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Can we use spinal anesthesia in ulcer perforation peritonitis?

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Abstract
The management of perforation peritonitis patients categorized ASA IV with high risk of general anesthesia constitute a challenging situation. We report a successful spinal anesthesia as anesthetic technic in ulcer perforation peritonitis in a 78 years-old with high risk of general anesthesia and we discuss different regional anesthetic technics reported in the literature for such patients.

Keywords: ulcer perforation peritonitis, spinal anesthesia, regional anesthesia

Introduction
Perforation peritonitis still constitutes the major chunk of all surgical emergencies. The most challenging situation is the management of these patients categorized ASA IV with high risk of general anesthesia. There may be the role of regional blocks in the management of such patients.

Case report
A 78‑year‑old man, his weight, height and BMI were respectively 55 kg, 170 cm and 19 kg/m2 was admitted to hospital with a 2‑day history of abdominal pain. He was known as a chronic smoker weaned 2 years ago. On admission, he had a respiratory distress, cyanosis and signs of peritonitis with generalized pain and increased abdominal wall rigidity. He was tachypneic (RR 22/min) with evidence of accessory muscle use.
His heart rate was 112/min, and BP 100/60 mmHg. Examination revealed no air entry all over the left chest and chest X‑ray showed consolidation of the left chest with retractable opacity and attraction of the trachea to the left, right basal pulmonary infiltration with a bilateral pneumoperitoneum (figure 1). Tomodensitometry showed a tumoral process of the left lung, emphysematous right lung and confirmed the pneumoperitoneum without peritoneal effusion. Biological examinations showed C Reactive Protein at 200 mg/l. Renal function and coagulation test was normal. After securing an IV access with 18G (Gauge) needle on the right dorsum of the hand, Saline serum infusion, antibiotherapy (ceftriaxone 2g and metronidazole 500 mg) and Intravenous paracetamol were administered. He was categorized as American society of anesthesiologists (ASA) physical status grade IV/E and was planned for emergency laparotomy.
After explanation to the patient and information to the family about the anesthetic risk, we planned to avoid general anesthesia and we opted for a spinal anesthesia as anesthetic technique. In the operation theatre pulse oximetry showed oxygen saturation of 84 % on room air which improved to 94 % under oxygen supplementation with mask (oxygen flow at 6 l/min). After infusion of 500 ml of saline serum, he was sedated 1mg of midazolam and fentanyl 25 µg to make him comfortable, cooperative, and pain free for performing the spinal anesthesia. Then he was laid lateral position, spinal anesthesia was performed aseptically at the L1-L2 level with hyperbaric bupivacaine 10 mg, fentanyl 25 µg and morphine 100 µg. after 5 min, of Trendelenburg at 15°, sensitive level was assessed at dermatome T4 with the prick-test and surgery was authorized.
The abdominal incision was carried out without pain. All the vital signs remained normal intraoperatively. Laparotomy revealed a gastric perforation, which was sealed and large abdominal toilet. He was admitted in critical care unit for 3 days; postoperative analgesia was effective and the VAS stayed less than 3, he was discharged to surgery service after improvement of septic and hemodynamic parameters. He stayed dependent to oxygen supplementation and died 20 days later in acute respiratory distress.

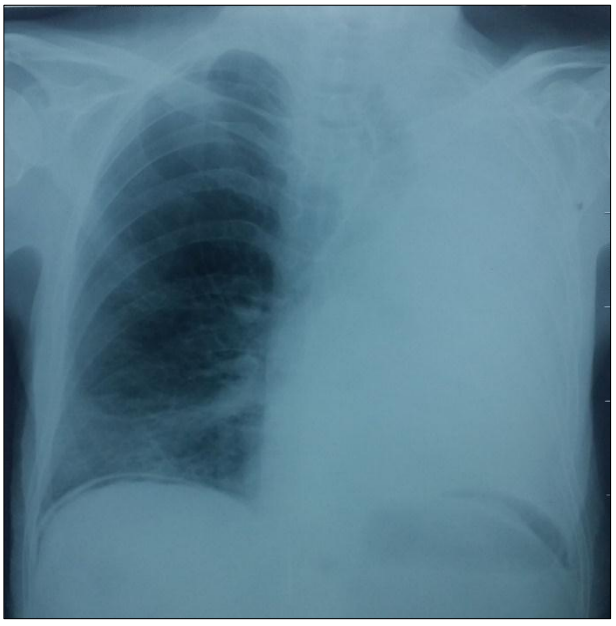

Fig 1: chest X‑ray showing consolidation of the left chest with retractable opacity and attraction of the trachea to the left, right basal pulmonary infiltration with a bilateral pneumoperitoneum.

Discussion

Sepsis is considered to be a relative contraindication to regional neuraxial blockade. It should be undertaken with caution; since the hemodynamic effects of these techniques in the setting of sepsis can induce cardiovascular compromise which may be difficult to reverse [1]. Recent blood tests confirming normal coagulation are required. Embu *et al.* have reported use of spinal anesthesia for surgery for typhoid perforation in rural African hospital [2]. The anesthesiologist involved had limited training and resources. A sensory level of T6 was found to be adequate for exploratory laparotomy, though sometimes sedative doses of ketamine were required to make the procedure more tolerable to the patient. The role of epidural blockade in perioperative period for laparotomy has been well-emphasized in the literature in view of various benefits like enhancing gut perfusion, preventing leukocyte endothelium interaction during gut hypoperfusion, and protecting against bacterial translocation during splanchnic ischemia [3, 4]. It's role in patients with generalized sepsis or bacteremia has not been evaluated with objective parameters.regional nerve blocks may strongly be considered in the absence of a definite safety of an epidural block. bilateral transversus abdominis plane block was used as sole anesthetic technique in emergency surgery for perforativ e old perforation leading to peritonitis in a geriatric female ASA IV with chronic obstructive pulmonary disease in the respiratory failure and hypotension, the surgery was possible 30 minutes after the bloc realization. Dexmedetomidine infusion was helpful for the success of surgery that was compromised by the Pain caused by visceral stimulation of autonomic nervous system through celiac plexus (vagus) when the surgeons manipulated the intestine [5].

As our patient was categorized as ASA IV general anesthesia for such a high‑risk case would have resulted in untoward and fatal complications both intra‑operatively and immediate postoperatively. We opted for a spinal anesthesia, the level T4 was reached in 5 minutes, there was no need to complementary sedation, the hemodynamic remained stable and efficient postoperative analgesia was noted.

Conclusion

Balancing the benefic risk, we think that the spinal anesthesia can be an alternative anesthesic technic for patients with perforation peritonitis when absence of septic shock, correct hemodynamic parameters and normal coagulation for elderly patients with high risk of general anesthesia.

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