

Introduction

Acute pain after a hip fracture can be associated with impaired respiratory function, prolonged intubation and intensive care unit (ICU) admission, as well as the potential development of chronic pain. Regional pain management can be useful in minimizing pain after a hip fracture, and there is strong evidence that fascia iliaca blocks decrease opioid consumption, improve patient pain scores, and decrease length of stay. However, these nerve blocks are typically administered immediately prior to hip fracture surgery. In this medically challenging case, we present the multimodal opioid-sparing management of a patient with a hip fracture and severe aortic stenosis who underwent balloon aortic valvuloplasty prior to hip fracture surgery. Although hip fractures in patients with aortic stenosis are not uncommon, this is the first described case of a balloon aortic valvuloplasty conducted using a combined ilio-inguinal blocks and fascia iliaca block. This case report was approved by the St Vincent's Medical Center Institutional Review Board (Bridgeport, CT). Written consent for publication of non-identifying medical information and Health Insurance Portability and Accountability Act authorization was obtained from the patient in this study.

Combined ilio-inguinal block and fascia iliaca block for balloon aortic valvuloplasty in an elderly patient with a hip fracture: A case report

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Background

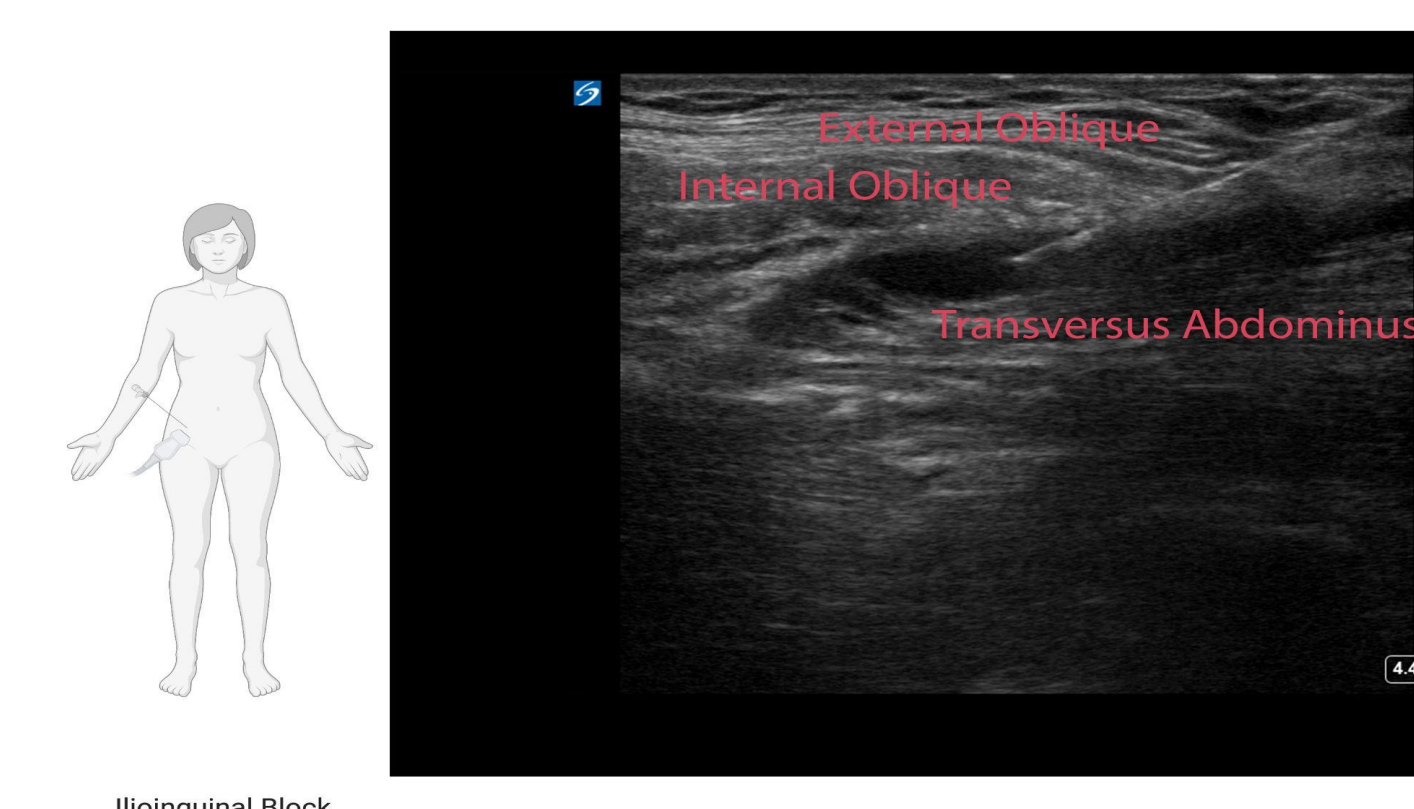
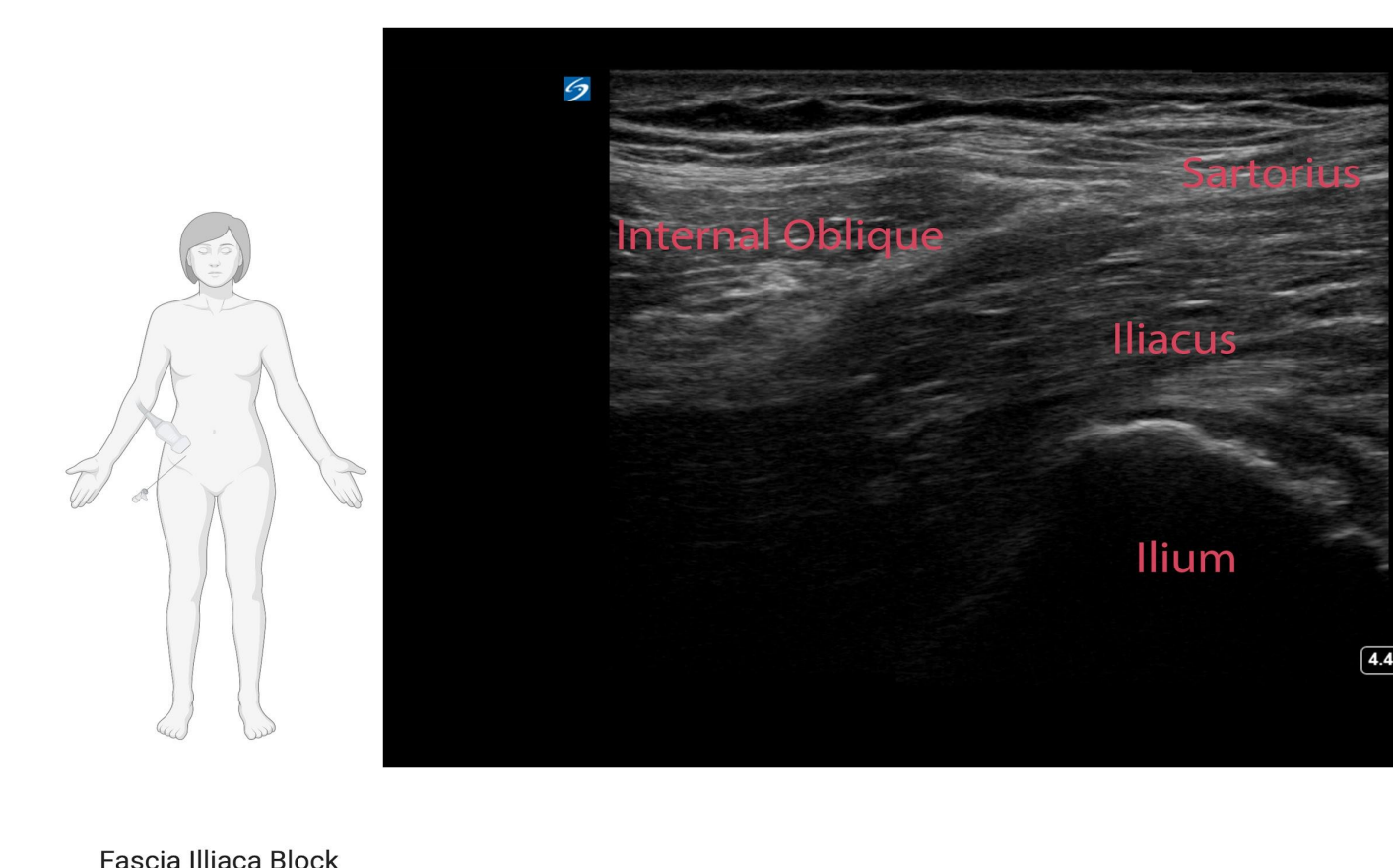
An 88-year old 53-kg woman with significant past medical history including critical aortic stenosis (valve area 0.69 cm²) and recent sustained left intertrochanteric hip fracture, presented for a balloon aortic valvuloplasty. Her other comorbid conditions included a history of coronary artery disease with inferior wall myocardial infarction complicated by cardiogenic shock, status post multiple cardiac stents, and severe bilateral carotid disease. Of note, the patient related severe intolerance to long-acting opioids with nausea to both hydromorphone and morphine. Her physical examination was notable for a frail body habitus, a murmur consistent with aortic stenosis, and severe pain from her hip fracture. After a thorough discussion, the patient agreed to both bilateral ilioinguinal blocks as well as a fascia iliaca block.

Case Report

After connecting the patient to appropriate monitors, bilateral ilio-inguinal blocks (10 mL each side) and a fascia iliaca block (20 mL) was administered using bupivacaine 0.25%. Ultrasound-guided blocks were performed using a linear array ultrasonography 8-13 Hz probe (HFL38x, M-Turbo; SonoSite, Bothwell, WA) and 50-mm 22-gauge Stimulplex needle (B-Braun, Melsungen, Germany). The sensory analgesia was assessed prior to operative intervention using pin-prick sensation.

Case Report (continued)

After establishing patient comfort, general endotracheal anesthesia was administered in order to facilitate aortic valve assessment with intraoperative transesophageal echocardiogram. General anesthesia was induced with etomidate 20 mg and rocuronium 50mg. Anesthesia was maintained with sevoflurane, as well as intravenous remifentanyl 0.05 mcg/kg/min and dexmedetomidine 0.2 mcg/kg/hr. The balloon aortic valvuloplasty was uneventfully completed and the patient was comfortable in the post-anesthesia care unit, reporting no pain in her hip. She was given scheduled acetaminophen per surgical protocol during her hospital course. She received no opioid medications on postoperative day 1 and 2. On postoperative day 2, general endotracheal anesthesia was performed instead of regional anesthesia for an open reduction and internal fixation of her left hip because she had been administered clopidogrel after the valvuloplasty. She made an unremarkable recovery.



Discussion

Hip fractures are one of the primary causes of admission in a trauma department. In 2016, its incidence was estimated at 120/100,000 inhabitants in the USA and in Europe with an increase of almost 30% between 2000 and 2009. Aortic stenosis in this population is not uncommon given its age distribution, and recent epidemiological studies have shown that the incidence of degenerative AS can reach 10% in people over 80 years of age. As seen here, individuals with both AS and hip fracture can also have comorbidities that increase risks both in the operating room and on the hospital ward.

Conclusion

We believe that combined regional anesthesia techniques may be underutilized in this patient population, and we propose that increased usage can significantly lessen patient morbidity and increase satisfaction. In this particular patient, the combination of intraoperative conduction blockade with fascia iliaca / ilio-inguinal blocks and modulation of nociceptive processing may also explain the robust analgesic effect observed in this case report. The potential that this multimodal anesthetic approach may hold for significantly improving postoperative pain control in this patient population warrants further investigation.

References

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