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Priapism After Epidural or Spinal Anesthesia

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**Introduction**

- Preoperative epidural and spinal anesthesia improves patient outcomes by reducing potential side effects of general anesthesia
- Rarely, patients develop priapism secondary to administration of the anesthetic agent
  - This is generally classified as high-flow priapism
- Little is known about the development of this complication
- There is no standardized management following onset

**Rationale**

- A case of priapism following administration of epidural anesthesia in Kalamazoo, MI, at Bronson Methodist Hospital, prompted a search of the literature into the etiology, pathophysiology, and management of such cases

**Methods**

- Literature search of SCOPUS and PubMed
- Terms included: epidural anesthesia, spinal anesthesia, priapism, penile erection
- Inclusion criteria:
  - Case reports, case series, review papers about erections secondary to regional anesthesia
  - Pathophysiology and treatment of all-caus priapism
  - Physiology of innervation to the penis

**Results**

- Overall incidence of priapism in US is 0.2-0.3 cases/100,000
- Local anesthetics and opioids implicated as etiologic agents
- Selective inhibition of sympathetic innervation to the penis by anesthetic agents leads to unopposed parasympathetic innervation and subsequent erections
- Management depends on timing of erection onset
  - Withdrawal of inciting agent and pursuit of alternative analgesia
  - Intracavernous injection of α1-selective sympathomimetic agent
- Outcomes are generally unremarkable

**Discussion**

- The incidence of priapism following regional anesthesia is scarcely reported
  - Especially in the United States
  - Most of these cases are reported in the context of urological procedures
  - Ability to compromise the procedure
  - Local anesthetics such as bupivacaine are the most commonly reported agent
  - 2 cases with morphine
  - Parasympathetic innervation to the penis causes erection through vasodilation
  - Sympathetic innervation causes flaccidity
  - Priapism after regional anesthesia is thought to be due to an blockade sympathetic nervous system with uninhibited parasympathetic signaling
  - A few cases also reported an increased risk of priapism when the procedure involved genital manipulation
  - Suggesting that a local reflex arc may be involved
  - The standard of care treatment for intraoperative priapism is intracorporeal injection of selective α1 sympathomimetic with generally favorable outcomes

**Conclusion**

- Priapism due to epidural and spinal anesthesia remains a mysterious phenomenon
- Bupivacaine bolus doses were involved in multiple cases
  - May selectively inhibiting sympathetic tone to the penile vasculature
  - Many factors to consider when treating this
    - Including procedural and patient characteristics

**References**