Dear Editor,

The authors of the article "Cavernous sinus syndrome due to rhino-orbital-cerebral mucormycosis", published in the May/June 2013 issue of this journal[1], report an uncommon case of mucormycosis evaluated at computed tomography (CT) and magnetic resonance imaging (MRI). Invasive fungal sinusitis is a fast progressive infection, which occurs more frequently in immunocompromised and diabetic patients. The term should not be considered a synonym for mucormycosis[2,3], as any saprophytic fungus with affinity for vascular invasion can cause the condition, with *Mucorales* and *Aspergillus* as the most common etiological agents.

Most cases present superimposed bacterial infection[3]. The etiological differentiation between the fungal agents does not change the medication therapy, and it is important to highlight that extensive sinus debridement and the management of the predisposing condition represent important adjuvant measures for the therapeutic success[3]. The authors mention opacification and thickening of the sinus mucosa as signs of chronic disease. Chronicity presents with the distinctive finding of thickening and sclerosis of the bone limits of the paranasal cavity[3], which is not applicable to the present case. In general, computed tomography is the first imaging method in the evaluation of acute rhino-sinusal-orbital conditions, because of its quickness, wider availability in emergency services and excellent capability to demonstrate bone erosion. Increased sinus secretion density in association with bone erosion and extrasinusal disease are suggestive of fungal colonization at CT[3]. MRI is superior for mapping extrasinusal disease and orbitocranial complications, including the analysis of the cavernous sinus[1–5]. In the case reported by Vilela et al.[1], coronal CT demonstrates cribriform plate erosion, and abscesses are described in the frontal lobes, in correspondence with the erosions and also clearly identified at MRI. In the next paragraph, the description of the abscesses at MRI places them adjacent to cavernous sinuses and, therefore, in the middle cranial fossa, bilaterally. However, the finding at axial MRI at the level of the cavernous sinuses (Figure 3) is just only the asymmetrical contrast uptake of the lateral wall of the right cavernous sinus. Such finding may represent an indirect sign of thrombophlebitis, which would justify the mentioned syndrome. One should notice the absence of any other radiological sign of cavernous sinus compromise, such as change in volume and contour, or ipsilateral superior ophthalmic vein dilation. More important is the presence of a lesion component (subperiosteal abscess) at the medial quadrant of the right orbit, that was not mentioned by the authors in spite of being included in the title of the article[1]. It may also be inferred that the abnormal dural enhancement of the cavernous sinus at this side is most probably caused by orbital involvement rather than by the cerebral abscess of the anterior cranial fossa, given the known direct pathway of infection dissemination from the orbit to the cavernous sinus in such situations[4,5]. The huge volume of the right frontal cerebral abscess as confronted with the focal discrete cavernous change also allows us to speculate about the posterior temporal involvement of the homolateral cavernous sinus, subsequently to the orbital involvement. The multiplicity of injuries caused by extensive locoregional compromise represents a challenge to the radiologist who should keep in mind the anatomical complexity of the head and neck region for a more reliable diagnosis.

References

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Reply

Dear colleague Ana Célia Baptista Koifman,

We consider all your comments extremely pertinent and enlightening.

We would like to highlight the anatomical complexity of the head and neck as a challenge for all those who face cases of extensive diseases affecting this region of such intricate connections.

The assertion about tomographic signs of chronic sinusopathy fills a gap in our original text, which failed to mention the main signs of the syndrome in question. We have opted for not mentioning such findings observed in other parts of the bone boundaries in the patient of the reported case, because of the restricted number of characters allowed for such an article model, and also considering that such a concept is widely disseminated in our radiological community.

A similar hindrance has led us to select the images of the case, not because they represented the best signs of each type of involvement, but rather because they demonstrated a greater set of findings, motivated by our attempt to provide a comprehensive understanding of the case in its wealth of details. Thus, the demonstration of the cavernous sinus involvement may have been less than ideal, as it did not demonstrate all signs described by the colleague.

The orbital compromise becomes unquestionable as the subperiosteal abscess (Figures 3 and 4) and the altered signal involving the medial rectus muscle (Figure 4) are demonstrated. We have considered unnecessary to mention such findings because of their magnitude and, again, because of the characters limit.

We would like to thank you very much for your collaboration which significantly enlightened the discussion and clarified some points which may not have been as clear as one would desire.

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