

An Innovative Approach to the Primary Surgical Delay Procedure for Pedicle TRAM Flap Breast Reconstruction

Sir:

The preliminary delay of the pedicle transverse rectus abdominis musculocutaneous flap through ligation of the inferior epigastric vessels has been shown to augment the vascular supply and decrease ischemic flap complications.^{1,2} Several surgeons have developed minimally invasive laparoscopic techniques to minimize morbidity while maximizing flap outcomes.²⁻⁴ However, the laparoscopic techniques described have only addressed the deep inferior epigastric vessels.²⁻⁵ This report describes our laparoscopic technique designed to ligate both the superficial and deep inferior epigastric vessels simultaneously.

Our preliminary flap delay procedure is often performed in conjunction with a sentinel lymph node biopsy by our general surgery colleagues or a bilateral salpingo-oophorectomy by the gynecology team. After induction of general anesthesia, the abdomen is prepared and draped in routine sterile fashion. Entrance into the peritoneal cavity is obtained by means of Veress needle insertion followed by trocar placement at the level of the umbilicus (Fig. 1). Pneumoperitoneum is established, and using a 30-degree laparoscope, initial examination of the intraabdominal cavity is performed to rule out the presence of iatrogenic injury or metastatic processes. With the patient in steep Trendelenburg position, the left and right internal inguinal rings are identified followed by identification of the *deep* inferior epigastric vessels at the superior medial aspect of the internal inguinal ring. The *superficial* inferior epigastric vessels are then identified by transillumination. Once both deep and superficial vessels are identified, a stab wound is made in the skin just over this area. A Vicryl-loaded Endoclose needle device (Ethicon, Inc., Somerville, N.J.) is then introduced into the peritoneal cavity first medial and then lateral to the superficial and deep vessels (Fig. 1). The ligature is tied extraabdominally, with the knot placed at the fascial level, thereby ligating both the superficial and deep inferior epigastric vessels. The procedure is then repeated on the contralateral side.

When the superficial and deep inferior epigastric vessels are not close enough to allow for simultaneous ligation, they are approached separately. This requires placement of an additional 5-mm working port lateral to the rectus muscle above the level of the umbilicus (Fig. 1). This additional port facilitates introduction of the LigaSure V 5-mm sealer/divider (Covidien, Boulder, Col.) to fuse and ligate the deep inferior epigastric vessels. After ensuring hemostasis, the ports are removed and incisions are closed in the usual fashion.

When compared with the open procedure, the laparoscopic delay described here has resulted in significantly decreased abdominal tissue morbidity and has maintained improved flap outcomes. It avoids large incisions; wound complications such as

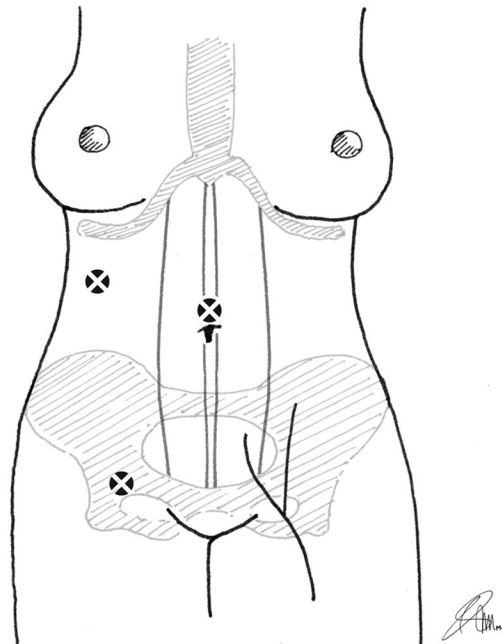


Fig. 1. Illustration of the trocar sites used to laparoscopically ligate both the superficial and deep epigastric vessels. The laparoscope is inserted at the level of the umbilicus. The Endoclose device is inserted at a site near the pubic rami over the superficial inferior epigastric vessels. The site that is superior to the umbilicus and lateral to the rectus sheath can be used as an additional port when simultaneous ligation of the deep and superficial epigastric vessels cannot be achieved.

seromas; and edematous, friable tissue, which are complications frequently encountered with the open delay technique. Our technique also addresses both the superficial and deep inferior epigastric vessels, thereby providing a potentially larger, more reliable skin paddle.

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DISCLOSURE

The authors have no financial or commercial interests related to this research.

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Nipple Resuscitation by Lipostructure in Burn Sequelae and Scar Retraction

Sir:

Despite civilization and progress, burns and traumas occur frequently in the world, resulting in important sequelae and severe scars. If the scar areas involve the nipple-areola complex, reconstructive surgery is particularly difficult and the outcomes are often unsatisfactory.

Table 1. Anamnestic Patient Data

Patient	Injury (Burn or Trauma)	Cause of Burn/Trauma	Extent of Burn/Trauma	Age at Burn/Trauma* (yr)	Age at First Treatment† (yr)
1	Burn	Petroleum fire	30% of face, upper limbs, trunk	36	39
2	Burn	Petroleum fire	Hands, trunk	5	25
3	Burn	Petroleum fire	Trunk	28	30
4	Burn	Alcohol fire	30% of face, trunk	35	38
5	Burn	Alcohol fire	10% of face, upper limbs, trunk	3	24
6	Burn	Contact with incandescent grill	Upper limbs, trunk	25	28
7	Burn	Alcohol fire	Upper limbs, trunk	51	55
8	Burn	Alcohol fire	Trunk	43	48
9	Burn	Car accident	Trunk, inferior limbs	19	23
10	Burn	Car accident	80% of face, upper limbs, trunk	6	24
11	Trauma	Car accident	Upper limbs, trunk	24	28
12	Trauma	Motorcycle accident	Upper limbs, trunk	22	28
13	Trauma	Motorcycle accident	30% of face, upper limbs, trunk	36	38
14	Trauma	Motorcycle accident	Trunk	44	50
15	Trauma	Sport accident	Trunk	28	30
16	Trauma	Motorcycle accident	Upper limbs, trunk	59	61
17	Burn	Petroleum fire	Upper limbs, trunk	16	22
18	Burn	Alcohol fire	30% of face, upper limbs, trunk	44	48
19	Trauma	Motorcycle accident	Upper limbs, trunk	28	32
20	Trauma	Industrial injury	Upper limbs, trunk	39	42
21	Trauma	Industrial injury	Upper limbs, trunk	48	53
22	Trauma	Car accident	10% of face, upper limbs, trunk	60	62
23	Trauma	Car accident	Trunk	18	22
24	Trauma	Car accident	Trunk	16	21

*Average age at burn/trauma was 30.5 years.

†Average age at first treatment was 36.3 years.