

Cervical venous reflux: a common phenomenon in CT-Angiography without correlation to chronic inflammatory CNS disease

B. Friedrich, K. Kreiser, C. Zimmer, A. Förschler

Background

The theory of chronic cerebrospinal venous insufficiency (CCSVI) as a cause for MS is causing quite a stir in both the scientific community and among patients as it offers a tempting mechanistic etiology for an often treacherous disease.

Objective

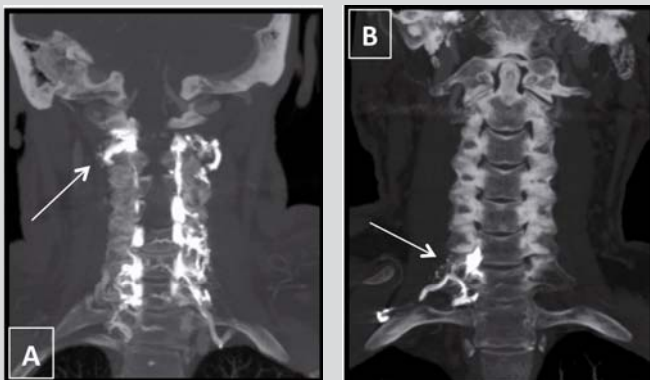
As CCSVI was initially evaluated by Doppler-ultrasound, a highly investigator-dependent method, the aim of the present study was to assess the frequency of venous reflux by CT-Angiography (CTA), an investigator-independent method, and a potential correlation to signs of chronic inflammatory CNS disease in cerebral MRI.

Materials & Methods

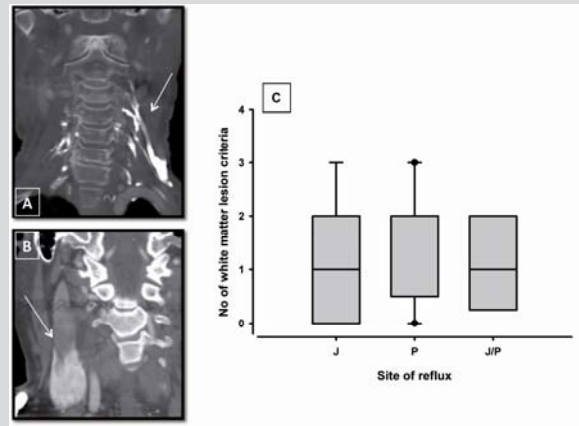
All patients examined by CTA and subsequently by cerebral MRI between 1st August and 31st October 2011 were included. CTA images were assessed for cervical venous reflux categorized by site and height of reflux. The MRI images were evaluated according to white matter lesions for signs of MS.

Results

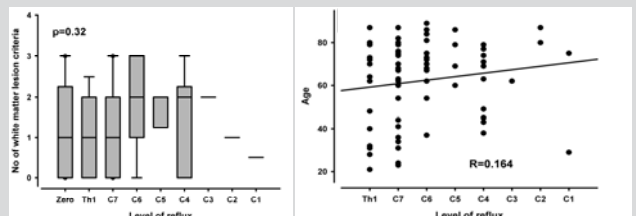
121 patients were retrospectively enrolled in this study. 65% showed venous reflux of different severity up to cervical level C1.



Two examples with reflux of contrast agent into the venous system up until cervical vertebra C2 (A) or cervical vertebra C6 (B) are shown. The arrow indicates the cervical venous reflux.



There are three different patterns of reflux detectable: reflux in the paravertebral veins (A), reflux into the jugular vein (B) or the combination of both. The arrow indicates the cervical venous reflux. A comparison between the site of reflux and the corresponding white matter lesions criteria in MRI (C) shows no statistical significant difference between jugular reflux (J), paravertebral reflux (P) or combined jugular/paravertebral (J/P).



It was not possible to find a correlation between the severity of venous reflux in CT-Angiography of the neck and the number of white matter lesion criteria in cerebral MRI. Patients without any reflux had a median white matter lesion criterion of 1, exactly as patients with venous reflux. Also there is no clear correlation between the age of the patient and the severity of venous reflux in CT-Angiography of the neck.

Conclusion

Cervical venous reflux appears to be a common phenomenon without correlation to the incidence of chronic inflammatory CNS diseases.