

originator of the technique of ganglion impar neurolysis. We use the SonoSite® MicroMaxx® ultrasound system (SonoSite INC, Bothell, WA; <http://www.sonosite.com/downloads/MicroMaxxTransducerGrid.pdf>) with a HFL38/13-6 MHz transducer for sonographic guidance² for ganglion impar neurolysis. The MicroMaxx system offers a wide range of transducers for multiple clinical applications with broadband linear array with varying scan depths of 6–9 cm that can be used for this technique. Though transrectal transducer for ultrasound-guided ganglion impar neurolysis may be a better alternative in patients with benign chronic coccydynia, we have used a transcutaneous transducer as our patient population presenting with perianal cancer pain usually has varying degrees of ulceroproliferative and obstructive ano-rectal lesions. In our original description,² we used the straight 22-G 15-cm long-Echotip® Chiba needle for accessing the ganglion impar. However, in a subsequent case series,³ we reported a technical improvement with the Pakter curved needle set (Cook Medical Incorporated, Bloomington, IN; <http://www.cookmedical.com/di/dataSheet.do?id=4730>) containing both a stainless steel straight needle with trocar tip 21-gauge 10-cm long and nitinol curved disposable Chiba needle 25-gauge 15-cm long (<http://www.cookmedical.com/di/content/mmedia/CURVE201.pdf>). There is no technical difference observed with both the lateral and prone positioned patients, although lateral positioning during the procedure is more comfortable for the patients.

Using the Echotip® Chiba needle technique, the needle is introduced through the ano-coccygeal ligament just distal to the tip of the coccyx and directed cephalad as parallel to the sacro-coccygeal curve with no predefined angling or bending because real-time ultrasonographic guidance and visualization is utilized to avoid the accidental placement in the rectal wall without the

need for simultaneous digital rectal examination. The ultrasound probe is placed on the cutaneous surface of the coccyx with median plane inclination so that insonation is parallel to the sacrococcygeal curve and the long axis of anteriorly situated rectum. Once the tip of needle (ultrasonography guided in the sagittal image of the median plane) is inserted into the retroperitoneal space posterior to rectum and in the precoccygeal space, the bevel of the needle is then rotated posteriorly to direct the spread of the injectate solution away from rectum and toward the anterior surface of the coccyx. Although contrast-enhanced ultrasound may further delineate the spread of solution, we have found no difficulty in appreciating a good spread of the neurolytic solution with the noncontrast-enhanced ultrasound.

Using the Pakter curved needle set, the straight needle is introduced and directed cephalad through the anococcygeal ligament in the intergluteal area. The tip of the straight needle (ultrasonically guided in the sagittal image of the median plane) is inserted into the retroperitoneal space posterior to rectum and in the precoccygeal space. The curved needle is then introduced through the straight needle with the bevel of the curved needle pointing posteriorly to allow the projection of the curved needle on to the anterior surface of the coccyx. Hence, the tip of the curved needle anatomically reaches the anterior surface of the intercoccygeal joints where the ganglion impar is located.⁴

In conclusion, ultrasound guidance may provide easy access to ganglion impar with either needle set so that severe perianal pain can be managed in the pain physician's office settings.

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A New Pattern of Buprenorphine Misuse May Complicate Perioperative Pain Control

To the Editor:

We have become aware that patients are misusing buprenorphine and buprenorphine-containing drugs such as Suboxone® and Subutex® in an attempt at “self-detoxification” after cocaine use. This practice can be associated with severe perioperative pain that does not remit with typical doses of morphine or fentanyl.

A 47-yr-old patient with a long history of cocaine abuse (last use 4 days prior) was seen in our Anesthesia Preoperative Evaluation Clinic for total hip arthroplasty on the following day, predicated on a negative toxicology screen for cocaine. He reported purchasing a dozen Suboxone sublingual tablets on the street. During the previous 3 days, he initiated a “crash” detoxification program, using one tablet sublingually every 4 h, because he had heard at his domiciliary shelter that this would “clean up” detectable cocaine metabolites in urine.

On the day of surgery, the patient's toxicology screen was negative for the cocaine metabolite benzoylecgonine. He did not admit to cocaine withdrawal symptoms. The patient refused all regional anesthesia, including lumbar plexus block, epidural,

and spinal anesthesia. Intraoperatively, he received fentanyl 1 mg IV and ketorolac 30 mg IV.

His immediate postoperative pain score was 10/10, without diminution to <8/10 over the next several hours, despite receiving an additional dose of ketorolac, morphine sulfate 40 mg, and hydromorphone 10 mg. He continued to refuse regional techniques for pain control. Over the next 3 days, the patient reported pain scores of 8–9/10. He had reasonable control of his pain on the third postoperative day on q2hr dosing of morphine sulfate 4 mg IV. He was noncompliant with postoperative care and left the hospital against medical advice several days later.

Buprenorphine is an opioid analgesic that has partial agonist activity at the mu-1 receptor and antagonist activity at the kappa receptor. Its limited efficacy and extremely high binding affinity for mu receptors mean that it can antagonize the effects of injected agonists like fentanyl or heroin. Since 2002, buprenorphine has been available in the United States only in a high dose formulation for the treatment of opioid addiction. It is dispensed as a sublingual tablet in a combined dosage form with naloxone (Suboxone) or as a sole agent (Subutex), with Food and Drug Administration indication for the treatment of opioid addiction. The naloxone mixture is intended to reduce the possibility of illicit use by injection. When Suboxone is taken sublingually, buprenorphine has its full effect, but the naloxone is poorly absorbed and rapidly

cleared. If an attempt is made to abuse the mixture by a parenteral route, naloxone antagonizes the opioid effect.

Buprenorphine is dispensed from drug treatment programs but may also be prescribed by any physician who undergoes an 8-h training course and obtains a waiver from the federal government. Suboxone has a distinctive color (orange), imprint (sword), and shape (hexagonal). It is available in two dosage forms: 2 mg of buprenorphine with 0.5 mg of naloxone and 8 mg of buprenorphine with 2 mg of naloxone. Most prescriptions written are for Suboxone, due to the reduced abuse potential. It has various street names including "Bupe," "Stop Signs," "The Box," and "Subbies" and can be purchased on the "black market" for about \$5–\$15 per tablet.

Buprenorphine's half-life for dissociation from the mu receptor is 166 min as opposed to 7 min for fentanyl (therefore plasma levels of buprenorphine may not parallel clinical effects).^{1,2} The receptor-binding affinity and long half-life suggest that buprenorphine should generally be discontinued before elective surgery to avoid blockade of pure opioid agonist activity. There are currently insufficient data to know how much time is needed to restore clinically useful sensitivity to opioid analgesics.

Because Suboxone and Subutex can be prescribed by any type of physician, anesthesia providers should ask all patients (especially opioid and cocaine abusers) about prescribed or illicit use of buprenorphine-containing compounds. It is our practice as

well to call anesthesia providers when a patient from our addiction clinic is scheduled for surgery; to date we have spoken to a dozen or so anesthesiologists about the attendant risks. We also alert those surgical services responsible for postoperative pain management of their patients and who may not be equipped to manage extraordinary postoperative pain not ameliorated by routine doses of ordinary opioids and who may prefer to reschedule the case. Regional or local anesthesia should be used whenever possible. Choices for adjunctive parenteral anesthetics include ketamine because its *N*-methyl-D-aspartate receptor-blocking activity will not be affected by buprenorphine or nonsteroidal antiinflammatory drugs, such as celecoxib or etodolac.

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