Letters to Editor

Assessment of neuropathy by electrophysiology of visual pathway in welding workers

Sir,

There are reports addressing the pattern of eye diseases among welders. Welding is one of the most intense artificial sources of invisible and visible optical radiation, near and far infrared, ultraviolet A, B and C from visible light, emitted in various degrees by the various types of welding that may cause ocular damage of different types. The electrophysiologic examination, visual evoked potentials (VEP) can objectively evaluate the toxic effects of chemicals on the central nervous system. The use of welding has increased in recent years but studies from this region remain scant. On this background this study was conducted to assess the neuropathy by electrophysiology of visual pathway in welding workers. The present study was carried out with approval from institutional ethics committee. A study was conducted from March to December 2013 on 33 welding workers. Apparently 42 healthy controls having no exposure of welding works were taken. Neuropathy was assessed by measuring VEP parameters. Pattern reversal visual evoked potential (PRVEP) for each subject was recorded with PC based 2 channels EMG‑NCS‑EP set, model RMS EMG EP MARK‑II‑2011 with Oz‑Fz montage in a uniformly illuminated and noise attenuated room through checker‑board stimulation via a monitor kept about 100 cm in front of eye. The present study showed that among the welding workers all work regularly and 90.9% workers are from an electric arc welding workshop. Maximum number of workers uses the protection or guard (87.88%). Comparison of mean values of latencies of wave N75, P100, and N145 of the welder's with that of the control group showed that the mean values of latencies of wave N75, P100, N145 and amplitude of waves (P100‑N75) were found to be significantly more in welders in both the eyes than the control. This study provides electrophysiological evidence that the welding exposure delays the conduction processes in optical pathways as there was a significantly prolonged P100, N75 and N145 latencies and significantly reduced mean amplitude P100‑N75 in welding worker. In a previous study authors reported abnormal VEP, asymmetries in inter‑ocular P100 latency exceeding 6 ms and decreased amplitude in single tests among the welders exposed to manganese. Another study reported ocular hazards in arc welders due to ultraviolet radiation. Major limitation of the study is its small sample size. Further large‑scale studies are urgently needed to assess the subclinical damage of visual pathway by electrophysiology of the optic nerve. 

Joyashree Banerjee, Pranab Kumar Dey, Anilbaran Singhamahapatra, Sayandeep Pradhan
Department of Physiology, RG Kar Medical College, Kolkata, 1 Department of Paediatrics, Midnapur Medical College, Midnapur, West Bengal, India

Address for correspondence: Dr. Joyashree Banerjee, Flat No. B/6, Government Housing Estate, 82‑Belgachia Road, Kolkata ‑ 700 037, West Bengal, India. E‑mail: banerjeedrjoyashree@gmail.com

References

The anatomical variability of the emissary condylar veins, its identification and clinical significance

Sir,

We wish to provide some clarification with regard to the paper of Pekcevik et al.[1] about the “Prevalence of clinically important posterior fossa emissary veins on CT angiography” published in your journal. Although the

Sir,

We wish to provide some clarification with regard to the paper of Pekcevik et al.[1] about the “Prevalence of clinically important posterior fossa emissary veins on CT angiography” published in your journal. Although the
computed tomography (CT) angiography is the superior tool to depict the venous structures, especially those with small diameter and the related bony canals,[1] we believe that this minimally invasive technique. Usually fails to represent certain collateral venous channels due to the reverse blood flow and the supine patient position. It is therefore reasonable the fragmentary and description of this paper about the complex normal and variable venous anatomy in the craniocervical area.[2]

The identification of the location and course of the emissary condylar veins (CV) (anterior, lateral and posterior) and the anterior condylar confluence inferomedial to the jugular bulb is of immense significance, as they represent the most important connections between the intracranial cerebral and the cervical vertebral venous systems.[3,4] The authors make no mention about the anterior and lateral CV depiction, probably due to the fact that the study performed retrospectively and was not designed to identify all possible venous emissary channels. Further support for our view comes from the following standpoint: “The CV (anterior, lateral and posterior),[3,4] the mastoid and the occipital emissary veins represent the venous connections between the dural venous sinuses of the posterior cranial fossa and the internal jugular vein with the cervical vertebral venous systems”.[3]

Specifically, the anterior CV appears as a connection of the anterior internal vertebral venous plexus with the internal jugular vein. The anterior CV usually runs medially through the hypoglossal canal or creates a small anastomosis with the basal plexus.[6] These emissary veins drain into the lateral part of the marginal sinus that in some cases may bridge the anterior CV with a suboccipital vein.[5] The lateral CV originating from the medial aspect of the jugular bulb runs posterolateral and is connected with the suboccipital cavernous sinus and the venous plexus around the V3 segment of the vertebral artery (from C2 vertebra to the dura mater). According to Trolard,[7] its proximal portion may sometimes be found within an osseous canal in front of the occipital condyle. The anterior and lateral CV form a constant structure, the anterior condylar or petrosal confluence[9] that plays a key role in the cerebral blood redirection in the craniocervical area. The posterior CV usually larger from the anterior originates from the superior jugular bulb or occasionally medially from the lower end of the sigmoid sinus. It runs through the posterior condylar canal, drains into the deep cervical vein and also communicates with the horizontal segment of the vertebral artery venous plexus.[1] The lateral and posterior CV are related to the external vertebral venous system, whereas the anterior CV is related to the internal vertebral venous plexus.

The meticulous knowledge of the very complex venous drainage system of the craniocervical region is necessary especially when treating the dural arteriovenous fistulas of the anterior condylar canal[9] or attempting selective retrograde venous catheterization or interpreting venous imaging studies that show the posterior fossa emissary veins and their variability. Unfortunately, the unrecognized emissary veins of this area may cause diagnostic confusion and surgical complications, which could be simply identified by the direction of the blood flow using Doppler ultrasonography.[6]

Konstantinos Natsis, Maria Piagkou
Departments of Anatomy, Medical School, Aristotle University of Thessaloniki, and National and Kapodistrian University of Athens, Athens, Greece

Address for correspondence: Assist. Prof. Maria Piagkou, Department of Anatomy, Medical School, National and Kapodistrian University of Athens, 75 M. Asias street, Athens, 11527, Greece. E-mail: mapian@med.uoa.gr

References


Access this article online

Quick Response Code: www.ruralneuropractice.com

DOI: 10.4103/0976-3147.143222