Background and Aims While the use of fluoroscopy-guided transforaminal epidural steroid injection (TFESI) to help spread the injectate toward the ventral side has increased, this procedure entails a radiation risk. Recently, ultrasound has been widely applied in the medical field; among ultrasound methods, color Doppler is useful for predicting the direction of the injectate. This study describes a novel technique employing color Doppler to help predict epidural space spread in interlaminar epidural steroid injection (ILESI).

Methods This observational study prospectively enrolled 35 patients scheduled for lumbar epidural steroid injection (ESI). Ultrasound-guided epidural injection was conducted and real-time images using color Doppler were recorded during injections of 5 mL of 0.1% ropivacaine containing contrast dye with dexamethasone. Fluoroscopy-guided TFESI was performed if it was difficult to perform the procedure based on ultrasound images.

Results The analysis included 30 images from 30 patients. The observed sensitivity, specificity, positive predictive value, and negative predictive values of the ultrasound color Doppler were 100%, 89.5%, 84.6%, and 100%, respectively. The agreement with ultrasound color Doppler was 93.3%.

Conclusions The main advantage of ultrasound-guided ILESI is the lack of radiation exposure and contrast medium requirement. Color Doppler may be a reliable imaging modality to predict epidural space spread during ultrasound-guided ILESI. It is worth predicting the spread in the anterior epidural space (AES) by first attempting ultrasound-guided ESI. If the injectate has not spread to the AES, fluoroscopy-guided TFESI may be a good option after confirming the improvement of the patient’s symptoms.
Continuous Spinal Anesthesia for Open Cholecystectomy: Customized Anaesthetic Management in a Challenging Patient


Background and Aims Continuous spinal anesthesia (CSA) provides fast onset titratable neuroaxial block. In the context of upper abdominal surgery on patients with acute respiratory disease offers minimization of respiratory complications and ensures adequate anaesthetic conditions.

We aim to present a CSA for open cholecystectomy in a patient with multiple neurological deficits and acute pneumonia.

Methods 60 years-old woman, 40 kg, 152 cm. Past history of rickets having severe skeletal deformation; hypertension; status post cerebellar tumor resection with multiple sequelae: loss of visual and auditory acuity, dysphagia, dysphonia, respiratory insufficiency and ventriculoperitoneal shunt. Admitted for urgent open cholecystectomy having alongside acute pneumonia with pleural effusion. Laboratory tests and current medication posed no contraindication to spinal anesthesia.

Spinal catheter 20G was introduced through 18G tuohy needle at L3-L4 level. On supine position the adequate block level was achieved using bed tilting and sequential doses of hyperbaric bupivacaine (total of 10 mg) and sufentanil (total of 10 mcg). During the 1h procedure there was no need for sedation. The spinal catheter was removed on the operatory room (OR) after a morphine 100 mcg administration. Neither respiratory nor regional anesthesia complications were reported on the postoperative period.

Results Although a CSA in this patient was a challenge we considered that the benefits exceed the risks and surpassed limitations of other techniques. The anaesthetic plan was sustained by careful communication with the patient and strict collaboration of the surgical team.

Conclusions CSA allowed a safe and effective management during the intraoperative period and optimized the postoperative recovery.

Temporary Meningeal Symptoms after Epidural Blood Patch

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Background and Aims Post-puncture headache – an unpleasant rare event. Associated with epidural and spinal anesthesia. With epidural anesthesia, its cause is an unintentional puncture of the inner leaf of the dura mater. With spinal, intrathecal puncture itself.

Methods 20 years of experience in post-puncture headache in a maternity hospital (~ 200 observations), associated with epidural analgesia in childbirth.

Results Almost 100% of observations – unintentional puncture of the inner leaf of the dura mater with an epidural needle. Manifests 6–18 hours after removal of the epidural catheter. In less than 50% of cases amenable to conservative treatment. Classical triad (bedrest, hydration, tylenol) – temporary unstable relief. Most have an epidural blood patch. In case of refusal, contraindications for filling, strict adherence to bed rest for 10–14 days. A single epidural blood patch with auto blood with a volume of 10–20 ml in almost 100% permanently relieves a headache. Repeated epidural autologous blood filling is required only in 1–2% of cases. In 1–2% of our cases of epidural blood patch, we observed short-term, up to 3–5 days, development of meningeal symptoms, in particular, pronounced occipital rigidity against the background of complete disappearance of positional headache. This occipital stiffness looks quite frightening, but usually practically does not bother patients and regresses spontaneously by 5 days after a blood patch.

Conclusions A possible explanation for the development of meningeal symptoms immediately after an epidural patch is the ingestion of a small amount of autologous blood into the subarachnoid space, followed by irritation of the dura mater.