Author's response to reviews

Title: Diagnosis of -sine materia- respiratory insufficiency: a Neurologist's field? : Case report

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Author's response to reviews: see over
Dear Editor,

We would like to thank the Referees for their review and for the opportunity they have given us to improve our manuscript entitled “Neurologist's contribution to the diagnosis of sine materia respiratory insufficiency: case report”

We have made the modifications requested and include here a point-by-point explanation with reference to the Referees’ comments:

We better explain the method by including the reference mentioned by Dr. Haghighi. (Shariat A, Yaghoubi E, Nemati R et al. Comparison of Agitated Saline Mixed with Blood to Agitated Saline Alone in Detecting Right-to-Left Shunt during Contrast-Transcranial Doppler Sonography Examination. Acta Neurol Taiwan 2011;20:182-187).

Concerning Dr. Lao’s observations and suggestions, we aimed to clarify further the diagnostic pathway, mainly for sonological studies:

1. Our patient presented the evidence of RLS already in resting condition, with normal breathing. Furthermore, the number of HITS dramatically increased during the Valsalva maneuver, filling the Doppler waveform and making it impossible to count them. The presence of RLS at rest is not a useful feature in the differentiation between intracardiac and extracardiac RLS; it means only that the shunt is very large, and therefore a TEE without contrast agents must see a patent interatrial septum, if a communication exists. If TEE is normal, as in our case, the RLS cannot be intracardiac

2. The TCCS examination was performed in supine position, according to the guidelines (reference 6), and two saline injections were administered, one at rest and the other one with
Valsalva maneuver. Because HITS were present at rest, i.e., before the straining phase of the Valsalva maneuver, we were not able to measure the time between onset of Valsalva and appearance of HITS in order to use it as a landmark between intracardiac and extracardiac RLS


Right-to-left shunt (RLS) may be the cause of marked hypoxemia, a respiratory insufficiency which is usually difficult to diagnose by respiratory physicians as it develops in the absence of an intrinsic lung disease. In patients with a chronic liver disease, the presence of small artero-venous intrapulmonary RLS, can be responsible for respiratory insufficiency. This case report shows that right-to-left pulmonary shunts from hepatopulmonary syndrome can be suspected by standard CT imaging and MIP reconstruction of the pulmonary vascular bed and confirmed by the TCCS study. This comes in absence of a cardiac malformation on non-invasive evaluations (TTE and MRI) and explains why these examinations were inconclusive. We think that the usefulness of this collaboration should be emphasized in a journal read by respiratory physicians as, to date, in our specialized literature, studies on this technique to diagnose RLS are lacking.

I confirm that the paper is not under consideration by any other journal and that it has not been accepted for publication elsewhere, in any language. All authors have provided their consent to the publication.

**List of abbreviations:**

Right-to-left shunt (RLS)

Transcranial Colour-Coded Duplex Sonography (TCCS)
Transthoracic echocardiography (TTE)
Transesophageal echocardiography (TEE)
Transcranial Doppler (TCD)
Magnetic resonance imaging (MRI)
Middle cerebral artery (MCA)
Multiple high intensity transient signals (HITS)

Thank you for attention.
With kind regards,
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