Erratum

Toll-like receptor 4 expression during cerebral aneurysm formation

Laboratory investigation

TO THE EDITOR: We appreciate the publication of our paper entitled “Toll-like receptor 4 expression during cerebral aneurysm formation. Laboratory investigation” (*J Neurosurg* 113:851–858, 2010). Since publication, some errors in this paper have been identified, and we would like to correct the record at this time. Specifically, we made an error in representing control data as well as in providing proper attribution to journals in which some figure panels were previously published. The errors do not make any changes in the findings of our study.

The following corrections have been made to our article:

1. A paragraph has been added to the end of the subsection *Immunohistochemical Studies* in the **Methods** section. The addition is as follows:

Several tissue slices were obtained from one experimental animal. One of these slices was treated with elastic van Gieson staining for a reference image of immunohistochemical studies. We have used this same image of elastic van Gieson-stained tissue in immunohistochemical studies of other molecules.⁷

2. Two sentences were added to the end of the paragraph in the subsection *Western Blotting* in the **Methods** section. The sentences are:

We examined some molecules using the same membrane by stripping a previously used antibody. We then used the same blotting image of the internal control, α -tubulin, for Western blot analyses of other molecules.⁴

3. In *Expression of TLR4 During Cerebral Aneurysm Formation*, in the **Results** section, we found two errors in the second paragraph. The corrected text now reads as follows (corrections bolded):

In Western blotting, expression of TLR4 was significantly upregulated **1 month** after aneurysm induction (5 data sets, $p < 0.01$). Three months after aneurysm induction, TLR4 expression decreased to the level before aneurysm induction (5 data sets, **1 month** compared with 3 months; $p = 0.021$) (Fig. 3A and B).

4. Portions of Figs. 2 and 3 have been replaced. In addition, credit has been given to two other journals in which some figures first appeared, specifically:

Figure 2A first appeared as Supplemental Figure 1A in Aoki T, Kataoka H, Ishibashi R, Nozaki K, Morishita R, Hashimoto N: Reduced collagen biosynthesis is the hallmark of cerebral aneurysm: Contribution of interleukin-1b and nuclear factor- κ B. *Arterioscler Thromb Vasc Biol* 29:1080–1086, 2009. This article is now credited in the legend to Fig. 2 and can be found in the updated reference list.

Figure 2C has been replaced because the original was incorrectly placed. The new Fig. 2C first appeared as Figure 1A in Aoki T, Kataoka H, Morimoto M, Nozaki K, Hashimoto N: Macrophage-derived matrix metalloproteinase-2 and -9 promote the progression of cerebral aneurysms in rats. *Stroke* 38:162–169, 2007. This article is now credited in the legend to Fig. 2.

Figure 3 has been replaced because a portion of it was labeled incorrectly. This figure was modified from Fig. 1I in Aoki T, Kataoka H, Ishibashi R, Nozaki K, Egashira K, Hashimoto N: Impact of monocyte chemoattractant protein-1 deficiency on cerebral aneurysm formation. *Stroke* 40:942–951, 2009. This article is now credited in the legend to Fig. 2 and can be found in the updated reference list.

5. The reference list has been updated to accommodate two additional articles specified in Point 4.

This article contains some figures that are displayed in color online but in black-and-white in the print edition.

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FIG. 2. Photomicrographs showing expression of TLR4 in cerebral aneurysm wall and NF- κ B activation. **A–E:** Elastica van Gieson (EvG) staining of the serial sections next to panels F (A), G (B), H (C), I (D), and J (E). **F–J:** Immunostained sections showing expression of TLR4 in cerebral aneurysm walls at the following time points: before (F), 2 weeks after (G), 1 month after (H), 3 months after (I), or at the contralateral ACA-OA bifurcation 1 month after (J) aneurysm induction. **K:** Double immunostaining of endothelial cell marker (eNOS: red color) and TLR4 (green color) 1 month after aneurysm induction. **L:** Double immunostaining of the DNA-binding form of NF- κ B (ap65: red color) and TLR4 (green color) 1 month after aneurysm induction. **M and N:** Immunostaining of TLR4 in cerebral aneurysm walls of wild-type (M, p50^{+/+}) and NF- κ B p50-deficient (N, p50^{-/-}) mice 5 months after aneurysm induction. Bars = 50 μ m (A–J) and 20 μ m (K–N). 3M = 3 months after aneurysm induction; 1M:contra = contralateral ACA-OA bifurcation at 1 month after aneurysm induction. Panel A is reproduced with permission from Aoki et al: *Arterioscler Thromb Vasc Biol* 29:1080–1086, 2009. Panel C is reproduced with permission from Aoki et al: *Stroke* 38:162–169, 2007.

We apologize to the editor and readers, and we are pleased to have the opportunity to make these corrections. The errors were corrected online as of July 5, 2013.

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FIG. 3. Protein and mRNA expression of TLR4 in cerebral aneurysm walls of rats. **A:** Western blotting of TLR4. Representative data from 5 independent experiments are shown; α -tubulin served as an internal control. **B:** Densitometric analysis of Western blotting in 5 data sets. **C:** Results of RT-PCR studies of TLR4 in cerebral aneurysm walls. Representative data from 6 independent experiments are shown; β -actin was used as an internal control. **D:** Densitometric analysis of RT-PCR in 6 data sets. *Double asterisks* indicate $p < 0.01$. Panels A and B are reproduced with permission from Aoki et al: *Stroke* 40:942–951, 2009.