Correspondence and Brief Communications

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DOCTOR AS PATIENT: FACING DISFIGUREMENT

Sir:

Few of us who are surgeons have suffered more than minor scrapes or injuries. Therefore, we can have no real idea of what patients treated for more severe problems—problems that will change in one way or another the course of their lives—feel.

This Brief Communication attempts to merge personal experience with training and experience as a surgeon to help explain the patient's perspective and understand the role the physician should adopt in these cases.

The few articles published on the behavior of doctors faced with their own disease reflect a delay in requesting help together with negation or hiding the illness, from themselves and from others. Some physicians find it difficult to abandon their doctor's role, while others are not allowed to do so by their colleagues.[1]

When the patient is a doctor, and even more so when the doctor is a specialist in his or her own illness, his or her confidence in the effectiveness of medicine may be limited. Understanding the limitations of the surgical technique and the extremely varied criteria or techniques to be applied may well engender skepticism about the specialist who is administering treatment as well as make acceptance of the possible complications or poor results much more difficult. On the other side, the colleagues who are treating the doctor–patient may be under greater pressure than when treating other patients, which is prejudicial for both the doctors and the patient.

Nevertheless, doctors who become patients develop necessarily a practical vision of all the theory they have learned, and their attitudes toward having certain functional limitations may change.

When doctor–patients return to their working lives, having experienced a trauma may imply a handicap, since their damaged appearance may affect the way in which their patients and colleagues consider them. A lack of confidence and loss of the image of the curing figure that the patient projects onto the doctor may occur. On the other hand, the doctor who has undergone a trauma may be closer to patients who are having the same problem, since they will share the experience from the same side. In fact, in this relationship, the doctor receives support from the patient that can be as important as that of the doctor's family and friends. In the doctor–patient relationship, the energy flow is not one way; our patients also care for us in a tangible way, helping us to keep going.

The focus of the doctor–patient relationship changes, becoming more intense, since the doctor now knows, from his or her own experience, exactly where the patient needs his or her help.

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ARM RESTRAINT IN CHILDREN WITH CLEFT LIP/PALATE

Sir:

We were interested to read the correspondence from Babuccu et al.[1] regarding arm restraint. They mention that "in the classic textbooks, arm restraint is strongly advised to prevent disruption of the repair site by the child." They also say that they found no study published on this subject.

We would like to draw their attention to a randomized controlled trial which we conducted in 1991/1992 that showed that, at least in cleft palate repair, there appeared to be no benefit in using any form of arm restraint.[2] We have not used arm restraints for either cleft lip or cleft palate surgery since 1992, and we have found no adverse effects. We have, however, found that babies and parents are much more content.

Arm restraint is yet another unnecessary and unpleasant burden for both patients and parents.
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2. Jigjinni, V., Kangesu, T., and Sommerlad, B. C. Do babies require arm splints after cleft palate repair? *Br. J. Plast. Surg.* 46: 681, 1993.

REPLY

Sir:

We appreciate the opportunity to reply to Sommerlad and Kangesu's letter regarding our Brief Communication about the use of the arm splint in the child with cleft lip/palate. We respect their concern about distress of the parents and children, but some points need to be clarified.

We did not say that there was no study in the literature about arm restraining in the cleft child. What was written exactly in the article was as follows: "The *type* of restraint usually depends on the experience and preference of the surgeon; surprisingly, we found no study published on this subject" (italics added).[1] When this article was written, there were no published articles questioning the *type* of restraint. Later, the study by Smoot[2] was published.

We appreciate the very informative study of the authors. On the other hand, we would like to discuss some details reported in their article[3] that may help in reaching a consensus. First, 3-week postoperative application of the splints seems to be too long when the speed of wound healing in the child is taken into account. This could be a reason for the distress of the family described by Sommerlad and Kangesu in their letter. In our practice, no more than 1 week of restraint was necessary, and we did not receive too much complaint from families. To the contrary, many parents expressed that they felt comfortable knowing that their children could not put their hands into their mouths in the early postoperative period.

As it was mentioned in Dr. Sommerlad et al.'s study,[3] prevention of traumatic disruption of repair is a subject for further studies. In addition, the age of the patients in the referenced article was around 5 months, which means that further studies need to be performed in an older age group.

Lastly, the psychological effect of the arm splint applied for only 10 days should not be the subject of concern, since many of us have had an arm splint due to trauma in the past.

In conclusion, the main question is, would you tell parents to let their children suck their fingers on the first postoperative day?
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A LARGE SINUS ON THE NECK: A RARE COMPLICATION AFTER THYROIDECTOMY

Sir:

Wound dehiscence is not an uncommon complication after an operation. Wound breakdown is generally complicated with local infection, and if it is left to heal spontaneously, it results in ugly scar tissue. However, formation of a large sinus around the wound is a rare complication during healing with secondary intention.

An 18-year-old woman was admitted to our department with a large sinus on her neck (Fig.1). She had undergone a thyroidectomy 13 years earlier, and a large sinus had formed just in the middle third of the incision line on her neck. She had not had any treatment, including surgery. At physical examination, we observed a sinus that was 2 cm in entrance diameter and nearly 40 cm^3 in volume (Fig. 2). It began just above the jugular notch, continued through to the pretracheal fascia between two sternohyoid muscles, and ended below the laryngeal prominence. She was operated on under local anesthesia. An inferior semicircular incision was made around the sinus cavity, and the epithelium-lined scar tissue was dissected from the floor of the cavity. The sternohyoid muscles were approximated and sutured to each other with 4-0 chromic catgut to fill the dead space. A skin flap from the superior part of the epithelium-lined tissue, which was extracted from the sinus cavity, was planned to cover the skin defect over the orifice of the sinus cavity. Excessive scar tissue was excised, and the remaining skin flap was sutured to inferior wound margin with 4-0 polypropylene sutures. The new incision line was continued with the old scar line on the lateral wound margins (Fig. 3). Histological confirmation revealed that the specimen was epithelium-lined scar tissue.

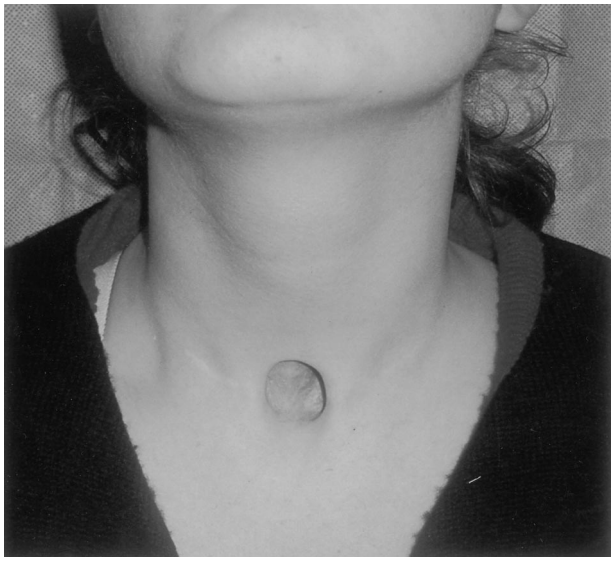

FIG. 1. Preoperative view of a large cavity on the neck.

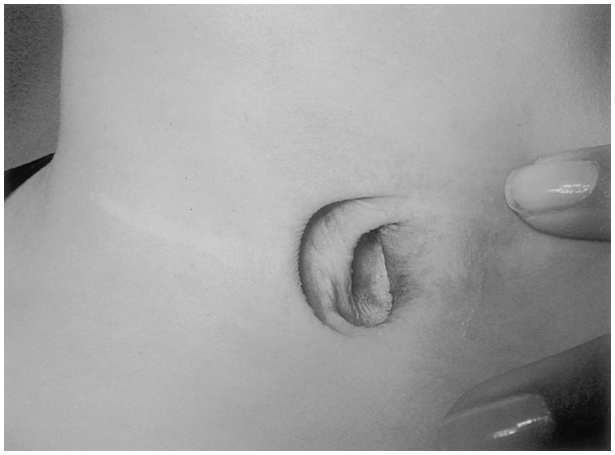

FIG. 2. The cavity was 2 cm in entrance diameter and nearly 40 cm^3 in volume.

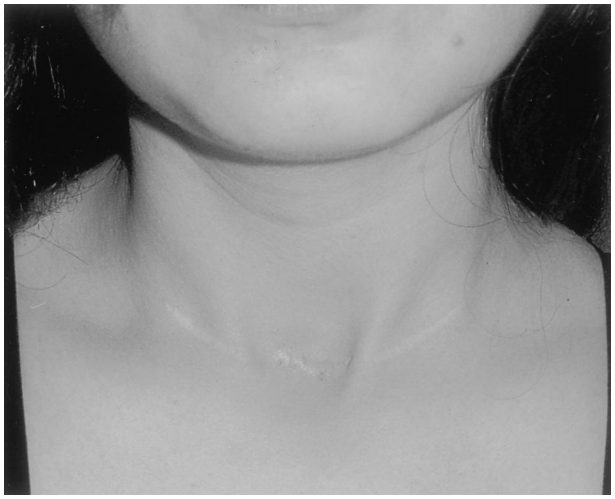

FIG. 3. Postoperative appearance at the 13-month follow-up visit.

At the 13-month follow-up, we observed no wound dehiscence, hypopigmentation, or any other complication.

There are many complications after thyroidectomy,[1–6] but formation of a sinus tract in the neck following this operation is a rare complication. There is only one case reported in the literature about this complication, caused by a foreign body reaction to the sutures.[6]

In the case of wound breakdown, the plastic surgeon should consider débridement, infection control, edema control, pharmacological therapy, and surgical therapy or leave the wound to heal with secondary intention. A secondary surgical attempt should be postponed in the presence of local wound infection. If the wound is left to heal by secondary intention, the plastic surgeon should take care to note that the common local factors that impair wound healing are ischemia, infection, foreign bodies, radiation, and chronic venous insufficiency; extrinsic factors that affect wound healing include diabetes mellitus, steroids, smoking, chemotherapeutic agents, cancer, and iatrogenic factors, among others.[7] On the other hand, it is important to find out the reasons for wound dehiscence and to observe the patient meticulously.

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AVOIDANCE OF NEEDLE STICK INJURIES DURING REUSE OF SURGICAL NEEDLES

Sir:

A dilemma exists between the reuse of surgical needles and the attached sutures to decrease costs and the removal of all used surgical needles from the surgical field to avoid needle

stick injuries. On the one hand, there is pressure on surgeons and operating room administrators to reduce the costs of surgical equipment and sutures. At times it is cost-effective to reuse a surgical needle and attached suture in the same patient before that suture is permanently tied. Also, sutures are often used for temporary retraction of tissues in many surgical procedures, and if the needle is still attached when the suture is withdrawn, the needle can be used for suturing or retraction at another site. On the other hand, if these needles are left in the surgical field, there is the chance that a member of the surgical team could be stuck by them. Because there is concern about serious infections, such as human immunodeficiency virus and hepatitis, avoidance of needle sticks is extremely important. A technique is described herein that will enable the reuse of a surgical needle while minimizing the risk of a needle stick injury.

The suture and attached needle or needles are secured with seraphim clamps or, if used for traction, are attached to the drapes with a hemostat. Sterilized tape is cut into pieces measuring approximately 2 × 3 cm. The tape is applied over the needle and taped to the drape (Figs. 1 and 2). The tape protects the sharp end of the needle from penetrating the skin of anyone who touches it. The tape is carefully peeled off the needles at the time during the operation that they are needed for reuse.

The author has taped surgical needles to the drape in thousands of cases over the last 10 years. To date, there has been no injury to the surgeons or surgical staff by needles left on the surgical field in this manner.

Good surgical technique avoids needle stick injury to the surgeon and the surgical staff. The best way to achieve this is to be extremely careful in the passage of surgical material and needles as well as in the safe use of these needles and sutures during the operation. Once a suture is passed, the ideal way to avoid a needle stick injury is either to tie the suture and remove the needle from the field or, if the suture is to be left untied for a time period, to sever the needle from the suture and remove the needle from the surgical field.

With the pressures of cost cutting in health care, it makes economic sense to reuse suture material and attached needles at other surgical sites in the same patient. If the suture can be tied after passage, the suture needle can be removed from the field and then reused when needed. However, if the sutures have to remain untied for a time or if the sutures are used for retraction of tissues and attached to the drape, removal of the needles from the suture will mean that they cannot be reused. In these situations, it is cost-efficient to reuse the suture and needles, thereby leaving the needles attached to the sutured material. This requires leaving the surgical needles on the surgical field, with the risk of potential needle stick injuries to the physician and staff. Taping the needles to the drape with sterile tape allows for reuse of the needles and sutures while avoiding needle stick injuries to members of the surgical team.

FIG. 1. A 4-0 black silk traction suture is used to provide traction on the orbital septum in upper eyelid ptosis and blepharoplasty procedures. The suture is connected to the forehead drape with a hemostat, and the needle is covered with tape. Once this traction is no longer needed, the suture can be withdrawn and utilized at another site.

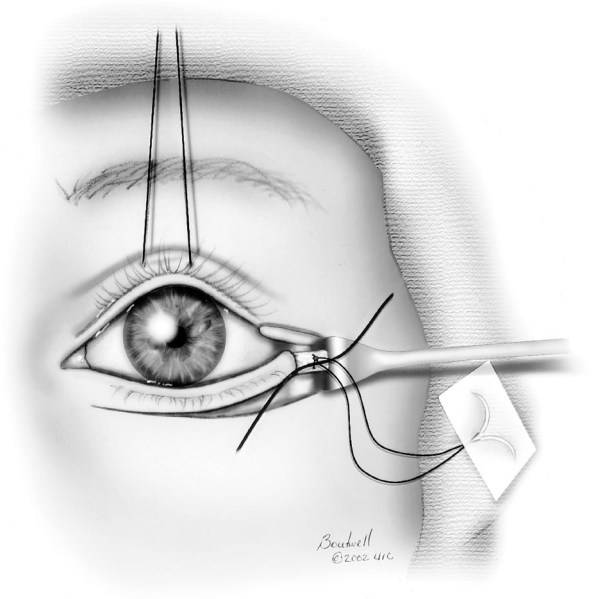

FIG. 2. A 4-0 polypropylene (Prolene) double-armed suture secures a lower eyelid tarsal strip to the lateral orbital wall periosteum. The suture is temporarily tied over a small piece of 4-0 black silk knot releasing suture. The needles are taped to the drape. Once the other side is also operated on, the patient is seated upright and the position of the lateral canthi is viewed. Should the tarsal strip need to be replaced and readjusted, the 4-0 black silk suture can be used to untie the knot and then the needles can be withdrawn from the wound and replaced at a more appropriate site.

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BLOTTER TECHNIQUE TO DETERMINE THE SIZE OF SKIN GRAFTS

Sir:

Skin grafts are used for a variety of reasons in multiple areas of the face and body. In oculoplastic surgery, skin grafts are used mainly to treat cicatricial ectropions of the lower eyelids and to reconstruct defects of the eyelids after the removal of eyelid tumors (Fig. 1). The size of the skin graft usually is determined by the size of the eyelid defect. Most of the time, the surgeon will use the sterilized cardboard wrapper from a surgical needle package and cut out a piece of cardboard that matches the size of the skin defect. Usually this requires trial and error—continued sculpting of the cardboard until it conforms to the size and shape of the skin defect to be covered.

An alternative technique that I have found useful in determining the size and shape of the desired skin graft is to use a blotter, which eliminates the need for multiple resections of the cardboard pattern. First, the cardboard from a suture package is applied over the recipient site (Fig. 2). Because there is usually blood oozing from that site, the cardboard will absorb the blood, and a silhouette similar in dimension and shape to the skin defect will be created. The surgeon then simply cuts out this silhouette (Fig. 3) and uses the resected piece of cardboard to measure the needed skin graft size. The carved piece of cardboard is applied over the donor site, such as the posterior auricular area, and a marking pen is used to draw a line around the cardboard. Resection of the outlined area of skin should then create a skin graft that matches the size and shape of the recipient bed.

The blotter technique has been used to determine the size and shape of skin grafts in more than 500 surgical procedures. Occasionally, there is the need to trim a slight amount off the blotted cardboard piece to match the recipient bed. However, even with this fine-tuning, I have found the technique to be a faster method of determining the size and shape of skin grafts compared with the multiple freehand carvings of card-

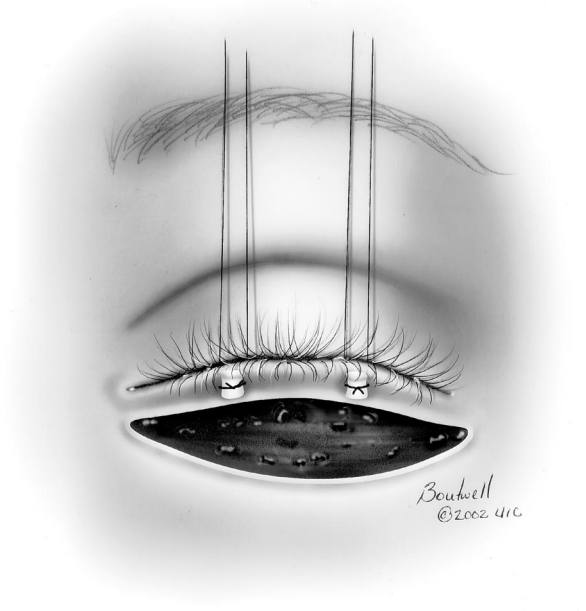

FIG. 1. Lower eyelid skin defect after skin is undermined from orbicularis muscle and traction bands are removed in the treatment of a lower eyelid cicatricial ectropion. A suture tarsorrhaphy slightly elevates the lower eyelid, and the size and shape of the skin defect are the correct size and shape of the needed skin graft.

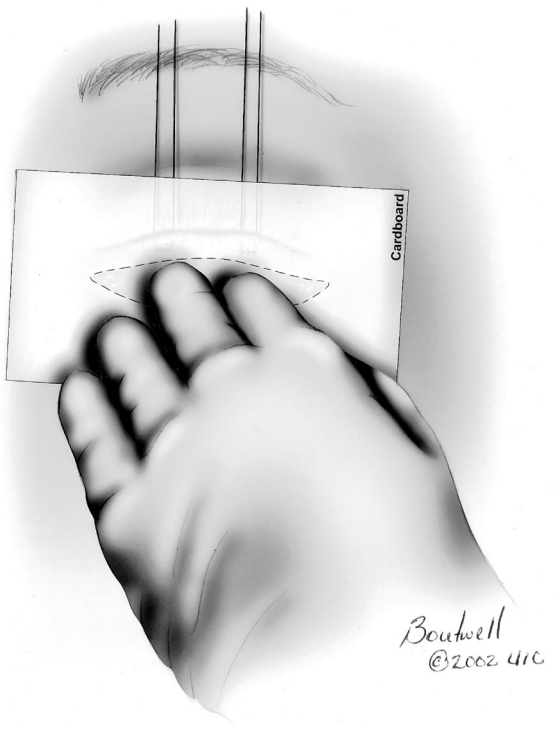

FIG. 2. Cardboard from a suture wrapper is applied over the skin defect.

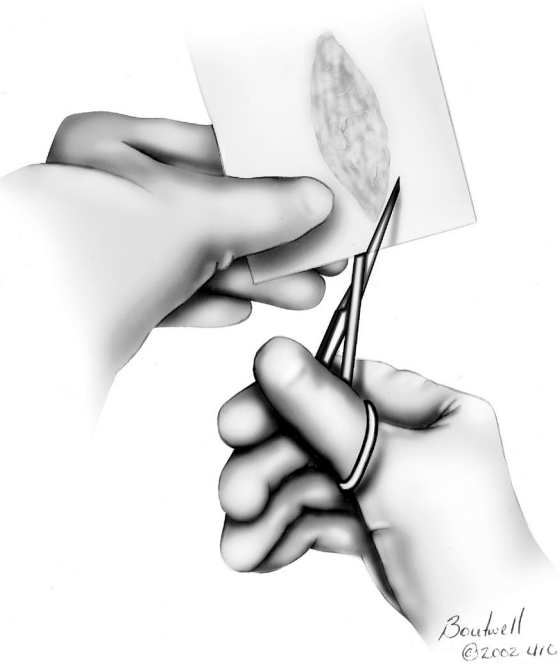

FIG. 3. The bloodstained silhouette is cut out of the cardboard.

board. To the best of my knowledge, this technique has not been previously reported in the medical literature, although other surgeons may be using this technique.

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PATIENT-DESIGNED INDIGENOUS FINGER SPLINT

Sir:

We are happy to share an experience of a finger splint designed by our patient's father. A 9-year-old girl underwent release and resurfacing with skin graft for a postburn flexion contracture of the little finger. Our routine protocol after graft settlement is to encourage active and passive movements of the finger and static night splinting for 6 months. Our orthotic unit gave her a finger splint made of a polyvinyl chloride sheet with a Velcro strap for splint retention. The child misplaced the splint at home after 1 week. At the next follow-up, we noticed that the child was wearing a new splint that had been designed by her father (Fig. 1). It was a copper splint made of two plates that accurately fit the dorsal and volar aspects of the finger. The dorsally placed plate was fixed with a metal ring enclosing the finger circumferentially and attached to a screw with a lock; the volar plate was detachable and had a facet into which the screw fit by rotation. The locking system kept the screw from accidentally becoming dislodged. The above-described parts were soldered together by a blacksmith (Fig. 2).

Splinting has an essential role in hand rehabilitation. The aims of the splint are to correct or prevent deformity, to stabilize some joints in order to facilitate movement of other joints, and to reinforce weak muscles. Historically, orthotic systems for the upper extremity were made by the blacksmith or untrained prosthetists who fashioned a device based on the individual needs of the patient.[1] In the modern era, Sterling Bunnell[2] first defined the rationale for splinting the injured hand. Even though numerous varieties of hand splints are available, there is still an enormous scope for improvisation in splint making. Necessity is the mother of invention. Our patient resides in a remote area with poor transportation facilities. The importance of splintage in hand rehabilitation and the need for treatment compliance had been explained to the parents earlier, and this led the father to design the splint until he could reach our hospital and acquire another splint.

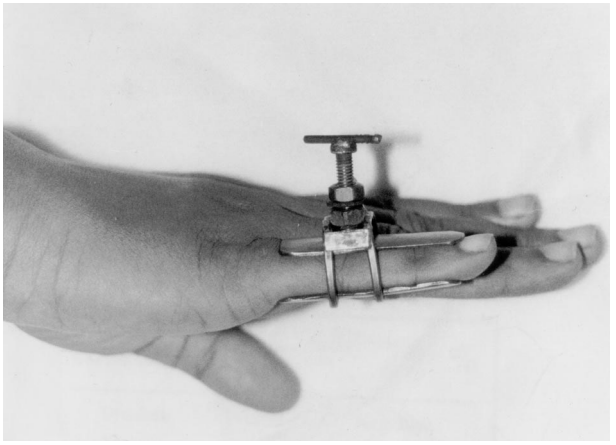

FIG. 1. Finger with splint in situ.

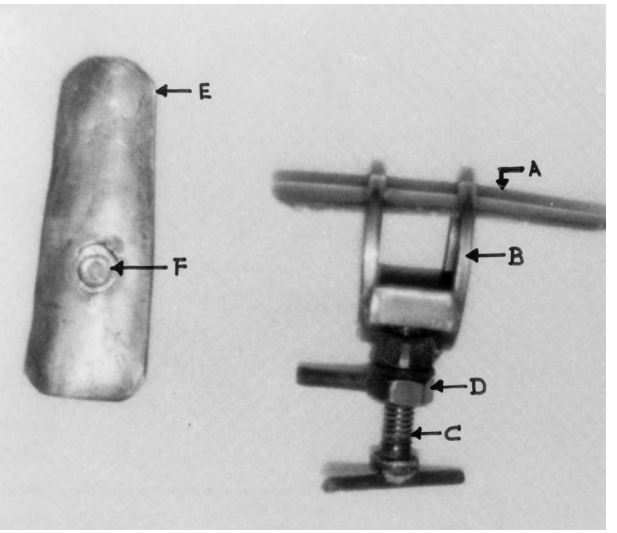

FIG. 2. Display of splint parts: *A*, volar plate, fixed; *B*, ring; *C*, adjustable screw; *D*, lock; *E*, dorsal plate, detachable; *F*, facet.

The splint designed by our patient's father is durable, nonreactive, and stable to solvents. It gives good ventilation, is self-adjustable, and can be removed and cleaned regularly. It is economical, reusable, and cosmetically acceptable. Thus it satisfies many required criteria for an ideal splint. We recommend the above splint for the following conditions:

- Prevention of recontracture after release and skin grafting
- Correction of residual deformity after contracture release
- Static splinting for serial release of the stiff joint
- Splinting of boutonnière deformity due to closed injury

In conclusion, we stress the importance of explaining the disease treatment and outcome to the patient, which might result in useful innovations in some circumstances.

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USING TISSUE ADHESIVES FOR CLOSURE OF PERIAREOLAR INCISIONS IN BREAST REDUCTION SURGERY

Sir:

Breast reduction surgery is one of the most frequently performed aesthetic procedures, and it has a reasonably long operation time depending on the preferred technique. Regardless of the resection pattern, the operation requires that long incision lines be closed; this is one of the most time-consuming parts of the whole procedure. In particular, suturing of the periareolar incision is cumbersome and takes a significant amount of time, and it is usually one of the last steps in the operation. Therefore, we have started using octyl cyanoacrylate (Dermabond; Ethicon, Somerville, N.J.) and n-butyl 2-cyanoacrylate (Indermil; United States Surgical, Norwalk, Conn.) tissue adhesive formulations for closure of periareolar incisions in breast reductions and mastopexies.

Tissue adhesives have been used for many years for closure of traumatic lacerations or surgical incisions as an alternative to conventional suture techniques. They offer certain benefits, such as ease of application, shortened procedure time, and elimination of any suture removal, while allowing normal wound healing to take place. Although they induce a mild acute inflammatory reaction and edema, these side effects resolve spontaneously within 2 months.[1–4] Cost factors are also an important consideration in our practice. Studies suggest that the tissue adhesives are equivalent to absorbable sutures with regard to cost, and they eliminate the need for follow-up visits for suture removal.[5] In addition, they certainly cut down the operating time, especially when the suture lines are not straight, as in periareolar incisions. Furthermore, because tissue adhesives create a waterproof layer over the incision line, no dressing other than a sterile strip is required. Therefore, use of tissue adhesives decreases overall costs.

We used octyl cyanoacrylate and n-butyl 2-cyanoacrylate tissue adhesive formulations for closure of periareolar incisions in 10 patients who underwent either reduction mammoplasty or mastopexy in our clinic. In these cases, an inferior pedicle technique was used for reductions and a vertical scar technique was used for mastopexies. Following the standard surgical procedures, the incisions were closed by placing several subcutaneous 5-0 polyglecapton sutures. After the tissues were approximated by these subcutaneous sutures, the wound edges were pulled together with two pairs of forceps and then tissue adhesives were applied over them. After a few seconds of drying time, the closure was supported by sterile strips. Patients were allowed to shower the next day after any drains were removed. There were no cases of wound dehiscence, infection, or unacceptable scars during a follow-up period of up to 12 months. Moreover, patient satisfaction was very high, especially when we mentioned that tissue glues were used instead of sutures in the operation. From our perspective, every assistant and surgeon was pleased to close the periareolar incision with tissue adhesives instead of sutures, as the suturing process is one of the least desired parts of the procedure. More importantly, we were able to reduce the operation time about 10 to 15 minutes for each breast.

Finally, our experiences reveal that the application of tissue adhesives for skin closure during breast reduction procedures has certain advantages: tissue adhesives are easy to use, safe, reliable, and quick. However, if we need to mention one thing, it is that the periareolar incision is the most rewarding part of tissue adhesive application in breast reduction surgery. Periareolar incisions do not place significant tension on wound edges, and suturing of this delicate tissue requires significant handling with tissue forceps. Therefore, we recommend the use of tissue adhesives for skin closure in all breast surgery incisions in general and periareolar incisions in particular.

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FASHIONABLE SPLINT FOR NAILBED LACERATIONS: THE ACRYLIC NAIL

Sir:

Nailbed lacerations with associated distal phalangeal fractures (Fig. 1) have traditionally been splinted using the patient's own nail after first removing it to examine the nailbed and fracture site and repair them appropriately. Sometimes it is not possible to replace the patient's nail as a splint when the nail has been damaged or lost at the time of injury or when it is too dirty. In this situation, we propose the use of a synthetic acrylic nail.

Acrylic nails (Fig. 2) are a popular fashion accessory and are similar in shape to natural fingernails. They are available

commercially in a range of sizes at low cost. They melt in a steam (130°C) autoclave cycle but may be sterilized using ethylene oxide and stored. They may be packed individually and sized for the patient before opening. We suggest that the realistic contour of a synthetic nail is preferable to a nail template cut from a suture pack for restoring a normal shape to the healing nailbed laceration overlying a distal phalanx fracture.

The center of the nail is fenestrated using the scalpel tip to allow drainage of blood, should any bleeding occur. The nail is tucked under the proximal nail fold and secured with single proximal and distal sutures (Fig. 3). At 3 weeks, when the soft tissue has healed and the fracture is stable, the nail should be removed to allow regrowth of the patient's own nail over the coming months. In the meantime, patients should be advised not to conceal the injury site by applying faux fingernails in the usual way, as the adhesive supplied with kits contains cyanoacrylate and should not be applied to the skin.

We have used this method in a small number of patients with satisfactory results, and no adverse effects have been noted to date. This is the first contribution in the literature to suggest this novel application for the fashionable faux fingernail. The acrylic nail splint is a useful tool in the management of nailbed lacerations associated with distal phalanx fractures where the autologous nail is not available.

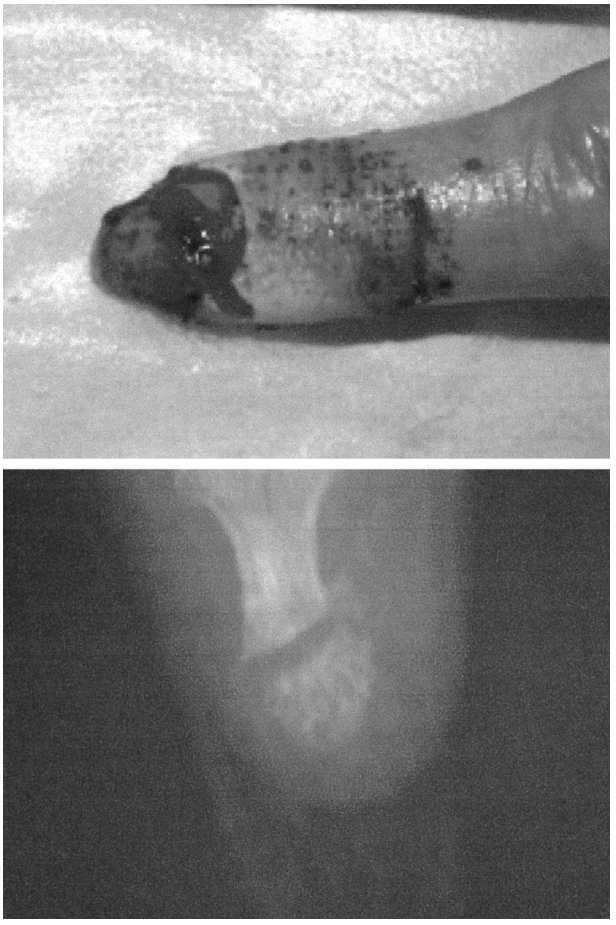

FIG. 1. Nailbed laceration (*above*) and associated distal phalanx fracture (*below*).

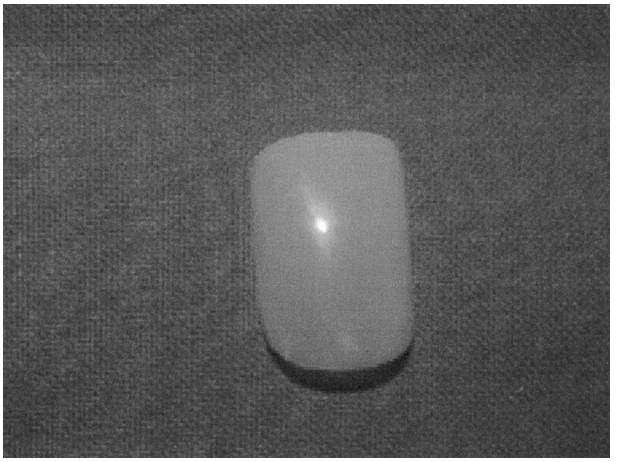

FIG. 2. Acrylic nail splint.

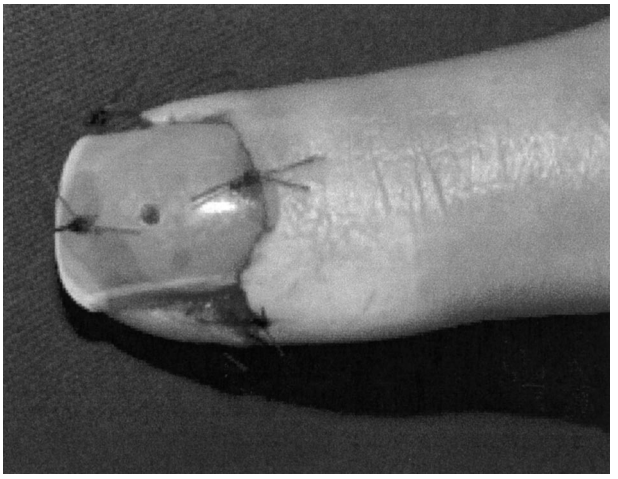

FIG. 3. Fenestration allows drainage and the nail is sutured in place.

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HOW MANY RHOMBOIDS?

Sir:

Rhomboid flaps are familiar to all plastic surgeons and are quite popular in the closure of small skin defects, especially on the face. During one of my academic sessions, I happened to read a statement in *Grabb and Smith's Plastic Surgery* to the effect that there are eight possible rhomboids for every defect.[1] The fact was elucidated with an illustration showing two rhomboid flaps over a circular defect, perpendicular to each other. It just occurred to me that the number of possible rhomboids for a single defect is not eight, but infinite! If we rotate a rhomboid pivoting around the center of the defect, we can design an infinite number of flaps. This point is perhaps only of academic interest, since there is often only one suitable rhomboid for any defect, considering available skin and final scar.

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BREAST REDUCTION: WEIGHT VERSUS VOLUME

Sir:

Reduction mammaplasty techniques are well established in the literature.[1] In an appropriate reduction, the main aim is to achieve a symmetrical and youthful breast shape with stable, long-term results. This is managed by meticulous measurements and plans that are made in the immediate preoperative visit. However, plastic surgeons still try to achieve breast symmetry, by volume, mainly using intraoperative comparative weight measurements between specimens excised from individual breasts. The question is, does the weight of the specimens really reveal the volume of the resection?

To shed some light on this topic, we performed a simple experiment immediately after a unilateral gynecomastia resection and a giant lipoma excision. Samples of exactly the same weight were prepared from the two specimens. The sample from the gynecomastia resection was intentionally taken from the glandular component. The samples were then submerged in water that was prepared beforehand in a graduated cylinder. The increase in water volume caused by placing the samples in the cylinder was noted. Some interesting results were found (Table I).

The gynecomastia sample, which was dominated by glandular tissue, had a higher density than the lipoma sample (*density = weight/volume*). It is well known that a specimen obtained from a reduction mammaplasty has a mixed-type tissue character (i.e., a mixture of glandular tissue and fat in various percentages). The amount and the patterns of the breast fat and glandular tissue may reveal many personal variations. Furthermore, even the proportions of glandular tissue and fat in an individual patient may differ between breasts.[2] From this preliminary study, we can state that, depending on the relative proportions of glandular tissue and fat, the resection volume may show dramatic changes. At the point at which the overall density of the reduction specimen is equal to 1.0 g/cm^3 (density of water), the assumption of "weight equals volume" can be made. This is especially true when the amount of fatty tissue significantly exceeds the amount of glandular tissue, since the density of fat is closer to 1.0 g/cm^3 compared with glandular tissue (Table I). For example, a total of 200 g of reduction material that has 147 g of fat and 53 g of glandular tissue will reveal approximately 200 cm^3 of resection material (see Fig. 1, based on the equation *volume = weight/density*). As shown in Figure 1, if fatty tissue in a breast occupies approximately three quarters of the whole specimen, then it may be stated that the weight of the specimen can stand for the overall volume.

TABLE I
Comparative Weight, Volume, and Density of Gynecomastia and Lipoma Samples

Specimen	Weight (g)	Volume (cm^3)	Density (g/cm^3)
Gynecomastia	40.0	16.2	2.469
Lipoma	40.0	48.6	0.823

Lejour[3] conducted an excellent experimental work that revealed the glandular tissue/fat proportions of reduction materials, and she states that although clinically it is claimed that the glandular tissue of a particular breast is more than the fat component, this has proved to be to the contrary. However, the proportion of fatty tissue cannot be easily predicted before the operation. Still, there is a high probability that the majority of specimens will be fatty tissue dominant (up to 78 percent even after breast liposuction), which enables us to use the weight comparison technique with self-assurance. However, an occasional unpredicted high glandular tissue/fat proportion, especially between individual breasts of the same patient, may result in postoperative breast asymmetry because of the false confidence that the weight technique provides to the surgeon.

The main aim in reduction mammaplasty is to reduce breast volume, and it is clear that a practical volume measurement method will lead to more safe and successful outcomes, although weight measurement has been shown to be sufficient in the majority of cases. However, a clinically proper, easily performed technique of volume measurement

147.0 / 0.823	=	178.61 cm^3	**FAT**	73.5%
53.0 / 2.469	=	21.46 cm^3	**GLAND**	26.5%
		200.07 cm^3		100%

FIG. 1. Example of volume determined by the equation *volume = weight/density*.

has yet to be defined. Until then, weight measurement can still be used but with caution, especially in breasts that are glandular tissue component dominant.
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EFFICIENT STEPS FOR BREAST REDUCTION

Sir:

Plastic surgeons who operate independently can be efficient and accurate in performing a breast reduction with minimal scrub nurse assistance, if certain steps are undertaken to optimize the routine. These steps include the following:

1. Premark the skin pattern on the patient before she arrives in the operating room. A fine-point permanent marker works well and causes no problems with permanent discoloration. The ink washes off easily with alcohol.
2. Apply DuraPrep (3M Health Care, St. Paul, Minn.), an antimicrobial skin-preparing surgical solution, lightly over the skin markings, so that they are not erased, such as might happen with the Betadine (povidone-iodine; Purdue Frederick, Norwalk, Conn.) scrub preparation. A Betadine solution can be used on the neck and axilla to avoid some of the problems with the sticky DuraPrep.
3. Use a skin stapler to mark key points of the pattern after the patient is draped. This allows quick identification of the corners, the mid-breast, and the central nipple areolar position but does not commit the surgeon to these sites should an alteration of the nipple areolar position or the pattern be required.
4. To achieve improved hemostasis, infiltrate bupivacaine with epinephrine in each breast, 7 to 15 minutes before incising. Use a hot electrosurgical generator (Bovie Medical, Corp., St. Petersburg, Fla.) for fat and breast tissue dissection. My average generator settings are 55 for coagulation in a spray mode, and 55 for the cutting mode. Vessels rarely require suture ligation.
5. Use a central and inferior pedicle for the reductions, and note that de-epithelization of the anterior portion of the inferior pedicle retains additional vasculature. Rapid de-epithelization of the pedicle can be performed, if the base of the breast is circumferentially wrapped with a laparotomy pad tourniquet to distend and plump the tissue. I have had problems with achieving sufficient tightness with simple pulling and clamping of the laparotomy pad around the base of the breast. If a Kocher clamp is used to secure the ends of the laparotomy pad, the Kocher clamp can then be twisted two or three times to tighten the tourniquet. The Kocher clamp is clipped to the adjacent drapes with a towel clamp to keep it from untwisting (Fig. 1). I have found the de-epithelization proceeds most rapidly if I divide the 10-cm-wide pedicle into two sections by lightly incising through epidermis and superficial dermis down the midline length of the pedicle. This allows for two 5-cm-wide strips that are de-epithelized independently. Cutting a little buttonhole in the superior portion of the skin to be removed during the de-epithelization process allows fingertip insertion for traction on the partial-thickness skin strip being raised. This avoids the need to align multiple hemostats for retraction control.
6. Raise the superior skin flaps with a scrub nurse assistant holding sharp rakes. For countertraction, sharp towel clamps are attached through the full thickness of the inferior, medial, and inferior lateral skin to be resected and are clipped to the margin of the drapes along the caudal field. An additional towel secured along that drape site provides a purchase for towel clamp retraction of the lower pole breast tissue (Fig. 2).
7. Predefine the base dimensions of the tissue pedicle, since the development of the central pedicle can be problem-

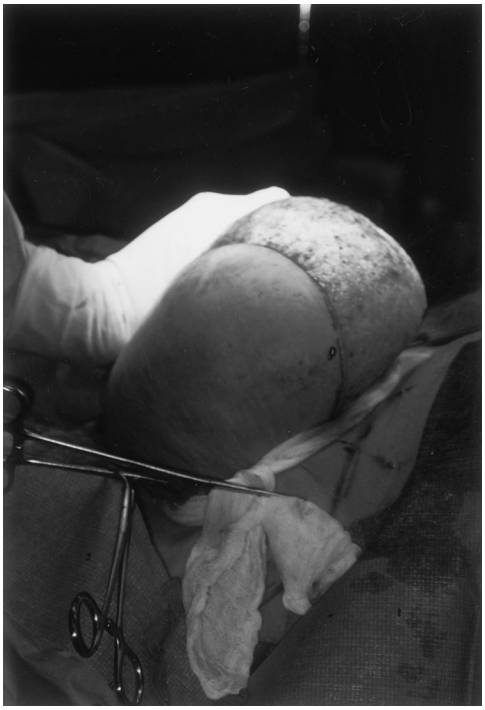

FIG. 1. The central breast skin can be distended for easy de-epithelization by wrapping the breast base circumferentially with a laparotomy pad tourniquet. A Kocher clamp is applied to the tourniquet ends and twisted several times to increase the tourniquet's tightness.

atic if the surgeon chooses to sculpt the tissue pedicle without predefining the base dimensions.

I have observed cases in which the surgeon thought he was developing a broad-based pedicle, only to discover that there were several centimeters in width left attached to the pectoralis muscle, compromising nipple circulation. I have noted the ease in developing a sufficient pedicle on a reliable base if the medial and lateral breast tissue undermining above the pectoralis fascia is completed first to define the width of the central pedicle (Fig. 3). Once the dissection has been completed in the prepectoral plane and the width of the base of the pedicle has been confirmed, then the central tissues can be elevated and retracted anteriorly with the towel clamp attached distal to the nipple areolar complex. A no. 10 blade can be used to incise rapidly the medial and lateral aspects of the breast pedicle. The longitudinal incisions join and intersect with the predefined undermining in the prepectoral space. Another benefit of prepectoral undermining has been less bleeding if prepectoral hemostasis is controlled with electrosurgical generator (Bovie) dissection of this area before medial and lateral tissue resection.

8. Pexy the skin flaps in place with 0-silk to determine symmetry. The final closure is performed with 3-0 Vicryl placed as intradermal, interrupted sutures spaced 2.5 cm apart. Final skin approximation is completed with running subcuticular 3-0 Vicryl. This minimizes the number of buried knots in the closure. Staples are used to approximate any small epidermal gaps. These can be removed within 5 days, avoiding any stitch marks.

I have found these steps to be valuable in reducing the time I spend with the breast reduction. The accuracy in defining my pedicle has improved, and I have not seen any problems of vascular compromise when using the 10-cm pedicle with a predetermined base width for reductions up to 2500 g. My average reduction time working alone is 2 hours and 45 minutes.

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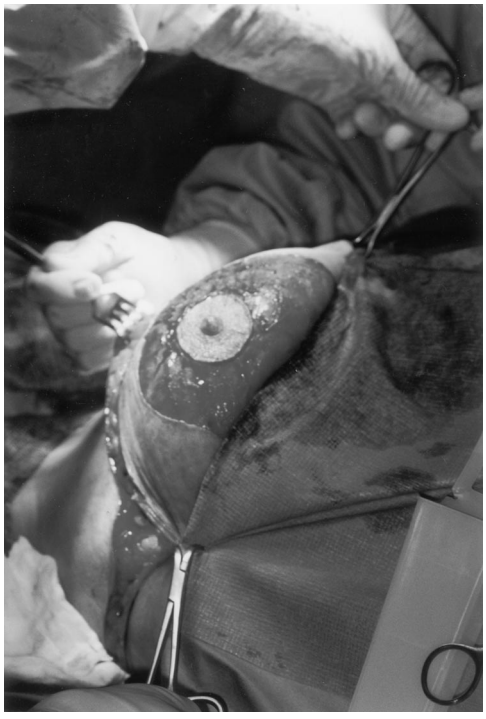

FIG. 2. When developing the cephalad breast flap, hands-free countertraction of the lower poles of breast tissue is achieved with sharp towel clamps secured through the excess tissue and clamped to the caudal drape margin.

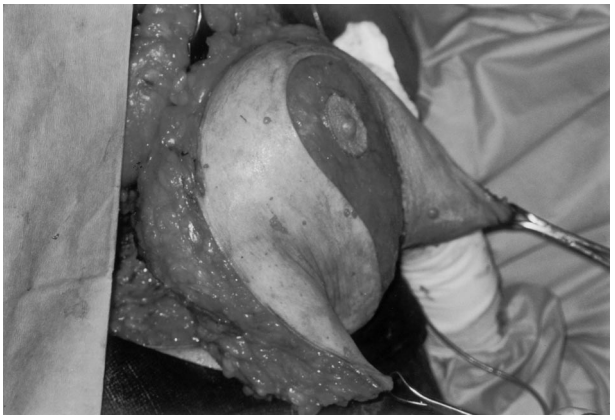

FIG. 3. The base of the central, inferior breast pedicle is defined reliably by first undermining the medial and lateral breast tissue to be discarded. The prepectoral dissection is completed before incising the sagittal planes of the pedicle in an anterior to posterior direction.

A CADAVER STUDY: THE COURSE OF THE INFERIOR EPIGASTRIC VESSELS

Sir:

We congratulate El-Mrakby and Milner[1] on their anatomical study of the inferior epigastric vessels, for which Taylor[2,3] provided an excellent discussion. In this anatomical study, performed in 10 cadavers, El-Mrakby and Milner[1] mainly emphasized the perforator vascular branches, but little information can be derived regarding the course of the inferior epigastric vessels, at their origin and confluence. This vascular region nevertheless is of superior importance during flap dissection, especially when harvesting of a free flap with a long pedicle is required.

In 1998, we performed an anatomical study particularly focused on the initial course of the inferior epigastric vessels in 44 cadavers (88 vessel bundles, 25 males, 19 females), and we would like to discuss briefly our findings in this cadaver study.[4]

In an earlier study, as pointed out by El-Mrakby and Milner,[1] Milloy et al.[5] found a double origin of the deep inferior epigastric artery in only 14 percent of the cases they examined. We hereby also confirm that the deep inferior epigastric artery arising from the external iliac artery in 44 cadavers bilaterally and in far more than 100 clinical cases unilaterally was of singular origin.

Our findings regarding the deep inferior epigastric artery

also showed that the initial course of the artery can be classified into three different forms, regardless of sex: concave (89.5 percent), angular (4.2 percent), and stretched (6.3 percent) (Figs. 1 and 2).

With respect to the veins accompanying the artery, our results showed that a double emptying into major veins was present in 22.7 percent on the right, in 34.1 percent on the left side, and in only 13.6 percent bilaterally; the remaining veins emptied as a stem (as a confluence of always two accompanying veins), with a variable length of 1 to 57 mm. El-Mrakby and Milner[1] describe two concomitant veins in 90 percent. The literature contains a great variety of reports of accompanying veins and their emptying as a common stem into major veins.[6,7]

Another detail, which is not exactly focused on in the literature, is the measurement of vessel diameters. There is no specification made about whether the outer or the inner (lumen) diameter of the vessels is measured. In our series, the inner lumen of the vessels was measured after the vessel was split longitudinally and spread. In this way, the diameter of a vessel was derived from the inner circumference, and fixation artifacts and misinterpretation of collapsed veins were avoided.[8]

In conclusion, knowledge of the anatomical variations of the deep inferior epigastric artery and the deep inferior epigastric vein and of the emptying pattern is of significant value when using free flaps from the lower abdomen. This knowledge can help to reduce the complications in free flap operations.

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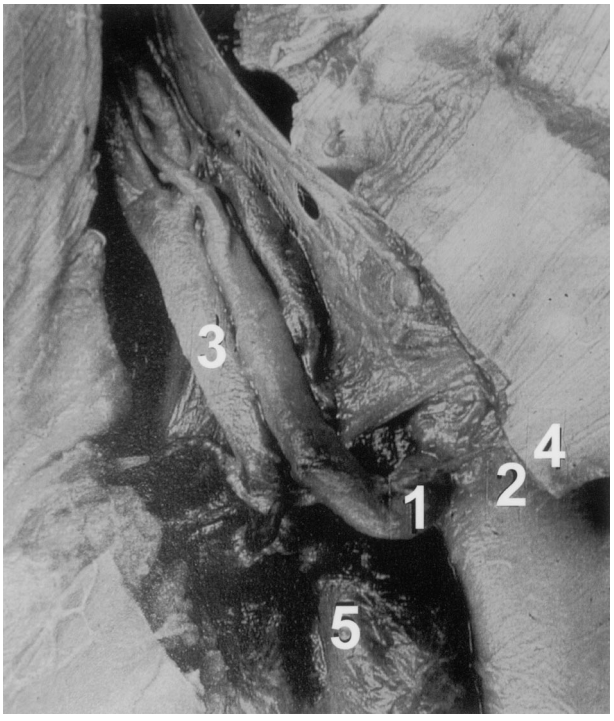

FIG. 1. Left inguinal region: *1*, origin of the deep inferior epigastric artery, concave type; *2*, the external iliac artery; *3*, the deep inferior epigastric vein with stem building; *4*, the inguinal ligament; and *5*, the external iliac vein.

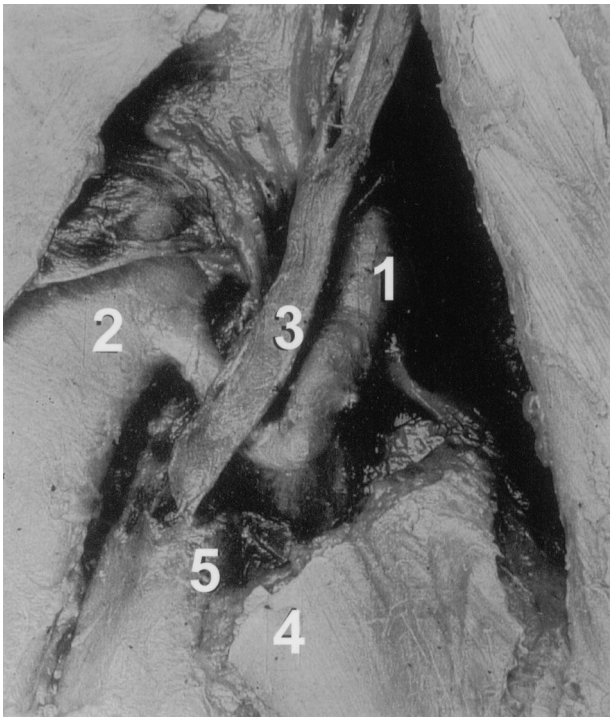

FIG. 2. Right inguinal region: *1*, origin of the deep inferior epigastric artery, angular type; *2*, the external iliac artery; *3*, the single deep inferior epigastric vein; *4*, the inguinal ligament; and *5*, the external iliac vein.

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SEEKING SIMPLICITY: GOLF TIPS AND BLEPHAROPLASTY

Sir:

This letter is written in response to Dr. Fagien's article on blepharoplasty in the July 2002 issue of *Plastic and Reconstructive Surgery*.[1] The author mistakenly attributes the following to me: "a strip of orbicularis should be excised at the superior tarsal border to predictably elevate the upper eyelid crease and to deepen the supratarsal fold." The concept is not sound, and it should not be attributed to me. The author is correct in observing that the common approach to upper lid blepharoplasty (i.e., radical resection of skin, muscle, and fat) often results years later in an overly high and deep fold, but the simple technique he proposes—snipping a small strip of pretarsal skin—will likewise prove unattractive for most patients over time. Why? Because the author's technique is not grounded, in my opinion, on sound concept and anatomy.

Central misconception. The author's central misconception is that eyelid pathology is primarily at the level of the skin and is thus correctable by skin resection. In my opinion, eyelid pathology nearly always resides at the level of the fascia, deep to the orbicularis muscle. Siegel[2] first described this network of fascia in 1984. For example, "skin" wrinkling above the lashes is actually the result of degeneration of the conjoined pretarsal fascia. When this fascia loses its stickiness, or delaminates, the thin skin and muscle lose their adherence to the tarsus and, thus, their smooth appearance.

Levator insertion: into the muscle correct? The author asserts that "excision of the orbicularis muscle can . . . bring about disruption of the deeper structures, such as the orbital septum and levator aponeurotic insertions." This statement results from the misconception that the levator aponeurosis inserts into the orbicularis muscle.

Nearly three decades of intraoperative study has convinced me that my 1984 publication was complete and accurate: there is, in all cases, a network of fascia in the upper lid. *The notion that the levator aponeurosis inserts into the skin or muscle is simply wrong!* The upper eyelid anatomy is a moving, dynamic anatomy, with four fascia layers, substantially different from the two layers seen in the cadaver.[3] The ability to visualize the architecture of the fascia network is crucial for understanding lid pathology as well as for surgery, because the lid folds where the fascias fuse.

Fold height: a style issue? Resect tarsus: sound concept? My style of invagination blepharoplasty results in a crisp, permanent crease. I choose the height (or width) with great care. This is not just for appearance, preferring the look of a high fold to a low fold or vice-versa. Choosing the proper fold height is especially important for ptosis work in order to balance the motors of the upper lid.[4] Only the pretarsal fibers of the orbicular (closing) muscle antagonize the levator. With very high folds, you have lots of orbicularis muscle (12 to 20 mm) working against the opening power of the levator. When the levator is slightly weak, choose a slightly lower fold height. This moves the motor closer to the margin and simultaneously reduces antagonist power.

The author presents a nice 1-year postoperative result in Figure 8. What technique will he use in the future if the lid droops again? Resect more tarsus? Resecting tarsus is easy and therefore popular. Consider the concept. Would a hand surgeon resect a segment of bone to adjust a tendon? In my opinion, there is never a need to resect the precious "skeleton" of the lid.

Pretarsal resection: to raise the fold? The longevity of aesthetic invagination blepharoplasty[5,6] is due in part to creation of a raw area over the face of the tarsus, by resecting 2 to 3 mm of pretarsal muscle (at the site of the new crease) and some or most of the pretarsal conjoined fascia. This is not done, as the author asserts, to "elevate the upper eyelid crease" but rather to form a permanent "weld" between the free edge of the levator aponeurosis, the pretarsal skin, and the tarsal plate. The result is a stable crease, normal fissure, and a wrinkle-free tarsal visor.

Golf tips and eyelid surgery. As a novice golfer, it is tempting to try the latest "tip," in the hopes that it will improve my swing. In reality, I must keep working on the fundamentals—grip, alignment, footwork, and so on. So it is when one ventures deep to the orbicularis muscle in the upper lid. One must return to the fundamentals, beginning with the anatomy of the upper lid fascia.[2,7] Do not look to the latest quick fix to give you consistent, long-lasting, and widely applicable results. Try to accept the fact that in upper lid operations there are complexities and details that will require considerable time and effort to master. The secret to advanced blepharoplasty, as in golf, is a solid foundation of fundamentals. Only then can one apply the details of technique, which lead to precise, predictable, and very long-lasting results.

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REPLY

Sir:

In reply to Dr. Siegel's letter, I must start by saying that I apologize for any perceived misattribution. The article was not at all written for or about Dr. Siegel or *his* technique, and for that reason I question his "response," as he calls it. I do, however, believe that I may have oversimplified *his* method for upper blepharoplasty, for which I believe clarification is in order. I had included Dr. Siegel's contributions within the text (and references) of my article as an acknowledgment of the vital history, advancement, and evolution of upper periorbital surgery, with no bad intentions. I thought that exclusion would have been less acceptable.

His letter in fact, although accusing of misconceptions, is riddled with statements that are at least as inaccurate. In his short letter, I have identified several of them. Allow me to elaborate: Admittedly, Dr. Siegel does reiterate a less than accurate statement from my article in the first complaint in his letter: "a strip of orbicularis should be excised at the superior tarsal border to predictably elevate the upper eyelid crease and to deepen to supratarsal fold."[1] I regret that I had oversimplified his method. I had stated this to illustrate a point regarding what has been generally accepted as an advancement in upper blepharoplasty during the past 10 years. I agree with Dr. Siegel that this method is entirely unsound. Despite this, many surgeons performing aesthetic upper blepharoplasty using his or similar methods have interpreted (and attribute the active ingredient to) this specific maneuver (excising a strip of pretarsal orbicularis muscle). Also, as the name of his procedure suggests, "invagination" is then achieved by extirpation of soft tissue (orbicularis muscle and the conjoined fascia)[2] commonly associated with elevation of the upper eyelid crease. Few have Dr. Siegel's impeccable regard for the presenescent and aging anatomy of the upper eyelid, while many, in my opinion, have incorporated this technique into their practice and continue with this approach for lack of dissent or options.

Dr. Siegel, in return, has misinterpreted my simple technique as "snipping a small strip of pretarsal skin." I agree that if this were what was actually described in my article, it would not be a sound approach to upper eyelid rejuvenation. Although one could argue that skin is primarily the only soft tissue excised in my method, this too is a drastic oversimplification. If he had seriously read further into my article, the concepts of why this can be more rejuvenative are adequately explained. Oftentimes, it appears to the contrary, that quite a bit of skin is excised (and pictorially illustrated in the article), but the key is preservation of orbicularis oculi muscle (for volume enhancement) and an attempt at re-establishment of the integrity of the conjoined fascia through a cicatrix created by precision application of electrocautery at the inferior wound edge. This maneuver, I believe, more accurately replaces the youthful configuration without the additional dissection that can be counterproductive. Is this more "anatomic"? Perhaps not, but the ideology of my procedure is to reassert the upper eyelid crease at a preselected (lower than traditional) level through careful incision planning, conservative soft-tissue (skin) excision, and electrocautery coaptation of the subdermal conjoined fascial layers. The too often excised and discarded orbicularis oculi muscle is entirely preserved and is used to replace the senescent deflationary volume loss of the upper periorbita. It is my opinion that procedures like the one described by Dr. Siegel incorporate unnecessary overdissection (and excision) with the hope of controlling and regaining fixation. These maneuvers may actually be more disruptive to the native/nonoperative cushioned gliding planes that are replaced by a cicatrix that attaches dermis to tarsus. The results obtained with these extirpative methods can also have negative effects on lid function and, subsequently, ocular lubrication.[3] It has also been my experience that, with *my* approach, ultimately what is achieved is a closer re-establishment of youth, improved aesthetics, and the absence of surgical stigma, for which patients are most grateful.

In addition, Dr. Siegel adds that *my* misconceptions include the belief that the "eyelid pathology is primarily at the level of the skin." He also states that *my* assertion that "excision of the orbicularis muscle can . . . bring about disruption of the deeper structures, such as the orbital septum and levator aponeurotic insertions," is a result of a misconception that the levator aponeurosis inserts into the orbicularis muscle. Again, I would agree with Dr. Seigel, as I do not subscribe to this traditional description of the anatomy. In fact, I (and others) have written to the contrary in previous publications.[4] In these articles, I have fundamentally concurred with his philosophy that the aging resides at the fascial level. This is mentioned, albeit briefly, in the article's Discussion. Also suggested, but not explicitly discussed, is the fact that I, too, disagree with the current concepts regarding the course of the levator aponeurotic fibers to dermis, which is also a gross oversimplification of the actual complex anatomy of the upper eyelid. The dogma, however, of insisting that the levator aponeurosis does not "insert" into the skin or orbicularis muscle is as fruitless and inconsequential as arguing that tendons do not insert into bone but rather into periosteum. The closely associated intimate relationship of the fascial planes that act as a unit (whether these is a "direct" attachment or not), like other areas of the face, degenerates with age. The net effects of function and repair do not change (in the absence of true upper lid ptosis) according to which exact anatomic description is more accurate. What was meant, however, by my statement is my opinion (and experience) and is simply just what is said: the excision of orbicularis muscle disrupts the relationship of *his* so-called dynamic anatomy and fascial layers that I do not believe is returned to a youthful state by *his* and similar methods.

His final misinterpretation is that I resect tarsus for upper eyelid ptosis repair. I never do. Again, I agree with Dr. Siegel that this precious framework of the upper eyelid should be preserved. My preferred method of upper eyelid ptosis repair for the past 15 years (and nearly 1000 of these procedures) has been the Muller muscle conjunctival resection described by Putterman and Urist.[5] This method, too, was vehemently challenged during its infancy as a "nonanatomic" approach. I believe it is now the most aesthetic and preferred method for correction of (most) upper lid ptosis. In this method, unlike with the antiquated Fasanella and Servat procedure[6] (although another posterior approach) that he has confused, tarsus is entirely preserved. The obvious beneficial functional and aesthetic effects are likely due to the associated advancement (and resection) of the levator aponeurosis (conjunctiva and re-

lated fascia) to the superior tarsal border that closely reestablishes a youthful configuration in this least disruptive way. With this transconjunctival approach, the upper eyelid crease is dramatically affected while the anterior eyelid lamellae (including skin and orbicularis muscle) are not specifically approached. This also suggests that the crease is related to the (direct or indirect) association of the levator aponeurosis with skin. The results speak for themselves (Fig. 1). It has been an extremely rare situation whereby I have had to perform another ptosis repair at a later date in these patients. As with Muller muscle conjunctival resection, the absolute simplicity of these technical solutions to complex problems has drawn controversy and challenged traditional thought, but these solutions can have a profound impact on aesthetic and functional restoration of the periorbita.

Furthermore, does Dr. Siegel imply that "tissue invagination" upper blepharoplasty actually restores the upper eyelid to its youthful configuration? We can talk all we want to about anatomy, but at the end of the day we are most often in the position of realizing that the youthful anatomic complement is not easily restored (if ever) and that much of what we do is achieve an illusion of what *was* present for facial enhancement. Examples of this include brow lifting, cheek lifting, fat injections, and, yes, blepharoplasty. Although Dr. Siegel asserts that the intention of invagination blepharoplasty is to form a "permanent weld between the free edge of the levator aponeurosis, the pretarsal skin, and the tarsal plate," what are the aesthetic consequences of this approach, both short and long term? I have seen photographic results of his technique and those of a host of surgeons who have adopted this or similar methods, and what I see is alteration (short term) and regression (which all of our procedures have; long term). Yes, there is aesthetic improvement in many, but I would assume that if the anatomist is correct about the actual aging processes and, as he has stated, has reversed this process by an accurate technique, why do these patients look so different? I would have thought that these patients would look more like their younger selves. They don't!

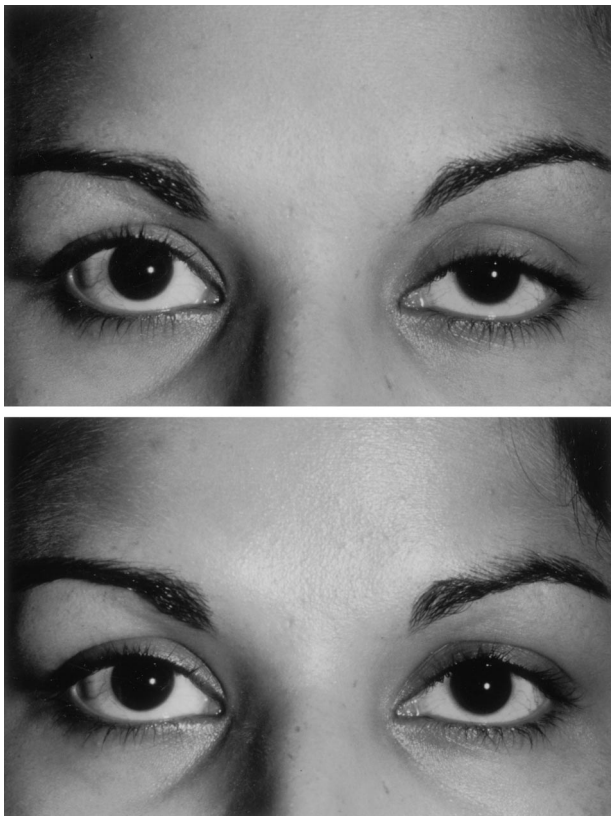

FIG. 1. (*Above*) A 40-year-old woman presented for repair of left upper eyelid ptosis. (*Below*) Four months after left Muller muscle conjunctival resection, symmetrical eyelid folds and creases have been re-established. This posterior, transconjunctival approach dramatically improves the position of the upper eyelid crease, as the posterior lid lamella structures are intimately associated with the dermal insertions that form the crease.

After nearly 10 years since Dr. Siegel's contributions and writings regarding upper blepharoplasty, I am only happy to say that this article may have reawakened him. We are in agreement that there are complexities and details regarding aesthetic upper blepharoplasty that have been ignored and require "time and mastery. Where we differ is in where this energy is spent. It appears that it is Dr. Siegel's belief that one should be more mindful of *his* interpretation of the upper eyelid anatomy, whereas I would balance the anatomic changes with a heavy influence on aesthetics and methods that lend themselves to the appearance of rejuvenation. With regard to his golf analogies, I would add that there are many different styles of golfing. Some golfers' styles are "prettier" than others, some use a calculated adaptation to mathematics and statistics, and some are simply "naturals." I would argue that it is not the grip, the swing, the alignment, or the footwork that matters. At the end of the day, what matters is the score.

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PERFECTIONISM AND COSMETIC SURGERY

Sir:

Cosmetic surgery operations are procedures with psychological significance involving the patient's body and body image. We propose one type of pathological personality as a contraindication for cosmetic surgery procedures: perfectionism. The stringent self-evaluations, propensity for other-derogation, intense fear of scrutiny, excessive sense of entitlement, and extreme need for others' approval that characterize perfectionism make satisfied perfectionists a rarity and dissatisfied perfectionists an inevitability.[1] This chronic predisposition toward dissatisfaction is why we assert that pathological levels of perfectionism should preclude cosmetic surgery procedures.

An objective improvement in physical appearance is unlikely to ameliorate the distressing sense of deformity experienced by perfectionists, which subverts an important aim of cosmetic surgery. As with bodybuilding perfectionists who view themselves as scrawny despite their bulk or anorexic perfectionists who regard themselves as overweight despite their emaciation,[2] it is not objective physical appearance but pathological personality processes that generate, maintain, and exacerbate many perfectionistic cosmetic surgery patients' perception of deformity.

We have argued that there are three enduring perfectionism dimensions: (1) self-oriented perfectionism involves requiring perfection of oneself; (2) other-oriented perfectionism involves demanding perfection from others; and (3) socially prescribed perfectionism involves perceiving that others demand perfection of oneself. The Multidimensional Perfectionism Scale[1] measures this model, and numerous studies[1–3] have linked perfectionism to depression and profound dissatisfaction, intense anger and hostility, suicide, and body dissatisfaction, including a desire for cosmetic surgery procedures.

We believe perfectionism dimensions differentially influence individuals who seek and undergo cosmetic surgery procedures by affecting their preoperative motivations and expectations and their postoperative adjustment and satisfaction. For example, self-oriented perfectionists' unrelenting self-scrutiny, unrealistic expectations, and fault-finding predilection are likely to transform an aesthetically successful surgery into a distressing perceived failure, whereas other-oriented perfectionists' interpersonal hostility and haughty demandingness are apt to result in a conflictual, potentially litigious doctor-patient relationship. Finally, socially prescribed perfectionists are likely to pursue cosmetic surgery procedures not because of internal motivations but because they are driven by external contingencies, such as acceding to perceived expectations, responding to societal pressures, and eliciting approval from others.

Overall, cosmetic surgery procedures are unlikely to augment the deficient sense of self or to remove the pervasive feeling of inferiority that accompanies elevated levels of perfectionism.[3] There is an irreducible gap between the perfect body that perfectionists seek and the imperfect body that perfectionists perceive. Attempting to bridge that gap through cosmetic surgery alone may be ill advised.
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THE HAZARDS OF CONTEMPORARY PARAMEDIAN FOREHEAD FLAP AND NECK DISSECTION IN SMOKERS

Sir:

The vascular supply to the face allows surgeons to harvest a variety of small flaps with safety. The paramedian frontal flap is arterialized medially by the supratrochlear and angular arteries and laterally by the supraorbital artery. The collecting directional veins of the frontal-supraorbital region are the supraorbital, superficial temporal, and anterior facial veins.[1]

A 36-year-old patient who smoked 30 cigarettes a day underwent nasolabial and septal resection for a highly invasive squamous cell carcinoma associated with multifocal carcinoma in situ of the nasal mucosa. Submandibular and cervical lymph node bilateral dissection was planned for 1 month later. Reconstruction was carried out at the same time as the neck dissection, before radiation therapy.

After the primary resection, the defect included the columella, the anterior septum, and the middle part of the upper lip a few millimeters above the vermilion. A paramedian forehead flap procedure was performed. The tip of the flap was a 1 × 3-cm strip of the scalp; the middle part was 2.5 cm, with 5 mm of galea at the edges; the lower part was less than 2 cm, and the pivot point was nearly 1.5 cm. The flap was elevated off the periosteum below the orbital rim. The flap covered the anterior septum and

the upper lip without tension, but it showed two creases, one at the alar border and one at the nasolabial angle.

The vascular supply to the flap seemed to be sufficient for the first 20 hours. Later, however, edema and venous congestion became apparent. Fine-needle puncture of the flap surface caused bleeding that lasted for several hours. After 48 hours, the flap appeared necrotic in larger parts of the distal half of the flap. A day later, the distal two thirds of the flap were not viable. After 2 weeks, the proximal one fourth of the flap appeared to have some dermal necrosis, but the subcutaneous layer was well vascularized. At the glabella, the pedicle showed two bleeding arteries (angular and supratrochlear) and a vein closed by thrombus.

The problems encountered in this case were anatomic, because complications were generally few.[2,3] We have also reported a few cases of partial necrosis, but I've never performed the flap at the same time as closure of the facial vessels.

Sometimes, when axial flaps are isolated on a narrow pedicle, the flap can have too good a blood supply and become engorged. The main venous drainage passes through the facial vein and not through the orbital veins.

The question is whether simultaneous ligation of the facial vessels can compromise the flap's flow in at-risk patients (i.e., heavy active smokers). There are no reports in the literature about immediate nasal reconstruction using the forehead paramedian flap after submandibular lymph node dissection. Maybe the choke vessels in the facial and temporal regions do not supply the changes in venous flow direction immediately in patients who are heavy smokers.

In similar cases, is the correct solution delayed harvest of narrow forehead flaps? Otherwise, are expansion and larger flaps at the second stage a more reliable option?

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AN ANATOMIC VARIATION IN THE FEMORAL VEIN OF A SPRAGUE-DAWLEY RAT

Sir:

The vessels in the femoral region of the rat are known to be suitable for microvascular anastomoses, and these vessels have mostly been used in microvascular research and training. The femoral artery and vein of the rat have very constant anatomy in this region. No variation of the femoral artery has been reported in the literature. However, two femoral vein duplication anomalies have been described.[1,2] In this report, we also present an anomaly of the course of a rat femoral vein in the inguinal region. The anatomy of the femoral vein has been consistent as a single vessel coursing along the medial side of the femoral artery in the inguinal region. This anatomy is well known from explorations and is well described and well drawn in the classical books on the anatomy of the rat.[3,4]

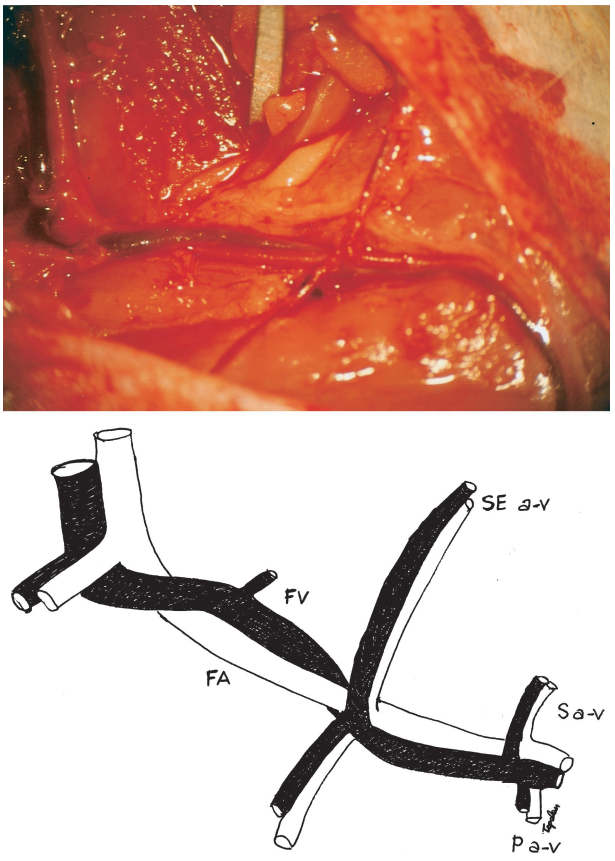

FIG. 1. The femoral vein crosses behind the femoral artery and courses proximally just lateral to the femoral artery. The vein again crosses the artery anteriorly. (*Above*) Photographic view; (*below*) diagram. *FA*, femoral artery; *FV*, femoral vein; *SE a-v*, superficial epigastric artery and vein; *S a-v*, saphenous artery and vein; *P a-v*, popliteal artery and vein.

Anatomical variation of the rat femoral vein is extremely rare. In 1990, Ozcan and Shenaq[1] described an anomaly in which the femoral vein consisted of two separate veins coursing alongside and forming a loop around the femoral artery. In this study, the species of the rat was not mentioned.

In 1992, Inceoglu, Siemionow, and Romanowski[2] described another femoral vein anomaly in the Lewis-Brown Norway rats. They also found two separate veins, one on each side of the femoral artery. The veins rejoined to form the femoral vein just below the inguinal ligament. In both of these reports, the anomaly was found in the right inguinal region.

In our study, rather than a replication of previous findings, we observed a new anomaly of the course of the femoral vein in a Sprague-Dawley rat during a microsurgical experiment dissection. It was located on the right side of the saphenous vein, coursing just medial to the artery and joining with the epigastric vein and other muscular branches to form the femoral vein. Just after joining the femoral vein, it crossed behind the femoral artery, which obviously compressed it

(Fig. 1). The vein coursed proximally just lateral to the femoral artery, and the deep femoral vein joined with the femoral vein from its posterolateral side. After passing the inguinal ligament, the common femoral vein again crossed the artery anteriorly and coursed into its normal anatomical position, on the medial side of the iliac artery. It joined with the other iliac vein to form the vena cava. The contralateral femoral vein was found in its normal anatomical place, and other major vessels failed to show any abnormality, as in the other two reports in the literature.

Surprisingly, this unique anomaly shows some similarity to one of the venous thrombosis models in the microsurgical literature. In 1996, Atchabahian and Masquelet[5] described a venous thrombosis model of the rat by using the concept described by Ozbek et al.[6] In this model, the femoral artery was cut and the distal part of the artery was rotated 360 degrees around the vein. They showed that this model was closer to the clinical situation of a pedicle kinking or of compression, and the result was mostly venous occlusion.[6] However, in our study, the described anatomical variation had no adverse effect on the circulation of the rat's left limb.
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SIGNIFICANCE OF INTRAABDOMINAL COMPARTMENT PRESSURES FOLLOWING TRAM FLAP BREAST RECONSTRUCTION

Sir:

We commend Dr. Losken et al.[1] for examining the possible correlation between elevated intraabdominal pressure and complications after donor-site closure in transverse rectus abdominis musculocutaneous (TRAM) flap breast reconstruction. We would like to elaborate on their finding of a strong relationship between elevated body mass index and complications in TRAM flap patients. Additionally, we are interested in the role of pulmonary function data in assessing intraoperative abdominal pressure changes, to help determine indications for mesh donor-site closure.

This nonrandomized study compared 77 patients undergoing pedicled TRAM flap reconstruction with a control group of 24 nonsurgical inpatients with indwelling Foley catheters. Importantly, the control group's mean age (54.7 years) and body mass index (24.9) were comparable to those of the experimental group (55.5 years and 26.3); as the authors detail, elevated body mass index was strongly correlated with intraabdominal hypertension. Unfortunately, it is not specified how the control and experimental groups compared with regard to comorbidities (e.g., smoking, diabetes, previous abdominal wall surgery or radiation, or renal insufficiency). As the authors acknowledge, these factors have been shown to influence the propensity for complications.[2] The groups must be comparable in order to postulate that the higher intraabdominal pressure seen in the TRAM flap group is an independent predictor of outcomes. In addition, direct comparison of preoperative and postoperative intraabdominal pressure for the experimental group would represent a more accurate internal control than relying on nonsurgical "normals" who may differ demographically and clinically. Preoperative measurements would necessitate Foley catheterization when the patient is awake, which would result in patient discomfort. Preoperative vital signs—particularly respiratory rate, an important but indirect index of diaphragmatic resistance from intraabdominal hypertension—would also help document trends, although respiratory rate may be influenced by anxiety. Spirometric measurements of tidal volumes and vital capacity might provide more objective evidence of a syndrome of pulmonary impairment attributable to intraabdominal hypertension.

The principal variables indicating a component of abdominal compartment syndrome were vital signs, urinary output, fluid balance, and abdominal compartment pressure (measured indirectly via Foley catheter at the end of expiration to ensure maximally relaxed abdominal wall tension). Although Foley catheter pressure transduction is generally reproducible in measuring intraabdominal pressure,[3] intraoperative transduction may be unreliable due to such factors as relaxation, sedation, and positive pressure ventilation against a relaxed diaphragm. The authors also note that "changes in peak pressures might provide . . . information regarding the potential for tight fascial closure," and it would be interesting to observe the trend in peak inspiratory pressures during TRAM flap harvest and donor-site closure, to determine whether intraabdominal pressure predicts the need for mesh. In one study of respiratory physiology following large ventral herniorrhaphies,[4] work of breathing decreased and chest wall compliance improved intraoperatively (with unchanged airway resistance) when expanded polytetrafluoroethylene was used to widen the peritoneum, which had previously been closed primarily. This study demonstrated that intraoperative pulmonary measurements are feasible, and perhaps useful, in correlating respiratory derangement with tight fascial closure. Future similar studies applied to TRAM flap donor-site closure may determine indicators for mesh usage.

Ten patients in the series from Dr. Losken et al.[1] had intraabdominal pressure greater than or equal to 20 mmHg, which the authors defined as their threshold indicating a

component of abdominal compartment syndrome. These 10 patients are a small subset (13 percent) of the experimental group. The difference in intraabdominal pressure for bipedicled versus unipedicled flaps was only significant on postoperative day 1, after which intraabdominal pressure was equivalent. Abdominal pressures were significantly higher in the direct closure group than in the mesh group or the control group. The mesh and control groups demonstrated comparable pressures, suggesting that mesh closure restores normal abdominal tension. No data are provided regarding the selection of closure technique; it is assumed that mesh closure was elected at the attending surgeon's discretion after qualitative assessment of fascial tightness. The authors cite the potential for selection bias influenced by patient risk factors, body habitus, and surgeon preferences. Although mesh closure allows tension-free restoration of abdominal wall competence, it remains unclear whether lower intraabdominal pressure will reduce complication rates in these patients. The authors conclude that intraabdominal pressure greater than 20 mmHg transiently increases postoperative oliguria and tachypnea and therefore predicts the increased likelihood of donor-site complications.

To characterize elevated intraabdominal pressure as an independent predictor of complications, however, confounding variables in the experimental and control populations must be excluded. Elevated body mass index demonstrated greater correlation with intraabdominal hypertension than did the closure method. Although all groups with intraabdominal hypertension demonstrated increased complication rates, the population with increased body mass index was most likely to demonstrate intraabdominal hypertension. Thus, any closure technique subgroup demonstrating elevated body mass index is likely to trend toward intraabdominal hypertension. The authors attribute this to the fact that women with a higher body mass index more frequently required bipedicled TRAM flaps and therefore had larger fascial defects. How did the patient cohorts (bipedicle, unipedicle, and mesh) compare with respect to body mass index? Future studies should compare closure techniques in TRAM flap patients with similar body mass index levels in order to define the impact of increased intraabdominal pressure on complications.

In studies of the morbidly obese, chronically increased intraabdominal pressure has not been associated with the physiologic derangements of abdominal compartment syndrome.[5,6] Accordingly, equating increased intraabdominal pressure with abdominal compartment syndrome in the morbidly obese may be misleading. Obesity cosegregates with diabetes, vasculopathy, protein malnutrition, and other states that impair wound healing and predispose to complications. Moran and Serletti[7] correlated elevated body mass index with increased complication rates in free and pedicled TRAM flaps; the threshold at which body mass index predicts higher complication rates requires further study. Previous studies have attempted to correlate the closure technique in TRAM flap patients on the basis of body mass index. Chang et al.[8] demonstrated higher complication rates in donor (bulge and hernia) and recipient sites (partial or total flap loss) in overweight (body mass index 25 to 29) and obese (body mass index $\geq$30) patients, compared with normal-weight subjects (body mass index $<$25). This may suggest a body mass index of 25 as a threshold for mesh closure. That study did not delineate closure choice with respect to body mass index, or in relationship to unipedicled versus bipedicled flaps. Future research randomizing primary versus mesh closure may help define guidelines for selecting technique by body mass index.

In summary, the authors' interesting analysis reminds plastic surgeons of the hazards of tight abdominal closure after TRAM flap, particularly in obese patients, who bear increased risk for complications. It remains uncertain whether progressively deleterious intraabdominal/retroperitoneal, pulmonary, and cardiovascular derangements are sufficiently present with this transient state of oliguria and tachypnea to properly classify it as abdominal compartment syndrome. Future studies may help define a role for intraoperative pulmonary measurements in determining indications for mesh closure.
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A SIMPLE TECHNIQUE FOR INSERTING A DRAIN THROUGH SUBCUTANEOUS TISSUE

Sir:

Closed suction drainage systems are frequently used to drain fluids, particularly blood and seroma from surgical wounds.[1] We are sometimes confronted with the problem of postoperative collection of these fluids or an accidental removal of a drain. There are also some cases of liposuction

patients who bleed copiously although all results of laboratory examinations were normal.

It is an obstacle to insert a closed drainage system percutaneously through long distances, and as plastic surgeons, we do not feel comfortable making extra incisions in the skin. Goldberg and Humphreys[2] used the liposuction cannula apparatus for conservative evacuation of a patient with postoperative hematoma. Zide[3] reported the safety of leaving a drain for longer periods of time if the distance from the wound is increased. We describe an effective and safe technique for inserting a closed-system drain through long distances in the subcutaneous layer.

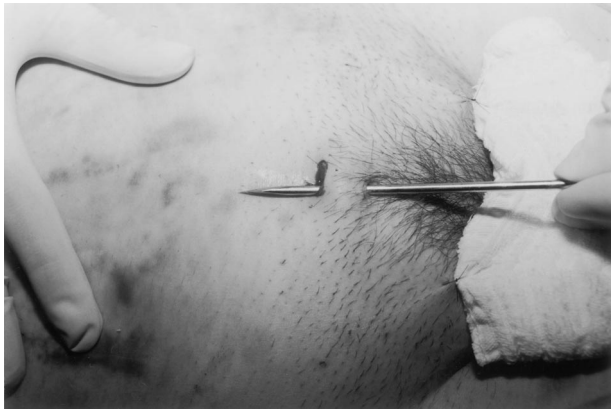

FIG. 1. The drain is inserted.

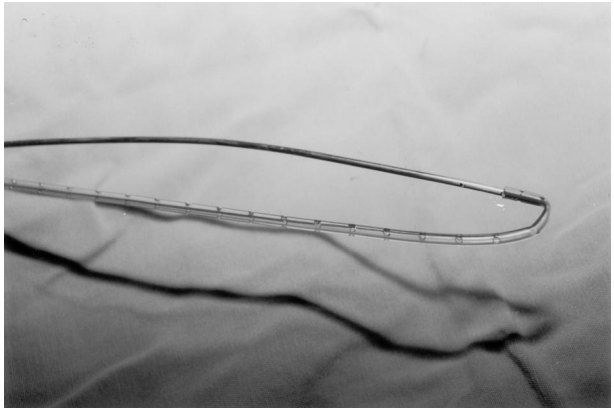

FIG. 2. The Klein needle is used as a guide.

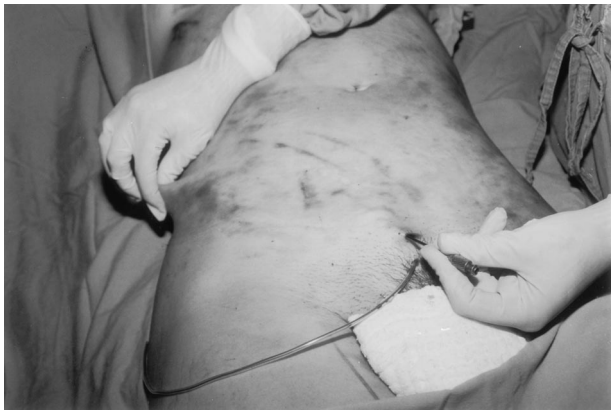

FIG. 3. The needle is removed after the drain reaches the desired location.

When performing this procedure, we prefer to insert the drain through a different incision than the one used during the operation; we search for an inconspicuous place to hide the perforation (Fig.1). Then we cut the proximal end of the drain tube, making sure we do it at least 1 inch away from the last hole. Inside this portion of the drain, we insert a long Klein needle or a 2-mm liposuction cannula and use it as a guide to the drain through the subcutaneous tissue (Fig. 2). Once we reach the desired location, we pinch the skin and grab the end of the drain. Then the needle is pulled back (Fig. 3).

The surgeon can use the other incision on the lateral portion of the abdomen and exteriorize the drain at this point, and then perform the same process to reach the back of the trunk. We think this method is both easy and safe for the prevention or resolution of a seroma or hematoma.

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AT THE END OF THE LADDER . . . THE TRIANGLE!

Sir:

I would like to express my opinion about the British communication I read recently in *Plastic and Reconstructive Surgery,* since, as a resident, I feel involved. In their communication, the English authors supported the "elevator,"[1] whereas Scottish authors supported the "ladder."[2] Both groups agreed on its educational purpose and limits, but they disagreed on results.

The point is that the reconstructive ladder is a flawed concept.[3] Sometimes it is necessary to skip a rung to obtain the appropriate result (i.e., microsurgery instead of local flaps). As Bennett and Chouldhary[1] state, the elevator concept demonstrates a thought evolution due to the progress of

techniques, biotechnology, and materials we have appreciated in the last 30 years.

The reconstructive ladder is a simple model: the selection of the surgical procedure to be adopted ("rung by rung") is based only on the level of complexity, following the concept of a wound closure ladder.[3] Although the ladder does not consider defects, the requirement of wound closure is the best restoration of form and function.[4] The aim of plastic surgeons is reconstruction, not the coverage concept[4,5] derived from the ladder. However, I have to point out that the elevator concept is based on an old assumption: it sets up a fixed scale of the presumed complexity level of different surgical procedures. The order of complexity is not the order of reconstruction. This progression may not reflect the surgeon's ability, which is indeed the basis of a new concept developed by Mathes and Nahai,[4] the reconstructive triangle model. These authors proposed a new model in which the corners of the triangle are represented by flaps, microsurgery, and tissue expansion. These techniques exploited fully probably caused the flaw in the ladder concept. The triangle model represents an improvement reached by means of the elevator: it is based both on the patient's characteristics and on the surgeon's judgment and ability. No floors or rungs, just the surgeon's personal choice.

Therefore, I agree with Dunn and Watson[2]: stairs (and ladders) are useful for doing physical exercises and even for residents, like me, to develop the subsequent concept of the elevator, but as soon as you take this step, you feel yourself in the center of Mathes and Nahai's triangle model.

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OSSIFICATION OF A VARICOSE ULCER BED: A POTENTIAL PITFALL IN SKIN DEFECT RECONSTRUCTION

Sir:

We present the case of a 68-year-old woman who was referred with a 20-year history of varicose ulcer on the left medial malleolar area. Her bilateral varicose veins had been treated 19 years earlier by high ligation and stripping. No history of deep venous thrombosis was present. Results of her blood investigations were all within the normal range, apart from the rheumatoid factor, which was raised to 126.

The ulcer measured 20 × 14 cm and showed no evidence of infection (Fig. 1), but it caused her severe pain; the clinical impression was that the ulcer involved the tibia. Closure of the defect would have required a flap. On further débridement, it became clear that beneath the bony ulcer bed lay the intact deep fascia of the medial compartment, which would readily take a split skin graft. The operation was successful and the graft had healed by 2 weeks, curing the patient of her pain.

Histologic examination of the débrided tissue showed skin

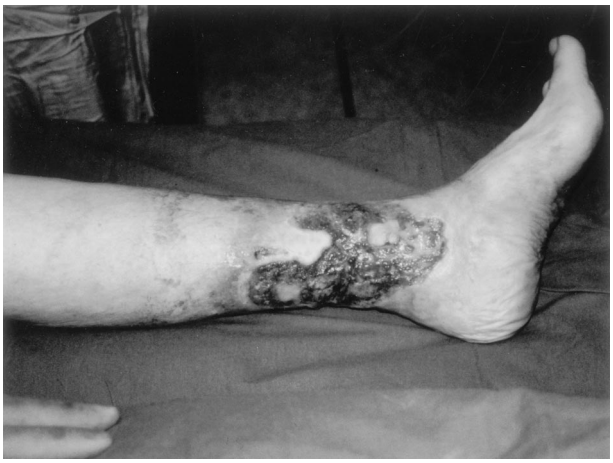

FIG. 1. Preoperative view of the varicose ulcer.

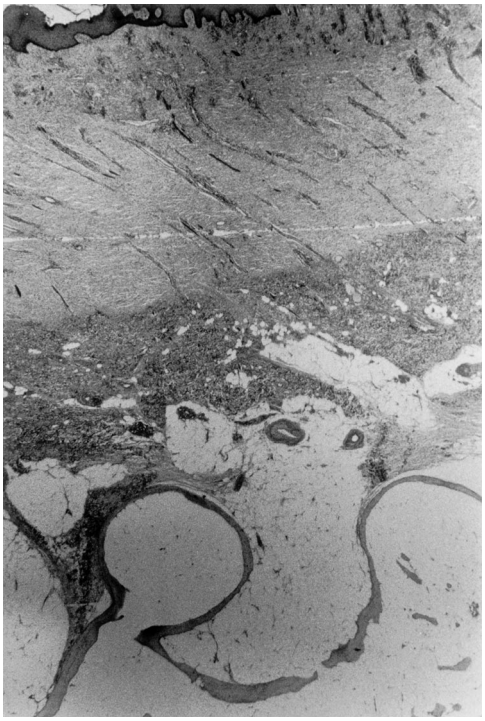

FIG. 2. Low-power panoramic view of heterotopic bone and overlying tissues taken from the edge of the ulcer (magnification, ×16). The epidermis is just visible above a scarred dermis and subcutaneous tissue. The heterotopic bone is present within the subcutaneous tissue.

ulceration with necrosis and acute inflammation of underlying tissue (Fig. 2). Fibrous scarring and chronic inflammation of deeper tissues was present, with areas of dystrophic (heterotopic) bone formation comprising thin bony trabeculae and fatty marrow in the subcutaneous tissue (Fig. 3).

Heterotopic calcification of tissues is a common condition; however, the development of ossification with normal architecture of bone in varicose ulcers is less common.[1,2] The pathologic mineralization of skin and subcutaneous tissues can be divided into three categories[3]: (1) calcification without ossification associated with elevated serum calcium or phosphate ions; (2) calcification without ossification associated with normal serum calcium or phosphate ions; and (3) heterotopic ossification.

Tissues that have developed pathologic calcification can progress to heterotopic ossification with fully formed haversian systems and bone marrow formation. This has been well documented in skin tumors such as pyogenic granulomas,[4] nevi,[5] fibroxanthomas,[6] basal cell carcinomas,[7] pilomatrixomas,[8] and chondroid syringomas. Skin injured by physical trauma can develop ossification of the scar, as has been reported in laparotomy[9] scars, and this is more frequently observed following surgical approaches to the hip[10] and burn trauma,[11] where periarticular and cutaneous ossification may occur.

Calcification of subcutaneous tissue has been reported to occur in 4 to 10 percent of venous ulcers.[2,3] Less often, this deposition becomes organized with the development of haversian systems and marrow, making it indistinguishable from skeletal bone. The skin, however, is always spared. This process is more likely to be due to the prolonged venous stasis than the presence of the ulcer itself. A biochemical screen should be performed to exclude a metabolic cause for the heterotopic ossification. Plain radiographs usually reveal periostitis and may show an ossified layer. However, computed tomography and magnetic resonance imaging scans have been shown to be useful in identifying the ossified tissue in gluteal decubitus ulcers[12] and laparotomy scars.[13]

The significance of heterotopic ossification in varicose ulcers is uncertain, although anecdotal reports[1] suggest resolution of the ulcer following excision of the ossified matrix. This was the case in our patient, who was also relieved of her pain after the excision. Ossification of a varicose ulcer bed is a rare finding, but its implications should be considered when planning plastic reconstruction of varicose ulcers.

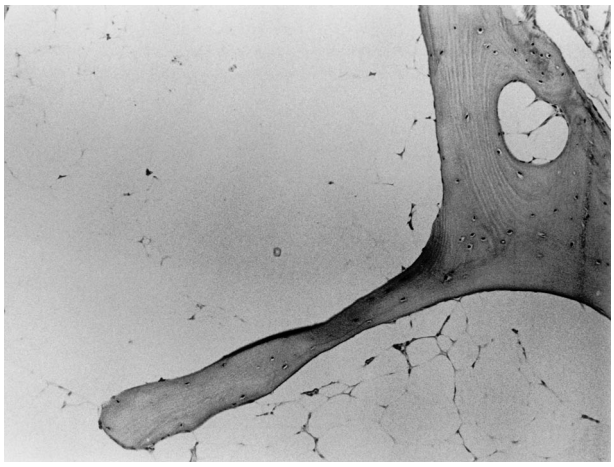

FIG. 3. High-power view of heterotopic bone showing a trabecula of lamellar bone with well-defined haversian systems and fatty marrow (magnification, ×110).

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IS THE PHENOL-CROTON OIL PEEL SAFE?

Sir:

I read the remarks, particularly the conclusion, of a contribution written by Thomas M. Bertolini, Ph.D., from the Department of Chemistry and Biochemistry at the University of California, San Diego (Is the Phenol-Croton Oil Peel Safe? (Letter) *Plast. Reconstr. Surg.* 110: 715, 2002), and I offer the voice of polite dissent. Dr. Bertolini, in the last paragraph of his letter, states "despite the effectiveness of the phenol-croton oil peel, the tumor-promoting property of croton oil is a serious compromise to long-term health of patients. Because many other chemical peels do not pose such severe oncological risks, there is no justifiable reason to continue this treatment." In my opinion, Dr. Bertolini offers no clinical data to substantiate this statement. I make the assumption that a professor in chemistry and biochemistry has not had the opportunity to do chemical peels nor to observe them over any prolonged period of time. I have personally performed thousands of chemical peels over 40 years and have had the opportunity to follow many of these patients beyond a 20-year span. I have not observed a single case of skin malignancy in any of these individuals. Quite the contrary, I have used the croton oil-phenol peel for the treatment of premalignant lesions, hyperkeratoses, and utilized the peeling process in a significant number of patients who have had recurrent basal cell carcinoma. After chemical peels of sun-damaged skin, the development of primary or recurrent basal cell carcinoma has been reduced to practically zero. I would also point out that the concentration of croton oil in the Baker Gordon peel solution is very low (three drops of croton oil for approximately 6 cc of peeling solution), and systemic absorption of croton oil in a one-time usage is most likely negligible.

If Dr. Bertolini has not been personally doing chemical peels or following a series of clinical trials over an extended period of time, it is difficult to understand how he can come to such an erroneous conclusion. In an article that I published along with Dr. Howard L. Gordon and Dr. Albert M. Kligman in *Plastic and Reconstructive Surgery* (75: 652, 1985), Dr. Kligman, along with Drs. Baker and Gordon, stated, "Both dermabrasion and chemical peel decrease the rate of appearance of new neoplasms"; "it is likely that early basal cell and squamous cell cancers will likewise be destroyed by deep phenol peeling. It would seem, therefore, that the benefits of peeling are more than cosmetic." The conclusion that Dr. Bertolini reached in his letter seems to be based on theory and not on direct observation of clinical cases. The only references in his letter regarding phenol-croton oil peels are by Hetter, and these excellent articles were published in the year 2000. If he had taken time to search the literature and read some of the 31 or more publications that I have published on this subject,[1–31] I do not understand how he could have reached the conclusion that phenol-croton oil peels are carcinogenic and should be discontinued. So, until Dr. Bertolini can come up with some clinical data showing that his statements are correct, I would urge the readers of this *Journal* not to be hoodwinked by his conclusions.

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DISCOUNT COSMETIC SURGERY

Sir:

I enjoyed Lloyd Krieger's article entitled "Discount Cosmetic Surgery: Industry Trends and Strategies for Success" (*Plast. Reconstr. Surg.* 110: 614, 2002). However, I believe it also important to consider Brandenburger and Nalebuff's[1] contribution to business strategy, namely, the value net and, specifically, the concept of complementors. The value net expands upon Porter's five forces by allowing businesses to consider the impact of complementary goods produced by other businesses with whom they do not directly compete. Ghemawat[2] defines complementors as "the mirror image" of competitors. For cosmetic surgery practice, complementors are best understood by looking at the myriad of skin care products that can augment a practice both de novo and by encouraging patients to "purchase" more traditional treatments (e.g., face lift, blepharoplasty). Complementors often enable businesses to increase the size of the market by attracting new customers/patients, in contrast to other strategies that attempt to "steal" current customers/patients from other businesses. Therefore, in addition to what Krieger has already concluded, I would add that plastic surgeons can utilize the concept of complementors in an attempt to augment their cosmetic surgery practice.

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EXTENDED PHRENIC NERVE TRANSFER

Sir:

Sources of viable donor nerves for correction of avulsion injuries of the brachial plexus are limited.[1] The phrenic nerve has been accepted recently as a donor nerve with minimal consequences in cases of unilateral use.[2–6] We read with interest and enthusiasm the article by Xu et al.[7] entitled "Full-Length Phrenic Nerve Transfer by Means of Video-Assisted Thoracic Surgery in Treating Brachial Plexus Avulsion Injury." We congratulate the authors on presenting their creative work. The authors were able to achieve on average an extension of 12.3 ± 4.5 cm in length of phrenic nerve in the chest. They used the extended phrenic nerve and transferred it to the musculocutaneous nerve for direct neurotization. The study group treated with the extended phrenic nerve recovered elbow flexion to an M3 level within a period of 198.8 ± 36.0 days (mean, 195 days). The control group, in which nerve grafts were used, achieved the same results, but it took a much longer period of time (378.2 ± 103.4 days; mean, 340 days). The time for recovery was essentially half in the study group. With this method, the authors have increased the potential effective use of this extended nerve with less need for nerve grafting. They have demonstrated that the transfer of the extended phrenic nerve to the musculocutaneous nerve directly can shorten the period of axon regeneration and subsequently lead to earlier muscle function.

We would like to make some comments about this impressive technique based on our experience with more than 1200 surgical cases performed for the treatment of brachial plexus injuries:

1. "Full-length phrenic nerve transfer" or "extended phrenic nerve transfer."

   If the length of phrenic nerve in the adult thoracic cavity is approximately 20 cm, then its full length should be around 25 to 30 cm, with the length in the neck included. The distance from the phrenic nerve origin to the origin of the musculocutaneous nerve is approximately 15 cm (8 cm

supraclavicularly and 5 to 8 cm infraclavicularly). Xu et al.[7] demonstrated that the additional length they harvested ranged from 8 cm to 20 cm in a total of 15 patients undergoing this type of operation. In all patients, the extended phrenic nerve could, of course, reach the musculocutaneous nerve directly without the need for a nerve graft for coaptation. We think that the term "extended phrenic nerve transfer" is more suitable than "full-length phrenic nerve transfer." In some of the cases reported by Xu et al., only 8 cm of phrenic nerve was harvested, and that is not the full length of the phrenic nerve. We question and would be interested to know whether the true full length of the phrenic nerve can actually reach even further than the musculocutaneous nerve and therefore potentially allow for even more distal nerve coaptations. This would possibly allow for direct coaptation to the distal ulnar or median nerve, which may restore intrinsic hand muscle function—a worthwhile endeavor. From our experience, recovery of intrinsic muscle function is almost impossible in adult brachial plexus injuries when nerve grafts are used. The denervated intrinsic muscles will have undergone irreversible degeneration and atrophy by the time the new axons have reached them.

2. Safety of extended phrenic nerve harvest by using video-assisted thoracic surgery.

   This technique of endoscope-assisted harvest of the extended phrenic nerve requires one-lung ventilation. Although the video-assisted thoracic surgery procedure has become routine for thoracic surgeons, it is not without complications.[8] In addition, the dissection of the phrenic nerve off the surrounding structures must be quite tedious and has an increased risk of complications associated with it. The technique must be quite challenging, especially considering the proximity of the nerve to the pulsating myocardium. In our laboratory, we attempted to create a rat model in which either an open or a closed (blind) method is used to harvest the phrenic nerve in the chest. We realized a mortality rate of 87 percent (20 of 23 rats). Most deaths were due to respiratory distress, and a few were due to massive bleeding caused by large vessel injury. We are aware that the situation in the operating room with controlled anesthesia and better instruments is completely different, but we would like to emphasize that this procedure can result in potentially gross consequences in certain settings. Although the authors state that the procedure is safe and minimally invasive, we are still concerned about the safety of this method, which converts a purely elective procedure into a potentially life-threatening one.

3. Extending the indication for the use of this procedure in patients with brachial plexus injuries more than 1 year old.

   From our experience, if the injury is more than 5 months old, intercostal, spinal accessory, and even phrenic nerve transfers to nearby nerves (e.g., phrenic nerve to suprascapular nerve or intercostal nerve to musculocutaneous nerve directly) have a success rate that decreases significantly from 80 percent to 40 percent.[1,4,9] If the injury is more than 1 year old, the success rate will be even lower, and in those cases, a successful outcome is more an exception rather than the rule. In a study by Watchmaker and Mackinnon,[10] moderate to advanced interstitial fibrosis was found in the majority of biopsy specimens of muscle denervated for 11 months. Xu et al.[7] believe that the halving of recovery time achieved without the use of a nerve graft can extend this period beyond 1 year. In this, we cannot totally agree with them.

4. Target nerves of the extended phrenic nerve transfer.

   The "full-length phrenic nerve transfer" would be worthwhile for the purpose of achieving function of hand intrinsic muscles with more distal nerve coaptations instead of for the purpose of innervating the more proximal musculocutaneous nerve. The hand intrinsic muscles undergo irreversible degeneration in a short period of time, and there are no good methods at this point that allow for rapid neurotization of the intrinsic hand musculature that would potentially prevent this atrophy. We would hesitate to use this technique of harvesting an extended phrenic nerve utilizing video-assisted thoracic surgery, with its inherent risks, to innervate the musculocutaneous nerve where others have demonstrated excellent results with musculocutaneous neurotization using other, less risky methods.[11]

In conclusion, we admire the outstanding results achieved by the authors with this innovative and useful procedure. We look forward to reading further reports in which the extended phrenic nerve is used for even more distal transfers.

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MAINTAINING THE PRIVACY OF PATIENTS, PART 2

Sir:

The need to look attractive to other people is one basis of the sense of shame.[1] This feeling can occur due to an alteration of the body's shape and may arouse low self-esteem.[2,3] The plastic surgeon has the ability to modify the patient's appearance and, by doing so, to influence the patient's self-image and self-esteem.

Plastic surgery is intimately related to psychology, since the plastic surgeon deals with the patient's emotional, psychological, and social needs as well as the patient's expectations. Patients who find it difficult to accept their appearance can lower their anxieties by having an operation.

In order to reduce the risks of infection, hospitals do not allow patients to enter the surgical room in their own clothes. Patients have to change into a disposable apron. In the surgical room, this apron must be removed to allow surgical marking and planning and photographic documentation. Presumably, most patients feel embarrassed to be naked in front of the surgical team.

A communication of ours previously published in this *Journal*[4] describes the development of an adhesive tape to cover the female genital region. Following this line of research, we conducted a survey to evaluate what patients think of this kind of protection and which body parts are more likely to cause embarrassment.

Ninety patients (52 women and 38 men) participated in this study. The women ranged in age from 18 to 55 years (average age, 41 years), and the men ranged in age from 24 to 47 years old (average age, 34 years).

Among the women, 62 percent (32 of 52) reported that they would like all their private body parts to be covered (vagina, breasts, and gluteus) when entering the operating room. The remaining patients (38 percent) stated they did not mind undressing in front of the surgeon and the surgical team. Some patients made a written observation on the side of the questionnaire stating that in spite of normally feeling embarrassed about undressing in front of strangers, their trust in the team and the team's professionalism made them feel comfortable. None of the patients stated that they would oppose the protection.

Covering the gluteus region was considered important by 31 percent of the women, very important by 15 percent, and extremely important by 4 percent (total, 50 percent). The remaining patients stated that this area was slightly important (20 of 52 patients, or 38 percent) or not important at all (six of 52 patients, or 12 percent).

Protecting the breasts was considered important by 27 percent of the women interviewed, very important by 8 percent, and extremely important by 12 percent. The remaining patients considered the issue slightly important (16 of 52 patients, or 31 percent) or not important at all (12 of 52 patients, or 23 percent).

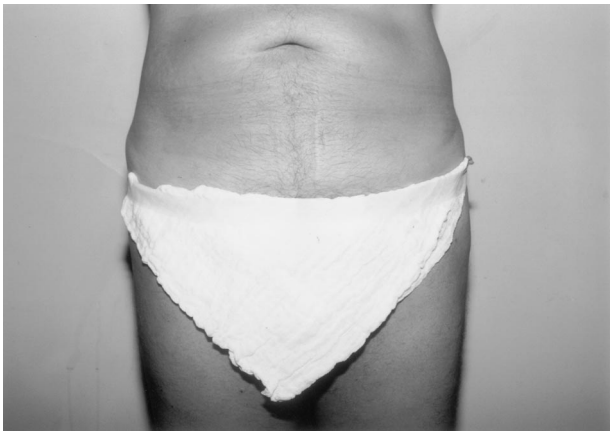

FIG. 1. Protection for the male patient.

The last question was about what body part would cause more embarrassment when exposed. The genital area (vagina) was considered the area that causes more inhibition (36 of 52 women, or 69 percent), followed by both the genital area and the breasts (six of 52 patients, or 12 percent). Eight of 52 patients, 15 percent, stated that all regions (the breasts, the gluteus, and the genital area) would provoke embarrassment with equal magnitude.

A small percentage of the patients (two of 52 patients, or 4 percent) reported that the breasts alone would cause them more embarrassment than the genital area, and nobody stated that the gluteus region alone could be responsible for a higher degree of embarrassment when exposed.

Among the male participants, 84 percent affirmed that they did not mind having their private parts protected (32 of 38 patients). A smaller number (six of 38 patients, or 16 percent) reported that they would appreciate this kind of protection, and none of the patients were against it. The men considered that the genital area would provoke more embarrassment when exposed (30 of 38 patients, or 79 percent), followed by the gluteus (eight of 38 patients, 21 percent).

By comparing these data, it is possible to note that women were more concerned than men about having their genital area protected (62 percent versus 16 percent, respectively). Both groups considered the genital area to be the area of the body that would provoke more embarrassment when exposed. Also significant was the importance of protecting the mammary region (47 percent) and the gluteal region (50 percent) mentioned by the women.

Although this work suggests that most of the men were not really concerned about undressing in front of strangers in the operating room, we developed a simple, easy method to cover these patients' regions. This protection does not cover important areas that have to be photographed or surgically marked. We use a surgical compress doubled in the middle and affixed with adhesive tape to the hips (Fig. 1). This protector can be removed for antisepsis after the patient has been sedated. In this manner, we are attending

to the patient's privacy and welfare, while ensuring a better relationship between the doctor and the patient.
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A SIMPLE, INNOVATIVE METHOD OF SECURING BURN DRESSINGS

Sir:

Over the years, quality and types of burn dressing materials have been modified, with more and more use of synthetic materials. In developed countries, a premedicated, readymade, sterile, absorbent, synthetic or semisynthetic burn dressing is easily available in different sizes and different brands as needed. This availability facilitates the comfort of both the patient and the doctor. In countries like India, the same is not true. The closed dressing of an extensive burn wound drains heavily on resources, expertise, skill, and time. The usual method of fixation of these dressings, long cotton gauze bandages, is very cumbersome and physically straining. During these dressing changes, the patient needs to be lifted and turned for encircling of bandages around various body parts, and this is especially difficult when dressing the torso of the heavy, well-built patient. These dressing changes require extra manpower and material resources.

Even the simple burn wound dressings drain the financial resources of burn patients heavily. In particular, the overlapping cotton gauze bandages used to stabilize these dressings are very costly. I have developed a novel method of fixing the massive absorbent burn dressing with an ordinary office stapler and staple pins. An ordinary office stapler and staple pins are used instead of roller gauze bandages to secure the layered, absorbent burn dressing material. The office stapler and pins are sterilized chemically with either absolute alcohol or Cidex sterilizing and disinfecting solution (2.4% alkaline glutaraldehyde; Advanced Sterilization Products, a Johnson & Johnson Company, Irvine, Calif.). The required layered, medicated gauze is used as usual to cover the wound. The last layer of gauze dressing is tacked to itself, by pinching and stapling at an appropriate distance. This method stabilizes the entire burn dressing quickly and easily without the need for lifting and turning of the patient, as required to encircle the bandage (Figs. 1 and 2).

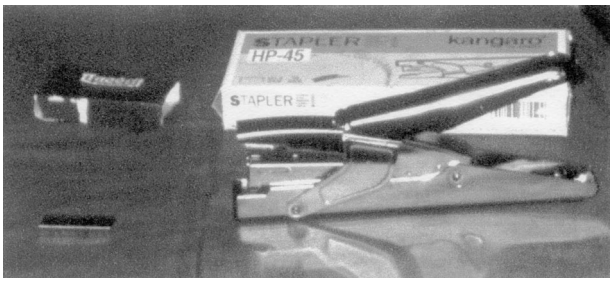

FIG. 1. Ordinary office stapler and staple pins.

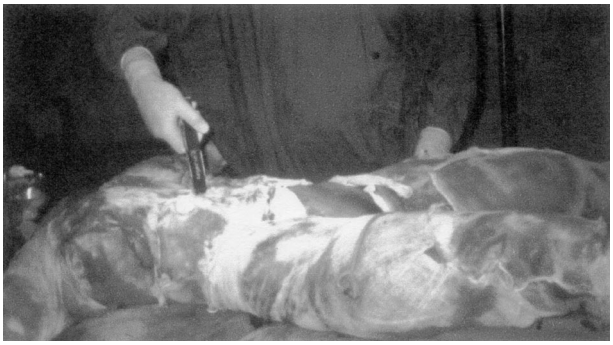

FIG. 2. A stapler is used to fix the dressing.

An approximate minimum of six roller gauze bandages (18 meters × 15 cm) are required in whole-body burn wound dressings. The cost for these six roller gauze bandages (pack of surgical gauze cloth, 18 meters × 90 cm) is approximately 200.00 Indian rupees ($5.00 U.S.). The costs for about 300 staple pins for securing the dressing and for the office stapler (one-time cost) are 120.00 Indian rupees ($3.00 U.S.). The stapler can be reused; the recurrent cost of staple pins is 3.00 Indian rupees ($0.08 U.S.) for 300 pins for each whole-body burn dressing. This is definitely very economical compared with the use of gauze bandages for stabilizing burn dressings.

Apart from being economical, this approach has its own advantages as well. It is very easy to fix the layered gauze dressing by stapling it upon itself. There is no need to turn the patient physically for every turn of the roller bandage, since the dressing is secured merely by fixing it with the office stapler and staple pins. This method reduces the discomfort of and inconvenience to the patient. It also reduces the need for extra manpower to turn these patients frequently during burn dressing changes.
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