Author's response to reviews

Title: Alteration of choroidal thickness in a case of carotid cavernous fistula: a case report and a review of the literature

Authors:

Yoichiro Shinohara (yshinohara_813@yahoo.co.jp)
Tomoyuki Kashima (kasimatomoyuki@yahoo.co.jp)
Hideo Akiyama (akiyamah@med.gunma-u.ac.jp)
Shoji Kishi (kishi@med.gunma-u.ac.jp)

Version: 5 Date: 25 September 2013

Author's response to reviews: see over
Major Compulsory Revisions

Background

Comment
1 Line 1. The affirmation “Carotid cavernous fistula (CCF) is an abnormal arteriovenous communication in the cavernous sinus and internal carotid artery” This affirmation is not true, carotid cavernous fistulas are an abnormal communication either between the cavernous sinus and the external carotid artery. A literature review is required.

Answer
We changed this sentence to “Carotid cavernous fistula (CCF) is an abnormal connection between the carotid arterial system and the cavernous sinus.”

Comment
2 Line 2. The affirmation “These cases typically have a high flow …” is incomplete. The authors described a low flow fistula! A literature review is required.

Answer
Pierre et al said, “Carotid cavernous sinus fistulas can be divided into two types, high flow and low flow. So we added this sentence to “or low.” And we also inserted reference 2 to next sentence.


Comment
3 Line 5. – the fistula’s classification is confused and incomplete. A literature review is required.

Answer
We changed “The fistulas are subdivided into two types. The first is characterized…..” to “Barrow et al have classified CCF into four types based on the arterial system involved. Type A,...”

Comment
4 Line 10 – The treatment options should be better explained. Some cases of dural fistula could improve spontaneously.

Answer
We added “Even though some dural fistulas close spontaneously, therapeutic intervention of dural fistulas should be reserved for the patients with visual deterioration.”
Case presentation:

Comment

1 – How long had the patient had ophthalmic symptoms?

Answer

We added “for four months.”.

Comment

2 – In the first instance, how was the exophthalmometry?

Answer

We added “Right eye had 3mm greater protrusion than left eye. (Right=20mm Left=17mm)”

Comment

3 – How was the ophthalmic fundus at first? Did it have venous congestion?

Answer

Yes. We changed "We observed dilatation, tortuosity and venous congestion of the conjunctiva and retinal vein in her right eye (Figures 1, 2)."

Comment

4 – Did the patient have an optic nerve edema which would explain the low vision?

Answer

We added “Optic nerve edema was not observed.” We expect the congestion of choroid we could find lead the visual disturbance.

Comment

5 – Improve the description of the radiologic characteristics of the fistula.

Answer

We changed the sentence to “MRI and magnetic resonance angiography (MRA) determined there was a low flow, which led to suspicion of cavernous sinus-dural arteriovenous fistula (CS-DAVF). Then we performed cerebral angiography and confirmed CS-DAVF which was located at right supraposterior carotid to right superior orbital vein sinus supplied by branch from bilateral middle meningeal artery and meningohypophyseal trunk. The result also revealed subsequent congestion of the choroid in her right eye. One week after the angiography, we performed embolization.”

Comment

6 – At the last visit had all the ophthalmologic signals and symptoms disappeared?
Answer

We added "all the ophthalmologic signals and symptoms had disappeared."

Comment

7 – If no changes were noted between the pre- and postoperative fundus blood flow in her affected eye. How could the authors explain the reduction in the choroidal thickness?

Answer

We are very sorry for these confusing phrases. Then, we changed the description of LSFG. Please see this paragraph below;

LSFG usually shows variation of choroidal blood flow due to the change of systemic condition, calculated affected right eye/ normal left eye ratio showed 55% increase of choroidal blood volume after the operation(before 36.4% after 56.3%). "And, in Conclusions, "Although the preoperative blood flow was shown to be slow due to congestion, LSFG which commonly express choroidal blood flow volume[15] demonstrated there was drastic increase in the postoperative blood flow volume nevertheless the volume was not recovered as high as left eye because longstanding congestion may lead choroidal atrophic change."

Conclusion:

Comment

1 – The authors have suggested that it is possible to diagnose fistulas with the utilization of OCT. This exam can show, the fundus congestion caused by venous stasis, but this is a very unspecific find that can be caused by different pathologies. So I do not believe that the OCT could be used to diagnose the fistula, but only as a complimentary exam to follow diagnosed patients.

Answer

We confirmed the choroidal congestion by the cerebral angiography preoperatively. EDIOCT showed the pre and post treatment change of choroidal thickness. The only one change in this period is that this CS-DAVF is successfully disappeared by embolization. So we think change of choroidal thickness is exactly showing the choroidal congestion.

Then, we changed the last sentence of conclusion to “To the best of our knowledge, this is the first report that has proved the relationship between an increased choroidal thickness by EDI-OCT and choroidal congestion by cerebral angiography in CS-DAVF.”