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### Reversible bowel and bladder incontinence associated with epidural administration of local anesthetic

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Both permanent and transient neurological injuries are known complications of neuraxial anesthesia. There have been several reported cases of cauda equina syndrome with loss of bowel and bladder control following both spinal and epidural administration of local anesthetics. Urinary retention is a common side effect of neuraxial anesthesia. The micturation reflex is eliminated after spinal administration of bupivacaine, with restoration of normal detrussor muscle contraction as the block resolves. Urinary incontinence is less common following epidural administration of local anesthetic. Epidural blockade with local anesthetic of the low thoracic to midlumbar region theoretically blocks the sympathetic outflow to the gut, which should block sympathetic inhibition of gut motility. Studies support earlier post-operative return of gut function in patients with low thoracic epidurally administered local anesthetic. Loss of bowel control, however, is not a reported side effect. We report a case of reversible bowel and bladder incontinence resulting from epidurally administered local anesthetic. A 55 y.o. male with a history of renal cell carcinoma, s/p lumbar fusion for vertebral metastases underwent epidural catheter placement for diagnostic differential blockade and pain management. Five to six months prior to hospitalization, the patient received radiation treatment to the thoracic and lumbar spine. New radiological studies indicated slight enlargement of a mass at the L-1 level with resultant stenosis of the spinal canal at that level. The patient also had evidence of a newly developed T12 compression fracture. A lumbar epidural was placed caudal to the spinal fusion (L4-5) and a differential blockade using lidocaine was performed in order to further clarify the etiology of the patient's pain. The patient was then started on an infusion of 0.125% bupivacaine. Eight hours later he developed bowel and bladder incontinence, at which time the infusion was discontinued. The patient had no recurrence of bowel or bladder dysfunction once the infusion had been discontinued. The following morning an epidural infusion of 0.0625% bupivacaine was started. The patient subsequently developed bladder incontinence. Once again the infusion was discontinued. The patient regained control of his bladder and was able to urinate voluntarily within 2 hours of discontinuation. Non-ionic contrast dye injected in the epidural catheter verified the catheter tip at L-3, with preferential sacral distribution and minimal spread above the L2 level. The patient subsequently underwent surgery for stabilization of the spine, with extension of the spinal fusion to above the T-12 level. Gross examination during the surgical procedure did not reveal any evidence of a spinal hematoma or abscess. Notably, there was extension of the metastasis around the cord at the L-1 level, although the patient had not experienced any neurologic deficits prior to the start of the epidural local anesthetic infusion. The correlation of resolution of bowel and bladder incontinence with duration of the local anesthetic suggests autonomic blockade of the lumbar and sacral levels as the most likely cause of dysfunction. It is possible that radiation damage to the nerve roots enhanced the intensity of the block. In addition, the presence of spinal stenosis at the L-1 level and preferential sacral spread most likely increased the accumulation of local anesthetic at these lower levels. A study to determine the incidence and severity of bowel and bladder dysfunction with low-dose local anesthetic may be helpful to determine which symptoms are common and do not necessarily require further evaluation for possible epidural hematoma or other acute neurologic injury.