


Unintentional dural puncture followed by postdural puncture headache (PDPH) is a well-known complication of neuraxial labor analgesia/anesthesia. The resulting headache is a dull throbbing pain which occurs within five days of a lumbar puncture and is usually orthostatic in nature, since it tends to worsen when the patient assumes the standing or sitting position and improves when the patient lies down. Associated signs and symptoms such as neck pain or stiffness, photophobia, tinnitus, hypoacusis and nausea are present in more than 50% of cases. The headache is usually self-limiting within two weeks of onset, while resolution can occur sooner if autologous epidural blood patch is performed. PDPH is very unpleasant to new mothers since it severely limits the interaction between the mother and the newborn, while it can lead to prolonged hospitalization and emergency department visits or rarely result in significant morbidity. The pathophysiology behind the development of PDPH is firstly cerebrospinal fluid leakage through the dural puncture, which can lead to stimulation and stretching of sensory cranial nerve fibers caused by downward shift of the brain and secondly intracranial hypotension which leads to cerebral vasodilation and a vascular-type headache, as a compensatory mechanism to maintain the intracranial volume according to the Mono-Kellie doctrine.

The diagnosis is based on clinical presentation (orthostatic headache after a neuraxial procedure) and can be significantly aided by MRI, which reveals signs consistent with intracranial hypotension, such as compression of the ventricles, reduction of the basal cisterns, caudal displacement of the brain, brainstem and optic chiasm, occasional subdural effusions and cerebellar ectopia. The characteristic MRI sign is the diffuse meningeal thickening and enhancement. The differential diagnosis of PDPH ranges from benign conditions, such as tension-type headache and migraine to serious disorders such as preeclampsia, subarachnoid hemorrhage and cerebral venous sinus thrombosis. Serious complications of untreated PDPH can occasionally occur. Subdural hematoma is due to traction and compensatory vasodilatation of bridging veins due to loss of cerebrospinal fluid. Cerebral venous sinus thrombosis is caused by cerebral venous dilation and blood stasis due to the leak and damage to the cerebral venous endothelium caused by the negative spinal-cranial pressure gradient in combination with the puerperium hypercoagulability. Both complications can have a deleterious outcome if unsuspected and untreated and difficulties in differential diagnosis arise from the fact that both subdural hematoma and cerebral venous sinus thrombosis present with headache as the commonest symptom, which can lead to considerable delays in diagnosis if accidental dural puncture has simultaneously occurred or is suspected. Therefore, there is a need for urgent neurological consultation as well as urgent neuroimaging in the puerperium in case of new or recurrent neurological symptoms. Both disorders should be considered in the differential diagnosis, especially in case of atypical clinical presentation or in case of loss of the postural component of the headache during follow-up. Furthermore, it is crucial to investigate persistent or recurrent headaches in the puerperium even after the performance of an epidural
blood patch in case of focal neurological signs or in case of severe non-positional headache.

REFERENCES

In rare cases, serious complications occur after neuroaxial anaesthesia procedures. The most serious ones are haematoma, or abscess. Bleeding into the spinal canal caused by central neuraxial blocks (CNR), are rare but potentially tragic complications that may result in permanent paraplegia and urinary and/or rectal incontinence.

Timely detection, targeted diagnostics and rapid therapy prevent permanent damage. This requires certain organizational requirements, which include procedural instructions and interdisciplinary agreements on the management of complications.

Knowing the early symptoms is essential. Early detection and treatment of a haematoma in the spinal canal reduce the risk of permanent spinal cord damage. The presenting symptoms are a result of spinal cord injury or root dysfunction and include paresis, sensory changes or loss of sensation and sphincter dysfunction (urinary or anal). They require immediate neuroradiological diagnostics, such as magnetic resonance imaging, the imaging modality of choice. The most effective treatment is surgical evacuation of haematoma within less than about 6–8 h of appearance of neurologic symptoms, but longer delays do not justify refraining from surgery. Measures that facilitate early detection and treatment of a haematoma include the use of the lowest possible concentration of local anaesthetic, not to manipulate or remove the epidural catheter when antihemostatic drugs are still effective, to assess leg unsteadiness, and/or rectal incontinence.

An important point is also thorough knowledge of risk factors. The risk factors may be related to antihemostatic drugs, to patients’ co-morbidities and to the number of puncture attempts.

NEURAXIAL EMERGENCIES: DIAGNOSIS & MANAGEMENT
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PNBS: IMPROVED SAFETY WITH NEEDLE TRACKING AND TISSUE RECOGNIZING TECHNOLOGIES?
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The introduction of ultrasound technology into clinical practice over twenty years ago has brought many benefits to regional anaesthesia. Since then, regional blocks have been used much more frequently. Ultrasound guided regional anaesthesia (UGRA) has improved efficacy and outcome such as accuracy, needling time, block onset, local anaesthetic volumes and block duration. Ultrasound has also made regional anaesthesia safer. The incidence of local anesthetic systemic toxicity (LAST) was significantly reduced, which is based on the lower volume of the local anaesthetic and the visualization of the spread of the local anaesthetic.

Despite widespread use of ultrasound imaging to guide needle placement, the incidence of transient and permanent nerve damage as a complication of regional anaesthesia has not changed in comparison to nerve stimulation over the last decade. Problems for the anaesthesiologist are the identification of the needle tip before advancing the needle, seeing the needle tip at all times, adjustment of the needle tip, identification of the needle tip before injection, recognition of tissue contact, local anaesthetic spread and intraneural injection.

There is a need for a technology that accurately and reliably identifies the position of the needle tip and that reliably discriminates the nerve structures from other tissue. In recent years, some innovations in the field of needle tip and tissue recognizing technologies have been presented based on measurements of injection pressure, electrical impedance, spectroscopic or elastographic processes. Some of these technologies are still under development, while others are already in clinical use. However, so far there is too little data to conclusively assess whether they have the potential to improve patient safety and change our practice in regional anaesthesia.

Abstract - Basic Cardiac Ultrasound for Anaesthesiologists
Point-of-Care ultrasound (POCUS) has due to the portability, simplicity and excellent image quality of modern ultrasound equipment become a highly relevant skill for all anaesthesiologists to better evaluate patients in the perioperative period and help diagnose and manage relevant complications.

The presentation will demonstrate how ultrasound can be used to answer relevant cardiac focused questions necessary for critical decision-making in the perioperative setting.

Abstract - Lung Ultrasound applied in Perioperative Practice
Point-of-Care ultrasound (POCUS) has due to the portability, simplicity and excellent image quality of modern ultrasound equipment become a highly relevant skill for all anaesthesiologists to better evaluate patients in the perioperative period and help diagnose and manage relevant complications.

The presentation will demonstrate how ultrasound can be used to answer relevant focused questions about the lungs necessary for critical decision-making in the perioperative setting.

BASIC CARDIAC ULTRASOUND FORANAESТЕHESIOLOGISTS
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