of the transverse flap component is limited if the donor site is to be closed primarily. We typically harvest the flap with the entire rectus abdominis muscle to further maximize perfusion.

We have performed a cruciate flap in four patients since 2007 (one pedicled flap and three free flaps). The pedicled flap case involved a patient with a history of prostate cancer metastatic to the sternum who developed sternal osteoradionecrosis. Radical débridement resulted in an extensive soft-tissue and bony defect (Fig. 1). A pedicled cruciate flap was performed, which was advantageous given the patient's thin body habitus and overall poor prognosis; the flap allowed for transfer of tissue from outside the zone of radiation. In another case, a free cruciate flap was performed in a patient with a radiated post-pneumonectomy bronchopleural fistula, where its independent limbs facilitated inset for repair of the fistula and concurrent large dead space obliteration. Other cases involving free flaps included a pediatric patient (30 kg) with an extensive, traumatic, lower extremity soft-tissue defect with exposed prosthesis and a patient who sustained significant total body surface area burns but whose abdomen was spared from injury. Mean follow-up was 7.5 months. In all patients, primary donor-site closure was performed without wound breakdown, hernia, or abdominal bulge. There were no instances of partial or total flap loss.

We believe the combined TRAM-VRAM flap is a useful variant of flaps based on the rectus abdominis system. It may be performed as either a pedicled flap or a free flap for the reconstruction of extensive defects, while allowing for primary donor-site closure with little associated donor-site morbidity.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

REFERENCES

1. Kroll SS. Bilateral breast reconstruction in very thin patients with extended free TRAM flaps. *Br J Plast Surg.* 1998;51:535–537.
2. Takayanagi S, Ohtsuka M. Extended transverse rectus abdominis musculocutaneous flap. *Plast Reconstr Surg.* 1989;83:1057–1060.
3. Lee MJ, Dumanian GA. The oblique rectus abdominis musculocutaneous flap: Revisited clinical applications. *Plast Reconstr Surg.* 2004;114:367–373.
4. Blondeel PN, Beyens G, Verhaeghe R, et al. Doppler flowmetry in the planning of perforator flaps. *Br J Plast Surg.* 1998;51:202–209.

Gossypiboma: An Approach to Diagnosis in the Era of Medical Tourism

Sir:

The retained surgical sponge, or gossypiboma, has become a rare event with the advent of standardized surgical counting. The Association of Operating Room Nurses requires that sponge counts be performed once at the start and twice at the conclusion of every operation involving an open cavity. In addition, the World Health Organization recommends only x-ray–detectable sponges be placed in body cavities and that non–x-ray–detectable sponges only be used after skin closure.[1,2] When count discrepancies cannot be reconciled, a plain radiograph should be obtained. Although retained objects typically occur in operations involving the viscera, soft-tissue procedures are not immune from retained objects.

We recently treated a 64-year-old woman who underwent bilateral breast augmentation with silicone implants in another country. She presented to our office 7 months later with a 4-cm area of firmness and associated discomfort in the upper outer quadrant of her right breast. On mammography, no abnormality was seen. An ultrasound revealed a 3-cm, hyperechoic, wavy curvilinear structure with dense posterior acoustic shadowing at the 10 o'clock position (Fig. 1). Given our suspicion of a retained foreign body, she was taken to the operating room, where a retained sponge was encountered that did not contain a radiopaque marker (Fig. 2).

Clinical suspicion for gossypiboma may be raised by the presence of a palpable mass. In cases where reports exist for the patient's prior operation, or the facility is known, the diagnosis can be made using plain radiographs alone. However, when the facility is unknown, one cannot be certain that x-ray–detectable sponges were used intraoperatively. In such cases, a negative plain radiograph is not sufficient to rule out gossypiboma and additional imaging may be required for diagnosis. On computed tomographic scans, a gossypiboma appears as a well-circumscribed mass with an enhancing capsule, generally 2 to 8 mm thick, containing internal heterogeneous densities with a wavy or striped appearance. On ultrasound, the gossypiboma appears as an echogenic center with a hypoechoic rim and a sharply delineated acoustic shadow from attenuation of the sound waves by the sponge fibers.[3,4]

The need for this more complex workup may become more frequent with the rise in medical tourism. An estimated 750,000 Americans sought medical care abroad in 2007, and 648,000 did so in 2008.[5] These medical tourists seek care in a variety of countries, including less-developed nations, and a variety