and the vertebrobasilar system (VBS). The anterior cerebral artery (ACA) is usually involved in association with dissection in other locations, such as in an ICA dissecting aneurysm, but a lesion confined to the ACA, especially in the pre-communicating segment (A1), is an extremely rare event (Table 1).

Regarding the neuroimaging, the ACA aneurysmal dissection is more difficult to identify than the vertebrobasilar because of narrower vessel calibers and more curved features. However, key signs include a double lumen, stenosis and dilatation ("pearl and string sign"), stenosis alone ("string sign") or occlusion. Because of the rarity of ACA dissecting aneurysms, there are no standardized
treatments modality already described in the pertinent literature. However, conservative, endovascular, and surgical approaches can be taken into account as possible strategies for the management of those unique vascular pathologies. We herein report a case of dissecting aneurysm of the $A_1$ segment of the anterior cerebral artery which was treated via a direct surgical clipping of the homolateral anterior cerebral artery. We explicitly obtained consent to publish the present case from the patient."

**Request.2:** "The case report should be mention in more detail which surgical approach and surgical route has been chosen"

**Answer.2:** We thank the editor for the comment he provided us with. As per request, we carefully revised the case report section and, accordingly, we stressed in more detail the surgical approach used.

"Accordingly, surgery was choosen by means of clipping of the right anterior cerebral artery through a right standard pterional craniotomy (figure 2) [20]. With microsurgical technique the dura mater was opened and reflected anteriorly. Afterwards, with sharp arachnoid dissection the sylvian fissure was opened in a distal-to-proximal direction in order to achive CSF release and brain relaxation; these maneuvers allowed to reduce brain retraction and to visualize the right internal carotid artery, with its bifurcation, and the homolateral optic nerve. Finally, a vascular clip was positioned at the origin of the right anterior cerebral artery."

**Request.3:** "Additionally, more detailed radiological description as origin also of perforating artery or not etc."

**Answer.3:** As per request, more detailed radiological description has been added.

"Digital subtraction angiography (DSA) confirmed the presence of the dissecting aneurysm of the $A_1$ segment of the right anterior cerebral artery originating from the parent vessel with a very acute angle (figure 1d). No perforating arteries were clearly detected."

**Request.4:** "Postoperative medical treatment (aspirine etc)?"

**Answer.4:** No we did not use other special medical treatment.

"Postoperatively, headache progressively diminished and left side weakness
initially presented (Grade 3 of the Medical Research Council - MRC - Scale), then relieved by medical therapy with dihydropyridine calcium channel blocker (nimodipine) and corticosteroids. No other medications were used."

**Request.5:** "The discussion is too superficial and should include different other surgical possibilities"

**Answer.5:** We thank the editor for this comment. As per request, we reviewed the discussion section and we added more details about other surgical possibilities.

"In our case, [...]. It should be also stressed that the other surgical options as, wrapping, i.e. wrap the aneurysm with materials (muscle, Teflon) to promote scarring, trapping, i.e. both distal and proximal arterial interruption with direct surgery (ligation or occlusion with a clip) and by-pass surgery were not considered. Indeed, in the present case, the left anterior circulation perfused both A$_2$ segments and the distal part of the right A$_1$ segment was hypoplastic."

**Request.6:** "The references should at least include one reference from Prof. Juha Hernesniemi, one of the world leaders in the field."

**Answer.6:** Reference list has been updated according to the reviewer request [20].

**Reviewer #1**

**Request.1:** "Please, check and correct a few orthographic and typographical errors (for instance, instead of 20s, please specify patient's age: 20 or 24 years old, for example; instead of omolateral, please write homolateral; instead of MRi, please write MRI)."

**Answer.1:** We thank the reviewer for this comment. As per request, we carefully reviewed the manuscript and, accordingly, we corrected any grammatic error in the text.
Request.1: "What was the exact pre-operative neurological status of the patient?
Answer.1: We appreciate the contribution of the reviewer#2. The exact pre-operative neurological status of the patient was highlighted in the appropriate section.
"She was then referred to our Hospital and, upon admission, neurological examination showed severe headache and nuchal rigidity (Grade II of the Hunt-Hess scale)."
Request.2: " How much left sided weakness was present postoperatively and at delayed follow up? The follow up period is rather short?"
Answer.2: This issue has been clarified in the appropriate sections.
"Postoperatively, headache progressively diminished and left side weakness initially presented (Grade 3 of the Medical Research Council - MRC - Scale), then relieved by medical therapy with dihydropyridine calcium channel blocker (nimodipine) and corticosteroids. No other medications were used. [...].
A late postoperative angiography (3 months) showed the correct positioning of the clip, with regular perfusion of both right and left anterior post-communicating cerebral arteries (figure 3d).
Six-months after surgical treatment the patient showed no clinical and/or neurological defects of new onset and resumed her ordinary life."

REFERENCES ADDED