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CORRESPONDENCE

Laparoscopic cholecystectomy under spinal anesthesia in a patient with limb-girdle muscular dystrophy

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To the Editor,

A 61-yr-old gentleman with longstanding muscular dystrophy presented with acute cholecystitis and sepsis. Three months later, with a biliary drainage tube still in place, he presented for semi-elective laparoscopic cholecystectomy. This patient kindly gave consent for publication of this report.

The exact type of the patient's muscular dystrophy was unclear despite extensive workup by his neurologist; however, his presentation was most in keeping with limb-girdle muscular dystrophy Type 2A.[1] His symptoms began at age 14 yr when he developed proximal upper arm weakness and subsequent muscle wasting. By age 50 yr, he began to develop progressive weakness and wasting of his proximal lower limbs. He is now unable to climb out of bed or climb stairs easily. His echocardiogram was unremarkable and, surprisingly, so was the result of his preoperative spirometry test. Nevertheless, his respiratory therapist noted he was quite dyspneic at the end of the spirometry testing.

Limb-girdle muscular dystrophy, a class of muscular dystrophy, is a heterogeneous group of neuromuscular diseases characterized by progressive muscle weakness and atrophy of the shoulder and/or hip girdle muscles. Cardiac involvement is rare.[2] Respiratory involvement may be present in long-standing disease.[2]

Although laparoscopic cholecystectomy is generally performed with endotracheal intubation and positive pressure ventilation, we were concerned about the ability to wean this patient from the ventilator postoperatively. Laparoscopic cholecystectomy under spinal anesthesia has been described.[3–5] Sinha *et al.* published a retrospective review of 3,492 laparoscopic cholecystectomy procedures under spinal anesthesia.[3] Findings included a lower incidence of nausea and vomiting and decreased intravenous analgesic requirements. Abdominal muscle relaxation was not problematic. Shoulder and neck pain occurred in 12.3% of patients. Conversion to general anesthesia was required in 0.5% of cases.

Given our concerns about the potential for problematic weaning from ventilation, a discussion took place between anesthesiology and general surgery about how best to proceed. We elected to offer this patient spinal anesthesia for his procedure. Complicating this choice was a significant language barrier. His daughter offered to join us intraoperatively for translation and emotional support. Her presence was invaluable.

We performed a subarachnoid block at approximately the L3/4 level with a midline approach using a 25G pencil-point spinal needle. This was performed in the right lateral position as the patient was unable to sit due to his muscle weakness. A T4-level block was achieved using 0.75% hyperbaric bupivacaine 21 mg (2.8 mL) and fentanyl 20 μg. The patient was placed in a supine, not Trendelenburg, position to achieve this block.

Invasive blood pressure monitoring was used, and blood pressure was supported throughout the surgery with a phenylephrine infusion when required. The patient complained of diaphragmatic discomfort and right shoulder pain intermittently, which was managed using a remifentanil infusion of 0.05 - 0.15 $\mu g \cdot kg^{-1} \cdot min^{-1}$, shoulder massage, and reassurance from his daughter. The surgeon also sprayed the patient's diaphragm with 1%

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lidocaine with epinephrine and used subdiaphragmatic irrigation in the field. A bi-level positive air pressure machine was available should noninvasive ventilatory support have been required, but it was not necessary.

Intra-abdominal pressure was kept below 10 mmHg, and insufflation flow was kept low at 2 $L \cdot min^{-1}$. Despite the relatively low pressure, visualization during laparoscopy was unproblematic, possibly helped by the patient's soft abdominal musculature due to his muscular dystrophy. The remainder of the procedure was carried out in the usual fashion with typical port placement and the patient placed in the reverse Trendelenburg position and left-side-down.

Postoperatively, the patient was very satisfied with spinal anesthesia and avoidance of invasive ventilation. In patients with muscular dystrophy in whom muscle relaxants are contraindicated and positive pressure ventilation best avoided, laparoscopic cholecystectomy performed under a spinal anesthetic is a reasonable option.

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