

## CORRESPONDENCE

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## Peripherally Administered NSAIDs Provide for Patient Benefit

*To the Editor:*—We read with interest the excellent review article by Callesea and Kehlet<sup>1</sup> regarding pain after hernia repair. The authors conclude that intrawound nonsteroidal anti-inflammatory drugs (NSAIDs) have not been shown to have been beneficial in patients having herniorrhaphy.

We would like to cite our recently published article<sup>2</sup> in which we studied patients undergoing inguinal hernia repair during local anesthesia. The patients were randomized to receive ketorolac either intravenously or in the surgical wound. We were able to demonstrate an increased time to first analgesics, a decreased oral analgesic requirement, and lower 24-h movement-associated pain scores in the surgical site group.

We believe that our data, taken in concert with our studies in patients undergoing arthroscopy,<sup>3,4</sup> provide evidence that peripherally administered NSAIDs provide for patient benefit.

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## Unusual Cause of Intravenous Catheter Obstruction

*To the Editor:*—Intravenous catheters occasionally obstruct because of blood clots or kinking of the catheter. We experienced a case of intravenous catheter obstruction caused by a cored fragment of a medication vial stopper.

A patient had a 20-gauge, 1-inch intravenous catheter placed in the dorsum of the hand. An intravenous induction of anesthesia was uneventful. Thirty minutes into the procedure (near the end of the surgery), observation of the drip chamber showed that the gravity-

driven infusion had ceased. All attempts at restarting the infusion by gentle aspiration or flushing solution through the ports failed. When the intravenous catheter was later removed, a small gray fragment was seen occluding the catheter. The fragment was removed from the catheter. It was roughly spherical, measured about 1 mm in diameter, and was similar in consistency and color to the stopper of the succinylcholine used during induction of anesthesia.

We believe that the fragment was a small piece of the stopper of



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a medication vial. The medications were drawn into syringes using the Monoject 18-gauge, 1-inch blunt cannulas (Sherwood Medical, St. Louis, MO). The blunt cannulas and Lifeshield IV sets (Abbott Laboratories, North Chicago, IL) decrease the use of sharps and their hazards. However, when used with standard vials, the blunt cannula can core out a small piece of rubber that can then be aspirated into the syringe. The package instructions on the box of blunt cannulas state "use only with pierced IV reseals." This complication may be avoided by using

sharp needles to aspirate medication from vials or by using the Abbott Lifeshield vial adapter to access the vial's contents with a blunt cannula.

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## The Origin of the "Algorithm"

*To the Editor:*—Algorithms have recently been introduced in medicine, an example being the American Society of Anesthesiologists' Difficult Airway Algorithm.<sup>1</sup> An *algorithm* is defined as "a step-by-step problem-solving procedure, especially an established, recursive computational procedure for solving a problem in a finite number of steps."<sup>2</sup> Although some recent dictionaries correctly attribute the *algorithm* (and its variant *Algorism*), as a mathematical tool, to the famed mathematician Mohamed Al-Khawarizmi (also Al-Khuwarizmi),<sup>2,3</sup> the exact origin of the word is unknown to the majority of clinicians using these algorithms.

In an exhaustive analysis, Hunke<sup>4</sup> tracks the history of the word *algorithm* from its origin into relative obscurity and up to modern times. While serving in the palace of El-Khalifeh El-Mamoun (813–833 A.D.), Al-Khawarizmi authored scholarly texts in astronomy, geography, and algebra, as well as general mathematics. In the twelfth century, the algebra and other mathematical texts were translated into Latin, Spanish, and German and circulated in medieval Europe. According to Hunke,<sup>4</sup> it was Al-Khawarizmi who taught the West their numbers, mathematics, algebra, and the problem-solving tool *algorithm*. The Germans modified the name of Al-Khawarizmi into *Algorismus* (*Algorismus* as the Latin/French equivalent) for ease of pronunciation. However, as often seen, the memory of history is short-lived. Al-Khawarizmi died in 840 A.D., and by the thirteenth century, the world had all but forgotten the origin of the *algorithm*.<sup>4</sup> It was between 1808 and 1811 that the French mathematician Antoine-André-Louis Reynaud (1771–1844) became interested in algorithms. He since has been credited as one of the first people to give an explicit analysis of an algorithm.<sup>5</sup> It was around this time that he discovered that the word *algorithm* is derived from the name of the famed mathematician Al-Khawarizmi.<sup>4</sup>

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