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Dale Collins Vidal, a breast reconstruction expert, did the first large study of a technique called skin-banking.

Study finds that skin-banking pays dividends

Saving a little something for a "rainy day" is a concept everyone is familiar with. But most people don't associate it with breast reconstruction surgery after a mastectomy.

Yet banking a piece of skin to use later is "not that startling an idea," says Dartmouth plastic surgeon E. Dale Collins Vidal, M.D. She just published, in the *Annals of Plastic Surgery*, the results of a study of the technique. It turns out that skin-banking does indeed result in improved post-mastectomy reconstructions for breast cancer patients.

This is an important finding, for although skin-banking has been used with increasing frequency over the past decade, Vidal's study was the first large-scale assessment of the technique. Only two tiny studies, each with less than a handful of patients, had been done previously. Vidal analyzed 63 cases to arrive at her conclusion.

Tissue: Skin-banking is a refinement of a procedure called skin-sparing mastectomy. In skin-sparing mastectomy, the internal breast tissue is removed but most of the skin covering the breast is left intact. The breast is then rebuilt using tissue harvested from the patient's lower abdomen; that part of the procedure is similar to a tummy tuck, says Vidal. Surgeons and patients prefer skin-sparing mastectomy if it's possible to do, says Vidal, because reconstructed breasts retain a more natural shape than silicone implants, and there is less visible scarring than after a complete mastectomy.

Skin: But the problem with the skin-sparing procedure is that in some patients—between 4% and 30%—some of the original breast skin deteriorates. This "can severely impact the time to healing and . . . the quality of the breast reconstruction," the study authors wrote. But it's hard to tell during the initial surgery if that will happen; doctors can't know for sure until two or three days later.

Vidal analyzed 63 cases of the skin-banking technique.

To tackle this problem, a team from Harvard developed skin-banking. After finishing the breast reconstruction, the surgeon takes a flap of skin from the abdomen, called a TRAM flap (TRAM stands for transverse rectus abdominus myocutaneous) and buries it temporarily under the breast skin, securing it with staples or sutures. Then three or four days later, the patient returns to the OR for a postoperative check, and surgeons can replace any injured breast skin with the stored TRAM skin; this follow-up procedure is called a TRAM inset.

Sure: When Vidal saw an early demonstration of the TRAM inset procedure, she was a convert. "I thought, 'Why not?'" she says. "It's a very short return trip to the OR. Easy to do. And advantageous for the patients." But to make *sure* the new technique was better, she later decided to do a retrospective study of 63 cancer patients who'd had breast reconstruction surgery. All 63 procedures in the study were done by Vidal between 2001 and 2006.

Of the 63 patients, 46 (73%) had minimal or no skin loss and so were able to have immediate nipple reconstruction, with a 96% success rate. The other 17 (27%) lost some original breast skin and so required a TRAM inset; these patients could not have immediate nipple reconstruction, but some had it done later. None of the TRAM inset patients had any problems with the inset skin. Overall, about 11% had wound infections in their abdominal area, and 9% had wound infections in their breast area.

A key advantage of the TRAM inset is that if the post-mastectomy biopsy reveals that there was any cancer close to the skin, at the follow-up visit the surgeon can easily remove the involved skin and replace it with some stored TRAM skin. In Vidal's study, three patients had this done.

The study did have one limitation: it had no control group—patients who had their entire reconstruction done in one visit. Although such a comparison would be valuable, Vidal explains, it would have been difficult and costly to do.

Impressive: Even so, she's now confident that skin-banking works well for a majority of patients. Scarring is often not noticeable after a year or two; in fact, "some of the women who have had breast reconstruction using this approach, you would never know they had breast reconstruction," she says. "This can be a really impressive outcome when it goes well."

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