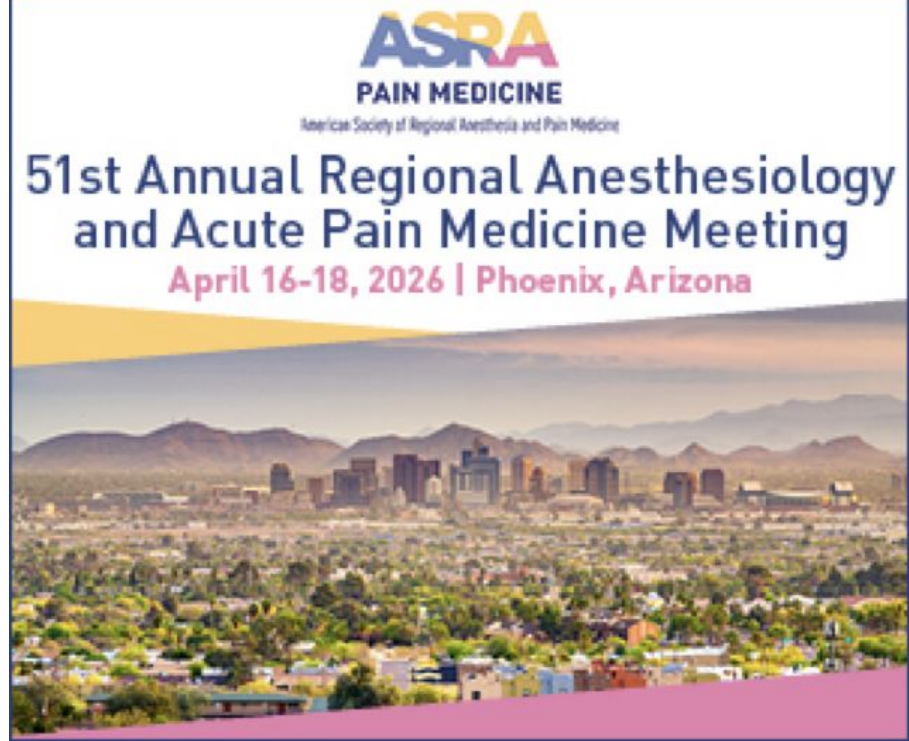


Total Knee Replacement in a Patient with Chronic Pain: A Multimodal Approach to the Opioid Tolerant Patient

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Background

- Patients on chronic opioid therapy face unique challenges in pain management during surgical interventions.
- Additionally, common chronic pain modalities such as intrathecal pumps can limit analgesic interventions in the intraoperative period.
- Intrathecal pumps represent a relative contraindication to spinal anesthesia, which is a common anesthesia modality in knee arthroplasty, due to infection risk, altered spinal anatomy, and potential catheter damage.
- There are several modalities that can be used for analgesic augmentation, such as radiofrequency ablations and regional nerve blocks, to mitigate these risks.
- This case highlights the use of adductor canal blocks, pre and post-operation, for analgesic control in a chronic opioid-dependent patient undergoing a total knee arthroplasty for whom spinal anesthesia was contraindicated.



Figure 1. Ultrasound imaging of postoperative Adductor Canal Block with evidence of anesthetic spread.

Case Presentation

- A 63-year-old woman with a history of fibromyalgia, osteoarthritis, and chronic prescription opiate use with an intrathecal hydromorphone pump and prior history of device-related infection presents to the hospital for right knee arthroplasty due to bone-on-bone medial compartmental osteoarthritis.
- After several months of conservative treatment, including physical therapy, oral and intra-articular medications and intrathecal pump use with minimal relief, the patient elected to have a total knee replacement.
- Given the patient's history of a prior pump infection, spinal anesthesia was ruled out as a viable option for intraoperative anesthesia.
- Three weeks prior to the surgery, the patient's outpatient chronic pain doctor performed a radiofrequency ablation to the genicular nerve of the affected knee, preventing worsening of knee pain and increasing of opioid use.
- The inpatient pain management team created a perioperative analgesic course, including a pre and postoperative adductor canal block (fig. 1), in addition to the use of a patient-controlled analgesia (PCA) pump as an adjunct, until home medications were appropriate to restart.
- Before the second adductor canal block was performed postoperatively, the patient reported minimal pain at the surgical site and did not require use of the PCA pump during the hospital stay. The inpatient pain management team performed the second adductor canal block and restarted her home medications on postoperative day one.
- The patient was subsequently discharged on postoperative day one with close outpatient follow up.

Discussion

- Patients with intrathecal pumps require extensive perioperative planning as certain anesthesia modalities are not viable due to inherent risks.
- In this patient, spinal anesthesia was relatively contraindicated due to risk of device puncture and infection, therefore a multimodal approach was used in anticipation of difficult pain control.
- The initial management began with an outpatient radiofrequency ablation which assisted with preoperative pain control and prevented additional opioid requirements.
- In addition, adductor canal blocks facilitated perioperative analgesia and aided with early postoperative mobilization without exposing the patient to intrathecal complications or an increase in opioid dependence or risks.
- A multimodal analgesic approach (fig. 2) provided adequate relief of perioperative pain and permitted functional recovery in a patient where pain control was otherwise challenging.

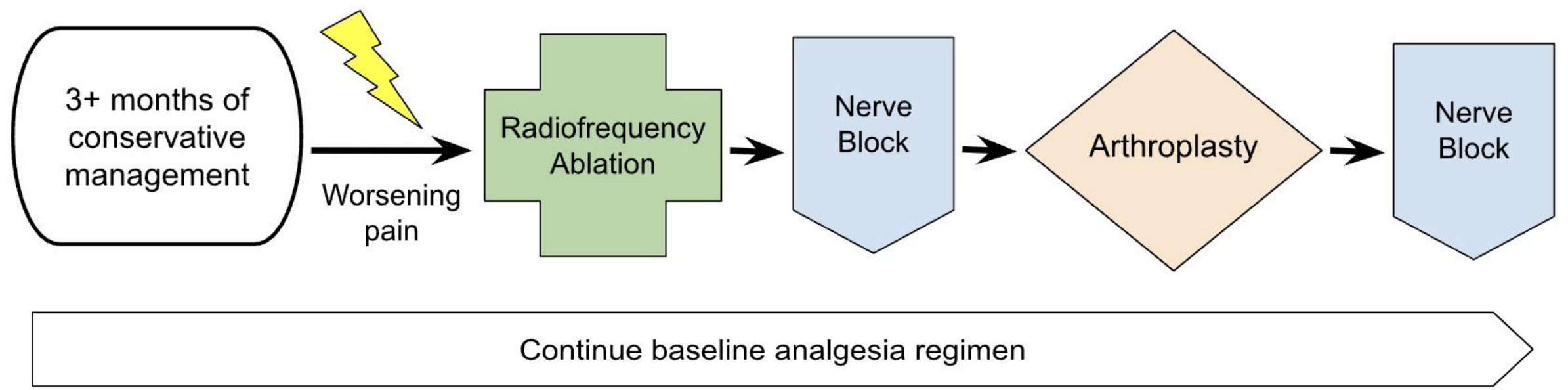


Figure 2. Treatment plan for the perioperative management of acute and chronic pain.

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