

Hernia Surgery, Anesthetic Technique, and Urinary Retention—Apples, Oranges, and Kumquats?

In this issue of *Regional Anesthesia & Pain Medicine*, Jensen and colleagues¹ share with us their review of the literature regarding the frequency of urinary retention after inguinal hernia repair. They examined 72 reports describing various anesthetic techniques for this procedure and concluded that urinary retention is a problem after hernia repair performed under regional or general anesthesia but not under local anesthesia with sedation. This is an interesting observation that sheds light on an age-old problem. Urinary retention after hernia repair has long been recognized as a frequent complication. Most ambulatory surgery units recognize this event as being so common that voiding after hernia repair is usually a requirement for discharge, even in units that do not require voiding after other procedures. Is it the procedure, or is it the anesthetic, that makes a difference? What exactly is going on here?

The authors conclude that the problem is with the choice of anesthesia. They report an incidence of retention from 2.5% to 3% after regional or general anesthesia, respectively, compared with less than 0.5% after local anesthesia. They attribute this to interference with the autonomic system by general anesthesia or interruption of the micturation reflex associated with regional techniques. They observe “the effect of anesthetic technique on urinary retention has not been established by valid large-size randomized studies.” This is not completely accurate. In the case of general anesthesia, they cite 2 studies by Pavlin that include 390 patients receiving outpatient general anesthesia who were specifically evaluated for urinary function.^{2,3} The incidence of catheterization was less than 0.5%, similar to the experience with local anesthesia in the review by Jensen et al. Pavlin eliminated hernia repair from consideration because of the known high incidence of urinary retention after this procedure, which their experience confirmed (retention after hernia repair ranged from 5% to 14% in their 2 groups). They also eliminated rectal procedures and gynecologic surgery from consideration. In the situation of regional anesthesia, there are also new data available about the effects of neuraxial block on urinary retention. In our study of 201 patients receiving short-acting spinal or epidural anesthesia, only 3 patients were catheterized after their blocks and then only for discharge convenience rather than symptoms of urinary retention.⁴ We also excluded hernia patients as high risk for urinary retention and noted a 4% incidence after this procedure, even with a short-acting block.

Jensen et al’s concern about neuraxial anesthesia would be valid if we look only at older data, such as the study by Axelsson et al.⁵ on bladder function after bupivacaine spinal anesthesia. Axelsson and colleagues found that a 20 mg bupivacaine spinal interfered with bladder detrusor strength for 7 to 8 hours, which was well beyond the period of motor blockade produced by the spinal anesthetic. They concluded that there was a significant risk of bladder distention

after a spinal anesthetic and that catheterization was necessary under these circumstances to avoid over distention or urinary retention. Chiu et al.⁶ and Liu et al.⁷ expressed similar concern about the use of epinephrine as an additive even for short-acting spinal anesthetics. Their volunteers receiving 50 mL lidocaine spinal anesthetics with epinephrine required 4 hours before they were able to void, even though their sensory blocks wore off 1.5 hours earlier. With these choices for neuraxial blockade, one might conclude that neuraxial anesthesia does indeed increase the risk of urinary retention. But this is not consistent with our report of voiding function after short-acting regional anesthesia,⁴ nor with the large number of clinical studies in which voiding has not been an issue after modern short-acting neuraxial blockade.⁸⁻¹² With appropriate choices of drugs and doses, neuraxial or general anesthesia are not likely to cause urinary retention after other surgical procedures. Are Jensen and colleagues actually identifying a difference in anesthetic technique or is there something about this surgery?

Jensen et al. may well have identified a different problem than they set out to explore—the role of pain in urinary retention. The authors allude to the potential of painful impulses from the hernia incision interfering with voiding by producing a spinal cord reflex inhibition of bladder emptying. Those who have talked with patients trying to void after painful groin or pelvic operations have all heard the story “As soon as I try and press down, it hurts and I have to stop.” Thus, it is not surprising that the authors here have found a dramatic benefit in hernia repair performed with local anesthesia. If the anesthetic procedures are performed correctly, these patients do not have pain during their attempts to void and do not suffer this inhibitory reflex. Those given general anesthesia or even short-acting neuraxial blockade without the benefit of adequate local infiltration at the end of the procedure would very understandably be at risk of painful inhibition of voiding when the anesthetic resolves. The 1 study of regional anesthesia that reported no problem with urinary retention used paravertebral blocks, when the patients had good sensory analgesia at the end of the procedure, just as with local infiltration.¹³

Jensen et al. have identified a problem for us, but it may well be the old problem of apples and oranges. The urinary retention they describe after regional and general anesthesia may have less to do with the anesthetic technique than with the pain associated with the recovery period after these techniques. Although this observation does substantiate the authors’ enthusiasm for local anesthesia for hernia repair, it does not necessarily preclude other types of anesthesia if attention is paid to providing adequate analgesia in the postoperative period. The message should not be for us to abandon spinal epidural, or general anesthesia for hernia repair (or rectal or pelvic surgery). Rather, the message is that we need to ensure that our surgical colleagues or ourselves provide adequate pain relief in conjunction with these procedures so that our patients do not suffer the complications that Jensen et al. have described. In fact, we as anesthesiologists should take the lead in encouraging a multimodal approach to prevent postoperative pain by including early intervention with local anesthetics, peripheral nerve blocks, nonsteroidal analgesics, and other analgesics.^{14,15} This approach may help reduce not only the patient’s acute pain (and the associated reflex urinary difficulty) but also the development of undesirable long-term sequela of surgical intervention.¹⁶ The authors are to be commended for bringing this issue to our attention, but, as is so often the case, there is more than 1 explanation for the differences that they observed. Their thoughts may make an even stronger argument for the advantages of regional anesthesia techniques than they anticipated!

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