

with significant reductions in the odds of death and stroke within 30 days after carotid surgery in the nonrandomized studies.¹ In the randomized studies, the use of local anesthesia was associated with a significant reduction in hemorrhagic complications, but there was insufficient evidence of a reduction in perioperative stroke. Therefore, my statement that “regional anesthesia is less likely than general anesthesia to result in perioperative complications” is not inconsistent with the literature.

Kettler points to postoperative hypotension as a complication of regional anesthesia. I reiterate that most perioperative strokes are embolic. Hypoperfusion is responsible for only a small number of such strokes. Regional anesthesia facilitates neurologic assessments during surgery, thus permitting timely detection and treatment of stroke, and it is associated with less blood loss and shorter hospital stays,² thereby decreasing postoperative thromboembolic complications. A quick literature search (www.pubmed.com) shows several reports that provide support for the neuroprotective properties of isoflurane,³ but I concur that the choice of the anesthetic agent should not be based solely on its putative neuroprotective properties.

Parashar questions whether a high level of magnesium is a risk factor for postoperative atrial fibrillation. Although several studies suggest that hypomagnesemia is associated with postoperative atrial fibrillation, there are conflicting data in the literature.⁴ Therefore, it would have been more

appropriate to point to “disturbances of serum magnesium” instead of high magnesium levels. He also correctly suggests that magnesium supplementation may be beneficial in reducing the incidence of atrial fibrillation. The effects of magnesium seem to be independent of serum magnesium concentrations, and they are probably mediated through its direct effects on sinoatrial-node conduction. Most guidelines for the management of postoperative atrial fibrillation provide level A evidence of the efficacy of beta-blockers and amiodarone, in contrast to level B evidence for magnesium.⁵

Finally, I thank Weintraub and Khoury for sharing their findings on the pathophysiological basis of some perioperative strokes.

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Medical Mystery: Skin Discolorations — The Answer

TO THE EDITOR: The medical mystery in the April 5 issue¹ involved a 34-year-old bank employee who presented with black discolorations of the skin (Fig. 1A) on all her fingers. The discolorations had developed in the evening after work. A skin-biopsy specimen of the black spots revealed brownish deposits of elemental silver in the corneal layer (Fig. 1B), with a fluorescent aspect on the dark-field microscopical examination (Fig. 1C), which is typical of elemental silver. Infrared spectroscopy

and microanalysis with x-rays showed that some of the bills the patient had been counting (Fig. 1D) were prepared with a combination of silver nitrate and petroleum jelly, a method often used to find a thief. Silver nitrate diffuses into the epidermis and reacts with chloride from sweat to form silver chloride, which is photochemically reduced by ultraviolet light to form colloidal particles of metallic silver; these appear black and persist in the epidermis. An advantage of this method of trap-

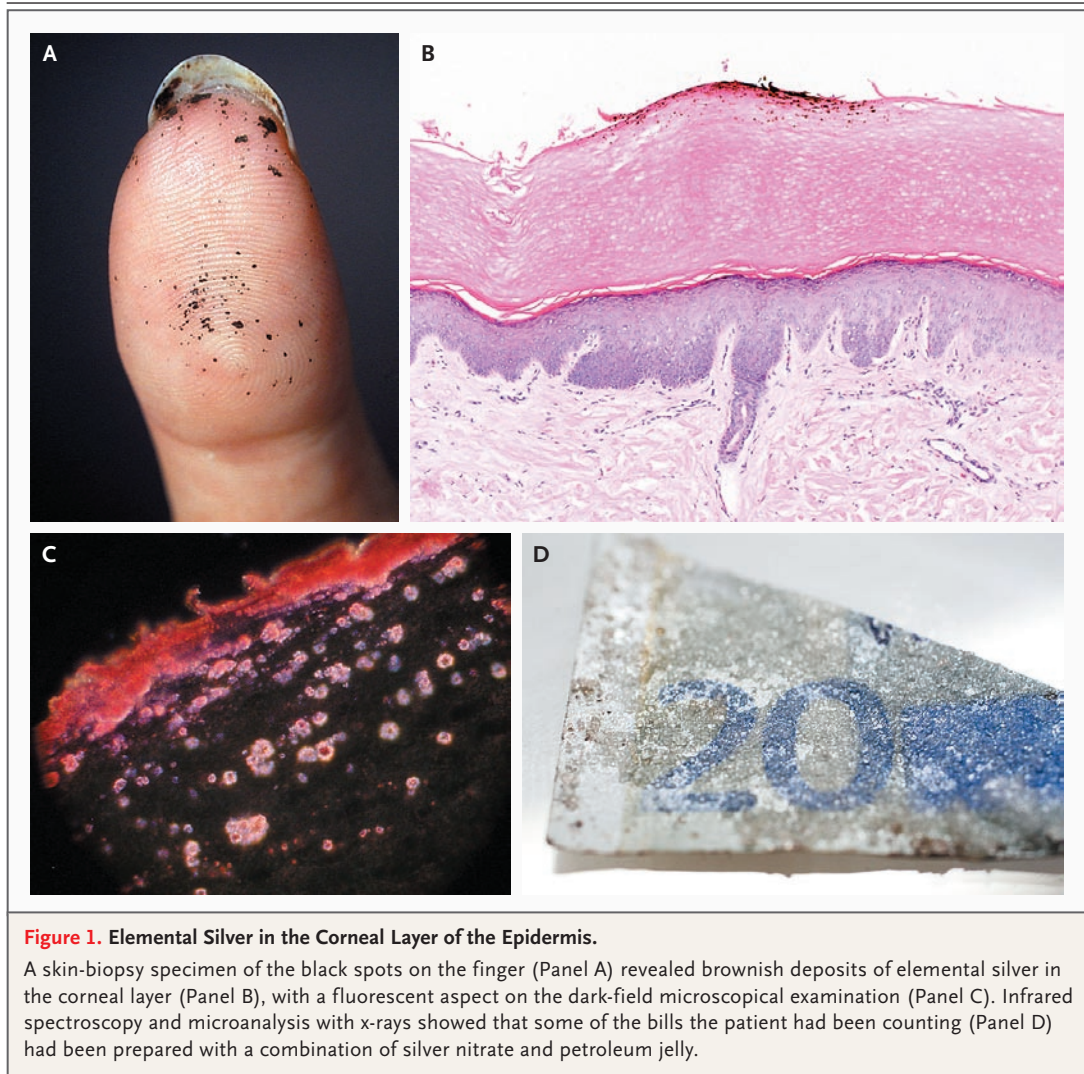


Figure 1. Elemental Silver in the Corneal Layer of the Epidermis.

A skin-biopsy specimen of the black spots on the finger (Panel A) revealed brownish deposits of elemental silver in the corneal layer (Panel B), with a fluorescent aspect on the dark-field microscopical examination (Panel C). Infrared spectroscopy and microanalysis with x-rays showed that some of the bills the patient had been counting (Panel D) had been prepared with a combination of silver nitrate and petroleum jelly.

ping thieves is that usually other persons or objects cannot be contaminated, because the reaction of silver nitrate and chloride produces silver chloride so rapidly. The discolorations cannot be removed by washing, but they disappear after 1 to 2 weeks with normal epidermal turnover. The thief in this case was never identified.

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Editor's note: We received 960 responses to this medical mystery, from 75 countries. Of these, 57% were from physicians in practice, 16% from phy-

sicians in training, 15% from medical students, and 12% from other readers. This medical mystery sparked quite a bit of interest among scientists associated with law enforcement.

Overall, 76% of the respondents identified an environmental exposure to an exogenous substance as the cause of the black spots; most of these respondents suggested ink of some kind from either the bills or an associated copy machine, but a subgroup (24%) correctly identified silver nitrate as the offending substance. The remaining 24% of the respondents suggested numerous diagnoses, including endocarditis, anthrax, trauma, vasculitis, and melanoma. Remarkably, 4% of the respondents correctly identified the motive for the activity — detection of thievery.