Jejunal Graft Can Be Used to Create a Neovagina

This technique limits scarring, compared with skin grafts, and provides mucosal lubrication.

BY MICHELE G. SULLIVAN

Women who need vaginal reconstruction now have another surgical option—a vascularized free jejunal graft that provides a durable, lubricated neovagina without the scarring that skin grafts can leave.

Dr. Münire E. Akar and her colleagues have reported the largest series of these operations yet—31 patients since 2005. During the mean follow-up of 19 months, the team has had a 100% graft survival rate and a 10% rate of anastomosis revision.

Dr. Akar reported on 14 of these patients at the Global Congress of Minimally Invasive Gynecology, held last November. In December, she and her colleagues published a series of 22 such cases (Microsurgery 2009 [doi:10.1002/micr.20713]), but since the article was accepted, the team has performed 9 more operations, for a total of 31. All procedures were performed at Akdeniz (Turkey) University, Antalya; Dr. Akar is currently performing research at Wake Forest University, Winston-Salem, N.C.

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DR. AKAR

Although the procedure takes about 5 hours and the recovery period is long, the end result is worthwhile, Dr. Akar said in an interview. "It can be very hard for patients to go through, but usually they are fed up with their condition and so they are ready to do whatever is necessary," she said.

The ideal vaginal reconstruction should provide a long-lasting, functional passage for sexual intercourse that does not need maintenance with dilators or lubrication for sexual activity. The jejunal flap offers these advantages over grafted skin and is less likely to cause gastrointestinal problems, compared with the more widely performed colon transfer, she said. Although she and her team have not had any graft failures, if one did occur there would be plenty of replacement material, which is not the case with a bowel transfer, she added.

The surgery is a significant contributor, but not a perfect answer, for women with vaginal agenesis or those who require reconstruction as a result of trauma or gynecologic surgery, said Dr. Ronald Silverman, chief of plastic surgery at the University of Maryland, Baltimore.

"It's definitely an excellent technique, but there are some negatives," he said in an interview. "It's very high demand in terms of the length of operation and the technical demand on the surgeons. And since it's done through the abdomen, there is an additional scar."

Harvesting the intestine is much more invasive than taking skin. "This would not be my first choice of technique," said Dr. Silverman, who prefers the Singapore, or pudendal, thigh, flap. "One of the nice things about [the thigh flap] is that the medial thigh does have erogenous sensation, while the jejunal transfer is insensate," because of the severing of its neural connections. "The whole reason for doing a vaginal reconstruction is to have a normal sex life," so having vaginal sensation is a logical goal for such surgery, he said.

A skin-grafted neovagina, however, requires a lot of postoperative care to maintain its integrity. Unless the woman engages in frequent penetrative sex, she must make regular use of a dilator or stent to maintain vaginal depth and avoid introital constriction. In Turkey, this is an almost unthinkable task for women, Dr. Akar said.

"Women in our society are not conditioned to do this kind of thing. Our culture is very conservative, so until they are married, girls don't ever touch their genitals or even talk to their mothers about such things. It's very hard to ask them to do this—it's not really a choice for our women."

This societal inhibition also precludes what is often the first-line treatment for vaginal agenesis: the use of graduated dilators or internal traction to create a functional vagina.

Surgical Technique

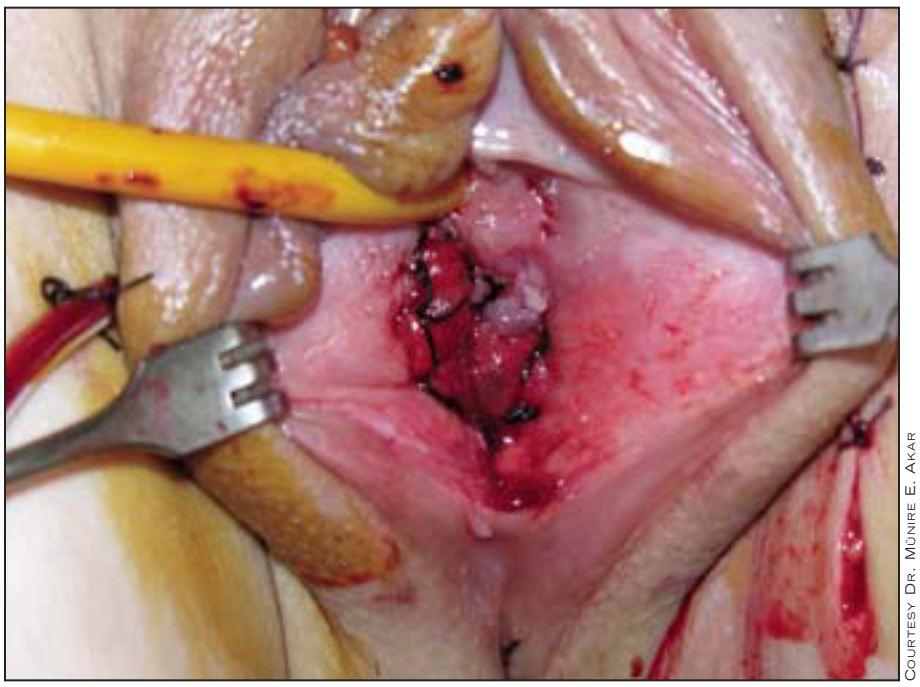
After making a 10-cm incision beside the umbilicus, the surgeon isolates a jejunal segment of about 30 cm, distal to Treitz's ligament.

The segment is removed, along with its vascular pedicle, and the ends of the remaining jejunum approximated and anastomosed.

The surgeon creates a pouch for the neovagina from the blind vaginal introitus into the abdominal cavity. The jejunal segment is transferred into this pouch vaginally, and the proximal end closed with sutures and anchored to the retropubic periosteum.

A second tunnel from the periosteum to the inguinal region accommodates the vascular pedicle. Arterial and venous anastomoses between the flap and the recipient vessels are performed through a 6- to 7-cm inguinal incision. Finally, the surgeon attaches the distal opening of the jejunal segment to the vaginal introitus, creating a vagina of about 15-17 cm in length.

The mean surgical time in the series was 5 hours, with patients discharged about 2 weeks later. They were allowed to engage in sexual intercourse after 1 month.



COURTESY DR. MÜNIRE E. AKAR

This image provides an immediate postoperative view of the neovaginal introitus and the jejunum flap. Results were promising for vaginal reconstruction in 31 patients.

Results

The patients' mean age was 22.5 years (range 16-32 years). Most (27) of the patients had Müllerian agenesis; one patient needed a reconstruction because of previous oncologic surgery.

One patient had testicular feminization syndrome and had previously received a skin flap but developed postoperative stenosis. Only two patients had a normal uterus; their neovaginas were connected to the cervix, and they now experience a normal menstrual cycle with vaginal bleeding.

Three patients required reoperation because of venous compromise in the flap that occurred on postoperative days 2, 3, and 9. All flaps were salvaged. There was one mucosal prolapse, which was treated surgically. One patient developed hematomas in the abdominal and inguinal incision, which resolved with drainage. There were no surgical, urinary, or gastrointestinal infections or complications.

Follow-up ranged from 3 to 50 months. The patients were allowed to engage in sexual intercourse 1 month after surgery. Although two reported mild bleeding during intercourse early on, this did not continue. One patient developed an introital stricture that was treated with temporary dilation.

While mucosal secretion is one of the big benefits of an intestinal reconstruction—eliminating the need for artificial lubrication during sex—hypersecretion can be a problem as well, Dr. Akar said. Dr. Silverman agreed. "It's thicker than normal vaginal mucus, and sometimes, this can get to be so much of a problem that the women need to wear a pad," he said.

Three of Dr. Akar's patients complained of this problem, but the severity lessened with time, she said. The incidence seems to be lower than what is observed after a pedicle bowel transfer, possibly because of the ischemia induced during the transfer period. In fact, Dr. Akar said, she and her colleagues are preparing to report on some adjustments they have made to cope with discharge, observing that the ischemia period seems to decrease the amount of mucus the graft secretes after transfer.

Most of the patients (29) are now able to have satisfactory sexual intercourse. Two patients are single and haven't engaged in intercourse yet. Although the investigators did not report any specific sexual outcomes data, Dr. Akar said "there were no complaints in that regard" conveyed by patients.

Follow-up will continue, and one question that remains is the possibility of conception in those patients with a normal uterus. "If there is endometrium and now a connection to the cervix, there is a chance to get pregnant, although we don't know how that will go in the future," Dr. Akar said. Of course, any term pregnancies would have to be delivered by cesarean section, she said, since the grafted intestine would not expand enough to permit a vaginal birth.

The large abdominal incision for the reconstruction procedure is a drawback, she admitted, but the improvements may be made in the future. The team has performed one similar procedure with laparoscopic assist—a pedicled jejunal flap transfer on a woman who had most of her reproductive organs removed due to cancer when she was 3 years old.

The team used three cannula ports. The jejunal segment and vascular pedicle were divided laparoscopically. Insertion into the neovaginal pouch was completed through a Pfannenstiel incision (Microsurgery 2008;28:671-5).

Because of the length of transfer needed to reconstruct an entire vagina, the pedicle technique is a better alternative for women who have some vaginal length and need a distal extension, Dr. Akar said.

Otherwise, the transfer might put too much pressure on the vascular pedicle and endanger the graft. ■

Disclosures: *None was reported.*