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# Correspondence and Brief Communications

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## UNILATERAL CLEFT LIP WITH HEMANGIOMA

Sir:

In their article entitled "Unilateral Cleft Lip Complicated by a Hemangioma," Dr. Yavuzer and coauthors present a very rare and interesting unilateral cleft lip case that is complicated with hemangioma.<sup>1</sup> We want to bring to your attention that we had previously presented a 20-day-old male newborn with left unilateral cleft lip and a superficial hemangioma on the nasal tip and medial labial side in an article just a couple of months ago entitled "Cleft Lip and Hemangioma," and we emphasized the importance of the planning and the timing of the surgery.<sup>2</sup> As mentioned in these two articles, the concomitant occurrence of these relatively two common anomalies is extremely rare.<sup>3,4</sup>

When we investigated Dr. Yavuzer et al.'s article more carefully, we noticed an exact matching of the age, sex, and physical examination findings between their and our reported case. The two articles present the same patient. We had seen this patient in our department when he was a 20-day-old newborn and planned to operate on him at 3 months of age, but we did not see the patient again. He was presented to the other plastic surgery center, which is located in the same city as our department.

So as to not present the literature incorrectly, we want to bring this to the attention of the *Plastic and Reconstructive Surgery* readers. We congratulate the authors who performed this very challenging surgical procedure very successfully. We

also would be interested in seeing the long-term results of this case.

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## REPLY

Sir:

We thank Drs. Sarifakioglu and Aslan for their comments on our article "Unilateral Cleft Lip Complicated by a Hemangioma" (*Plast. Reconstr. Surg.* 110: 1084, 2002) and their brief communication "Cleft Lip and Hemangioma" (*Plast. Reconstr. Surg.* 110: 349, 2002). We appreciate the opportunity to respond to their comments.

Their above-mentioned brief communication described their observation of a 20-day-old male newborn with left unilateral cleft lip and a superficial hemangioma on the nasal tip and medial labial side. In our article, we presented a 3-month-old boy with left unilateral complete cleft lip complicated by a hemangioma of the columella, nasal sill, and a large segment of the upper lip on the noncleft side. The extent of the hemangioma was defined by magnetic resonance imaging study, and the operation was performed on this rare case. In our article, the operative strategy that could be followed in these cases was discussed, and 6-month postoperative results of the particular patient were also presented. As Drs. Sarifakioglu and Aslan mentioned in their letter, the patient they shared their observation on and the one we operated on and reported seem to be the same patient. We believe that this might be important in the future for anyone who would like

to perform a literature review of cleft lip and hemangioma. In that sense, the case presented in the brief communication by Drs. Sarifakioglu and Aslan and that presented in our case report should be counted as a single occurrence. We thank Drs. Sarifakioglu and Aslan for bringing this to our attention.

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### MEDIAN CLEFT OF THE UPPER LIP

Sir:

Median clefts of the upper lip had been divided into two categories: true and false.<sup>1</sup> Millard and Williams<sup>2</sup> stressed that any congenital vertical cleft through the center of the upper lip, no matter to what extent, in the absence of a prolabial remnant should be classified as a median cleft of the upper lip. These clefts are best explained by the failed mesodermal migration into fused frontonasal and maxillary process.<sup>3</sup> It is a rather rare condition among craniofacial anomalies. Fogh-Andersen<sup>4</sup> reported on 15 cases in a survey of 3988 facial cleft patients seen at one hospital over a 30-year period. The acknowledged rarity of median cleft lip is our reason for publishing this case.

A 3-year-old boy was admitted for primary repair of his median cleft of the upper lip (Fig. 1). His deformity consisted of a median cleft in the lower half of the upper lip continuing as a depression up to the base of the columella. The orbicularis oris fibers were completely interrupted with the absence of the char-



FIG. 1. Preoperative appearance illustrating the median cleft of the upper lip.



FIG. 2. Preoperative view showing the aberrant mucosal tag, the gap between the central incisors, and the double frenulum.



FIG. 3. Postoperative view of the repaired lip.

acteristic philtrum complex. Eversion of the lip revealed a double frenulum (one on either side of the midline) to the alveolus and a gap between the central incisors. An aberrant mucosal tag was seen projecting from the median defect of the lip (Fig. 2). Hypertelorism and flattened nose were associated with median cleft lip. His neurological and developmental examinations were age-appropriate, indicating normal forebrain development. There was no other congenital anomaly present, and family history was negative. A computed tomographic scan of the brain was normal, and the results of the laboratory examinations were within normal limits.

During the operation, the frenulum was released with the excision of the aberrant mucosal tag. The lip was repaired in layers by a double triangular flap technique, with care being taken in the proper approximation of the muscles through the entire height of the lip. It produced adequate lengthening of the lip and a normal-looking philtrum and tubercle of the lip (Fig. 3).

Wiemer et al.<sup>5</sup> indicated that median clefts can be divided into those with orbital hypertelorism and those with hypotelorism. Their hypothesis is supported by Sedano et al.,<sup>6</sup> who added that frontonasal dysplasia and holoprosencephaly are at the opposite ends of the spectrum of midfacial malforma-

tions. Thus, it is widely accepted that midfacial malformations, including median clefts of the upper lip, can be divided into two categories: disorders related to hypertelorism (frontonasal dysplasia) and disorders related to hypotelorism (holoprosencephaly).

The case we experienced falls into first group. Patients falling into this group represent an arrest in facial development with the element present but distorted. Brain abnormalities are not usually associated with this syndrome, and the intelligence is normal. These patients should have a normal life expectancy and, without question, deserve reconstruction, barring other life-threatening conditions or anomalies. The second type that related to hypotelorism is associated with severe failure in development of the midline structures of the face and brain, making the syndrome incompatible with a long life. Reconstruction is not indicated, but utilitarian measures may be offered to provide relief to the family for those who do survive beyond the expected period.<sup>7</sup>

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#### CARBON DIOXIDE LASER RESURFACING AND THIN SKIN GRAFTING IN THE TREATMENT OF STABLE AND RECALCITRANT VITILIGO

Sir:

Editor's Note: The following discussion was meant to appear with Acikel et al., "Carbon Dioxide Laser Resurfacing and Thin Skin Grafting in the Treatment of "Stable and Recalcitrant" Vitiligo (*Plas. Reconstr. Surg.* 111: 1291, 2003).

Unfortunately, it was not published as a result of mishandling. Dr. Achauer passed away in November of 2002.

Loss of pigmentation can be distressing. The most common circumstances where this occurs are in burn and vitiligo patients. It has been known for many years that pigment can be transferred by epidermal skin grafts. Pigmentation can be affected to some extent by medication. On the whole, there is no universally accepted treatment. I became involved in this issue in taking care of burn patients.<sup>1,2</sup>

I have used this procedure successfully on a small number of patients. Patient acceptance in the burn field is mixed. Most burn patients have had skin grafts, and if one mentions treatment involving a skin graft, no matter how thin, that brings back to mind the process the patient went through to heal the burn, and the pigmentation issue becomes less important. The pigmentation issue doesn't seem worth the operation. One does become aware that pigmentation is a major cosmetic deformity to a number of people, particularly younger, darker-skinned patients.

There is probably more of an opportunity to use the thin skin grafting technique in patients with vitiligo, as it is a lifelong problem. Most of these patients have been on and off different medications and are frustrated by the results. There is no question that this technique can work. The challenge is in the technical details, such as taking an extremely thin skin graft, affixing it, and getting a consistent take and smooth border. We reported on a patient who had a large area on the abdomen and thigh skin grafted for vitiligo. She appreciated the improvement.<sup>3</sup>

Acikel et al.'s contribution is that this is a larger series than the more typical case report. They also report the use of the carbon dioxide laser instead of dermabrasion. The authors did not comment on their technique for harvesting the thin skin graft and how it is affixed. That was described in their earlier article.<sup>4</sup> Although I have not used it for this particular indication, it appears that fibrin glue would be an excellent method for thin skin graft fixation. It is useful to know that the carbon dioxide laser can be used for deepithelialization, although there have been several reports supporting this concept.

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### MONITORING BY MEANS OF COLOR DOPPLER SONOGRAPHY AFTER BURIED FREE DIEP FLAP TRANSFER

Sir:

Monitoring the early vascular status is very important to improve the success rate of microsurgical flap transfers into a buried area, and various monitoring modalities have been used. An ideal monitor should provide an objective index that may be easily interpreted with a well-defined critical threshold to indicate flap failure. The system must be simple and reliable in application, allow constant evaluation, and preferably be noninvasive. Color Doppler sonography has been applied in monitoring of the blood flow in the transplanted jejunum and has been reported as a reliable and effective form of monitoring after free jejunum transplantation.<sup>1,2</sup> In the present study, we applied it in monitoring of the blood flow in the buried deep inferior epigastric perforator (DIEP) flap after skin-sparing mastectomy.

The subjects of this study were six female patients who had undergone DIEP flap transfer after complete skin-sparing mastectomy at our institution between 2001 and 2002. Examination with color Doppler sonography was performed every 4 hours at the bedside within 3 days after surgery using an LOGIQ 400 M.D. (GE Yokogawa Medical Systems, Tokyo, Japan) with a 6 to 13 MHz wide-band linear transducer. Color Doppler sonography could identify the arterial and venous flow at any checking time in all patients. Color Doppler imaging demonstrated not only the anastomotic vessels but also the terminal vessels in the fat of the DIEP flap (Fig. 1). The entire investigation was usually completed within 5 minutes. The postoperative course was uneventful in all patients.

The monitoring modalities for buried flaps include ultrasound Doppler, laser Doppler flowmetry, and monitoring flap. The use of an ultrasonic Doppler is simple and noninvasive; however, the signals are difficult to differentiate from nearby large arteries and veins. In laser Doppler flowmetry, the buried monitor probe method is invasive, with a risk of monitor displacement, and requires an additional operative procedure. The monitoring flap method has the disadvantage of excision of the paddle later.<sup>3</sup> In contrast, color Doppler

sonography has no remarkable disadvantage, but the device is too bulky to carry around.

In conclusion, color Doppler sonography is a simple, extremely useful, and reliable method for assessing the vascular status of a buried DIEP flap.

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### DIGITAL PHOTOGRAPHIC STANDARDS

Sir:

At a recent meeting of the New Jersey Society of Plastic Surgeons, a young colleague, Chris Godek, posed a question to me. Are there standards for digital photography in journal articles or scientific presentations?

The simple answer is no. The American Society of Plastic Surgeons Photography Committee established standards for analog photography long ago. Digital photography poses many new problems:

1. A myriad of cameras and lenses exist, and most cameras have zoom lenses, so it is difficult to standardize preoperative and postoperative photographs. Only the professional models from Nikon, Canon, and Fuji accept the standard focal length lenses that we commonly used with predigital 35-mm cameras. The professional cameras cost range from \$2000 to \$9000 without lenses, and that puts them out of the reach of many young plastic surgeons. Things need to be standardized, or it will remain difficult to accurately assess results.
2. Lighting remains a great problem, and again, there are no specific recommendations out there.
3. We now have powerful morphing programs, and any image or result can be easily altered. What can we trust?
4. Many plastic surgeons are taking their old analog photographs and scanning them into digital format, and the results are simply *terrible!* I mentioned these poor results to a well-known cosmetic surgeon, and he replied that the "experts" at his medical school and/or his hospital's in-



FIG. 1. Buried DIEP flap for reconstruction of the breast after skin-sparing mastectomy. Color flow Doppler sonography demonstrates good blood flow within the DIEP flap.

formation technology department performed the magic for his presentation. I suggest that his technicians go back to school, master Adobe Photoshop, or buy a higher quality scanner!

These quality questions remain an enigma, and I wonder if the plastic surgery community is interested in their correction, or are we willing to continue to accept mediocrity? DOI: 10.1097/01.PRS.0000077215.91381.12

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### REVERSED POLARITY MAGNA-FINDER

Sir:

During a recent breast reconstruction with tissue expander, I had an unusual experience with the Magna-Finder, the internal magnetic valve locating system utilized by McGhan Medical Corporation (Santa Barbara, Calif.).

Placement of the tissue expander was completed in typical submuscular fashion. After closure of the wounds, the enclosed Magna-Finder was placed on the chest in the usual manner in anticipation of expander filling. At that point, the Magna-Finder clearly behaved as if polarity was reversed in either the expander magnet or the Magna-Finder. Fearing a defective expander valve or magnet, I reopened the wound and checked the expander orientation and valve polarity. The expander valve and magnet appeared to be in proper position. Having no other sterile Magna-Finder at hand, I reversed the position of the small, free-swinging toggle magnet at the end of the Magna-Finder. Now with the blue plastic end of the magnet pointed down, the system performed as expected and the expander valve was located easily and filled.

This manufacturing defect was brought to the attention of McGhan Medical Corporation and involved Magna-Finder run number 580388, sterilized in August of 2002. DOI: 10.1097/01.PRS.0000077216.26668.10

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### CORRECTION OF INVERTED NIPPLE USING PIERCING

Sir:

An inverted nipple may have both functional and aesthetic implications. Many procedures have been described for treatment of the inverted nipple and for restoration of normal anatomic configuration. A classification of the retracted nipple by severity was proposed recently.<sup>1</sup> The classification divides the diagnosis of an inverted nipple into three groups (I, II, and III) based on the severity of the inversion and ease of pulling out the nipple.

Surgical correction, though minor, has its risks. I have encountered the problem of inverted nipple in a close family member. The patient had a class II inversion that persisted for 1.5 years postpartum (Fig. 1). The nipple could be pulled out manually, but not as easily as in grade I. The nipple had

difficulty maintaining its position and tended to retract. The shape of the nipple after retraction led me to believe that any kind of support at the base of the nipple would keep the nipple in its anatomic natural position. After much deliberation, we elected to try the option of piercing as a means of treatment.

The nipple was prepared with Betadine. A usual piercing technique was used. A 14-gauge needle was passed horizontally through the base of the nipple. A  $\frac{5}{8}$ -inch stainless steel nipple ring was advanced following the needle and through the tract (Fig. 2). The procedure was completed within seconds. No local anesthetic was used.

After the procedure, the patient had some discomfort for several days that resolved without medication. The aesthetic result was very good, with no retraction or deformity. The nipple ring was cleaned daily, and at 3-month follow-up



FIG. 1. Preprocedural photograph showing the inverted nipple.

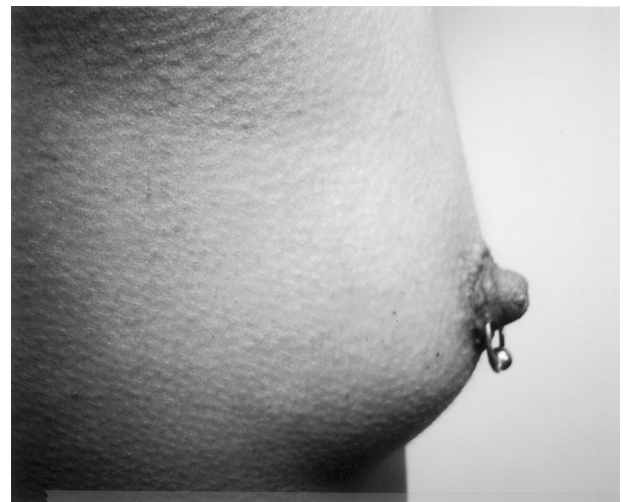


FIG. 2. Postprocedural photograph showing the nipple with the 14-gauge,  $\frac{5}{8}$ -inch stainless steel ring maintaining it in anatomical position.

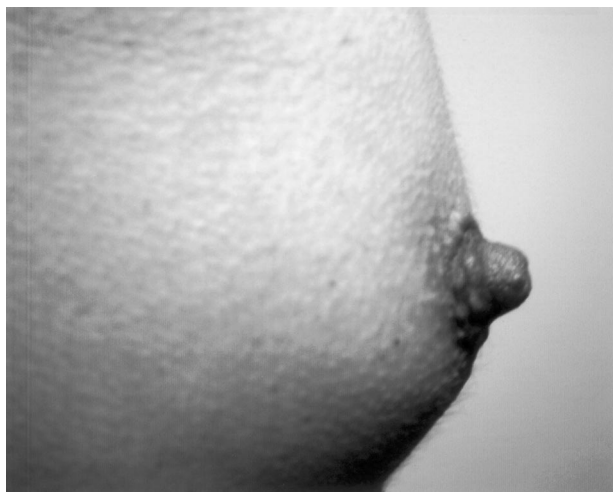


FIG. 3. Postremoval photograph demonstrates normal appearance of the nipple with no retraction or inversion.

showed no complications. The nipple ring was then removed. Follow-up examination 12 months after removal of the ring showed that the normal shape of the nipple was maintained (Fig. 3). No additional treatment was needed.

Correction of inverted nipple using body jewelry was described recently.<sup>2</sup> Dr. Scholten's technique involves using a 2-0 Vicryl holding suture for retraction of the needle and a 16-gauge biovalve intravenous catheter needle and piercing in an inward and then outward direction to achieve maximal nipple projection. This is done under local anesthesia with excellent results. In this brief communication, a typical body piercing technique is described. It does not necessitate the use of local anesthesia or a holding suture. The procedure was performed in the office and has provided a long-lasting result. The nipple stayed everted at 12 months after removal of the nipple ring.

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**AN EASY AND CHEAP WAY TO ASSEMBLE A TISSUE EXPANDER FOR LABORATORY USE**

Sir:

We present a cheap and practical way to obtain a tissue expander for laboratory research using secondhand materials easily obtainable in a plastic surgery ward.

Tissue expansion is an important technique in several laboratory studies where rats are used<sup>1,2</sup> to evaluate survival and vascularization of pedicle and free flaps, neurovascular

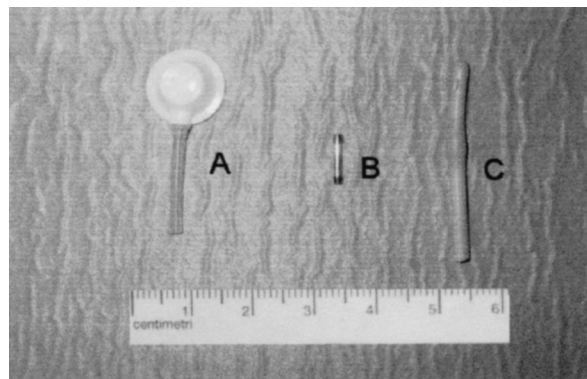


FIG. 1. Our self-made tissue expander components: (left) injection dome from a Becker expander, (center) stainless steel connector system, (right) terminal part of two-way Foley catheter.

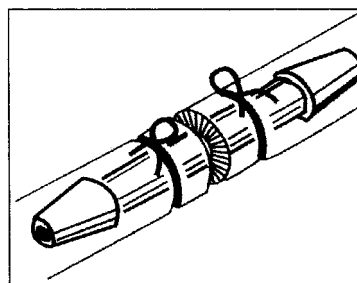


FIG. 2. Scheme of steel system blocking with two stitches.

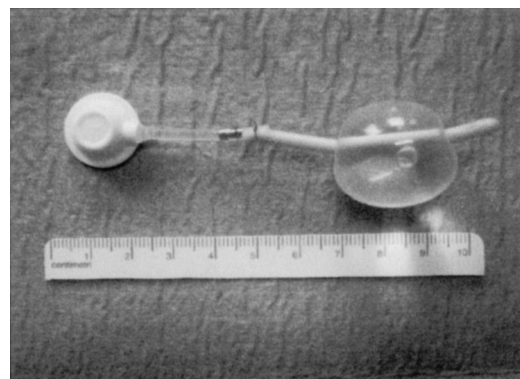


FIG. 3. Our self-made tissue expander assembled, and filled with 15 ml of saline solution.

changes, physiology and pathophysiology of expanded skin, anatomical and histological studies, and so on.<sup>3,4</sup>

One of the limits of tissue expansion is the cost of a skin expander with a distal port appropriately customized for rats.<sup>5,6</sup> Our idea is to use secondhand materials that we can easily get in our department.

One of our most frequent operations involves the implantation of Becker mammary expander prostheses after oncological breast mastectomy. Each prosthesis is supplied with a choice of two connector systems and a choice of two injection domes, a small or a large one. We always use the standard, large injection dome in the operating room; so every month



we have many small injection domes (Fig. 1, *left*), which are thrown away.

The Becker packaging contains two connection systems: the first, the one we always use, is a self-blocking system; the second, the one never used, is a stainless steel connector system (Fig. 1, *center*) that has to be securely tied with non-absorbable suture both proximally and distally to the connection point (Fig. 2).

For the expandable system, instead of an expensive silicone double-layered shell, we decided to use a cheap Foley catheter designed for pediatric use.

We cut the terminal, expandable part of a two-way, silicone-treated latex Foley catheter (10 French, 4.0 mm; Fig. 1, *right*). We connected the little dome to the catheter balloon by way of the steel connector, and finally strongly tied the connection point using two nonabsorbable stitches (blocking the main path of the catheter).

After implanting the device under the *penniculus carnosus* of the rat, we can expand our system up to a maximum of 15 ml of sterile saline solution; obviously, depending on the type of animal you decide to use, you can easily change the catheter size, always reusing the same little dome and the steel connector, just cutting the distal stitch (for example, an 18-French, 6.0-mm catheter is expandable up to more than 90 ml of saline solution).

Thus, we have obtained a cheap and easily sterilizable tissue expander usable every day in our laboratory activities (Fig. 3).

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#### CONTOURING OF CALVARIAL BONE GRAFT

Sir:

The skull has been recognized as a donor site for bone grafting for more than 100 years. The importance of calvarial bone grafting in craniomaxillofacial trauma and facial reconstructive surgery is now widely recognized and is accepted as standard practice.

One of the commonly reported drawbacks of calvarial bone grafts is the lack of malleability and the resultant inability to bend the graft to the contour of the facial skeleton for reconstructive purposes.<sup>1-5</sup> To overcome this problem with contouring, some authors recommend keeping the periosteum attached to the outer table graft, as this allows the graft to be crushed to a concave contour or cut while the periosteum holds the fragments together.<sup>2,5-7</sup> Others recommend careful selection of graft from a part of the skull that will correspond to the area of bone to be augmented.<sup>2-4</sup> In our experience, this is not always practical, especially for



FIG. 1. Harvested split-thickness calvarial bone graft.

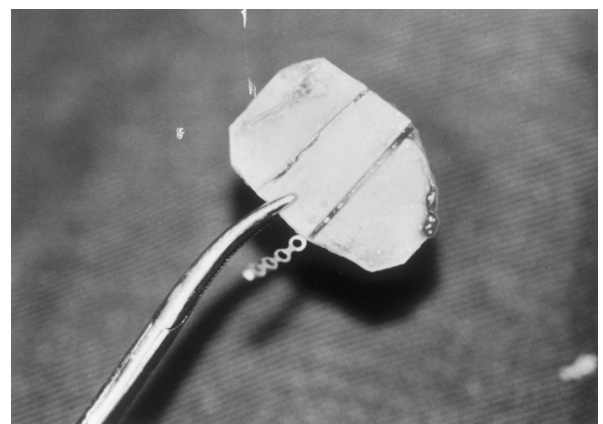


FIG. 2. Scoring of the cortical aspect of the graft with a fissure bur.

concave areas and with a limited access of a hemicoronal incision.

Our experience in the use of the split-thickness calvarial bone graft in a maxillofacial department is predominantly in primary posttraumatic reconstruction of the maxillofacial skeleton in adults, the orbit being the most common recipient site. We routinely harvest split-thickness calvarial bone grafts in situ with a sagittal saw as described by Zins et al.<sup>8</sup> (Fig. 1). The graft, at this stage, is contoured for use in the recipient area. We have been able to bend the calvarial bone when required by scoring the cortical aspect with tungsten carbide fissure bur, which is a fine sidecutting bur (Fig. 2), and gently “greensticking” the bone graft on the underlying cancellous bone (Fig. 3). Using this technique, we have been able to use a single graft from the outer cortex of up to 4 cm<sup>2</sup> to reconstruct the medial wall and floor of the orbit (Fig. 4). The lack of malleability or inability to bend calvarial bone, as mentioned previously, is thus circumvented.

Using this technique, we are able to preserve the periosteum, which is used to cover the bone graft harvest site, and this has been demonstrated in animal studies to result in the best overall reconstitution of the graft harvest site.<sup>9</sup> Furthermore, the ability to bend the calvarial graft avoids the use of microplates in the orbital floor and medial wall area with its potential risk of infection.<sup>10</sup>

Twenty years later, Tessier’s comment that “cranial bone grafts represent a convenient material for meeting most re-

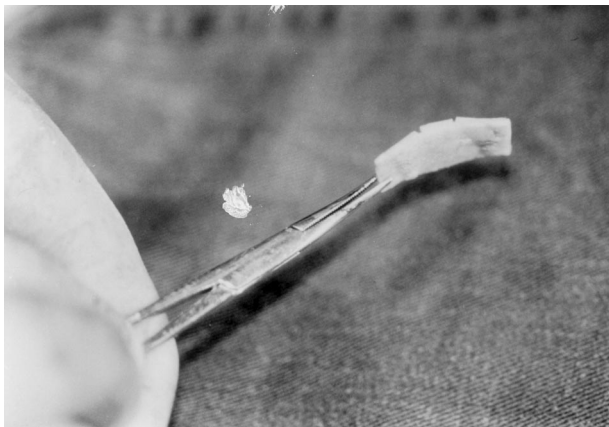


FIG. 3. “Greensticking” of bone graft.



FIG. 4. Further contouring to reconstruct the floor and medial orbital wall.

quirements of repairing facial defects” remains true. We have found that with proper and careful technique, the split-thickness calvarial bone graft can be contoured to adapt to the concave recipient areas in the orbit.

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#### A PICTURE IS WORTH A THOUSAND WORDS: MOBICAM IN PLASTIC SURGERY

Sir:

One of the important tools of a plastic surgeon has always been the camera, which is not only used for visual documentation of the problem but also helps in the planning of its management. The advent of the digital camera enhanced the results of medical photography by visualizing the image on



the liquid crystal display screen before the picture is taken (Fig. 1). In addition, the storage, retrieval, and presentation of the photographs became easy and cost-effective, resulting in its wider applications.<sup>1</sup> The new generation of mobile telephones with digital camera technology (i.e., "mobicams") has improved this potential even further. The use of mobicams in plastic surgery is suggested in the following scenarios.

1. Digital images obtained of the injured part using the mobicam in casualty can be:
  - a. transferred to the senior on call with whom the management can be discussed over the same mobile phone or a fixed phone, depending on the convenience.
  - b. transferred to the department of medical illustration for filing.
  - c. stored in the memory of the mobile unit for transferring to the personal computer later.
2. The district health nurse can send the pictures of the wounds to the doctor for advice regarding the type of the dressing, continuation of antibiotics, or return of the patient to the clinic.<sup>2</sup>
3. Patients can telephone the general practitioner and send the picture of the injured part for a better understanding and advice.
4. The photograph of a cutaneous lesion seen in the clinic, requiring second opinion from a dermatologist, can be sent for an immediate answer.<sup>3</sup>
5. A photograph of the splint made by the occupational therapist, requiring approval of the surgeon who is far away, can be checked over the telephone.
6. An unusual finding during a surgical procedure observed by the trainee surgeon operating without supervision can be better understood and guided by the senior on the transfer of instant images in addition to the telephonic conversation.

Use of the mobile telephone is not allowed in many hospitals, but its use as a camera is not prohibited anywhere to our knowledge. Patient photographs should only be obtained after the patients have given written consent, to avoid later inconvenience.



FIG. 1. Mobile telephone with camera taking a picture.

In conclusion, the small size of the camera and its coupling with the mobile telephone make it a readily available, simple, and effective device for medical photography in plastic surgery.

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#### THE "SYRINGE" NIPPLE SPLINT

Sir:

After surgical correction of inverted nipples, splinting remains an effective procedure to protect and maintain the nipple's restoration during healing, and it might also help in the prevention of recurrence.

Many nipple splinting techniques have been described, including simple foam dressings,<sup>1,2</sup> bolster sutures,<sup>3</sup> suction devices,<sup>3,4</sup> the use of a nipple "barbell,"<sup>5</sup> and traction suture taping,<sup>6</sup> in addition to specific nipple splint designs.<sup>7-9</sup>

On the basis of our experience with a well-tried and documented technique using a syringe-in-syringe design,<sup>10</sup> we describe a simpler modification of the syringe nipple splint that is both quick and easy to assemble in the operating room in less than 60 seconds.

A knife is used to cut off the lower 3 cm of a sterile, disposable 10-ml syringe with the flange intact. The black rubber crown from a 20-ml syringe plunger can be placed firmly onto the top of this construct to form a protective chamber to house the reconstructed nipple. Piercing the top of the black rubber crown, a 3-0 nonabsorbable suture on a straight needle is fed through the chamber before being passed through the corrected nipple as a suspension suture, piercing the rubber crown again and secured as shown in Figure 1 using the beads and collars provided with the suture material.

Care is required to prevent excessive traction and/or tissue necrosis by overtightening of the suture. The flange at the base of the syringe ensures a further degree of protection to the areola during this gentle traction technique. Once the

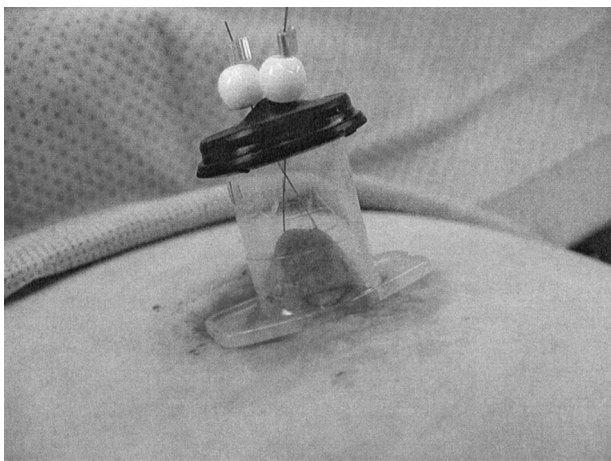


FIG. 1. The "syringe" nipple splint attached to a surgically corrected grade II inverted nipple.

syringe nipple splint is in place, fluffed gauze dressings are placed over the chamber like a bird's nest, allowing a brassiere to be applied to hide it.

Maintenance of postoperative nipple projection can be provided using this robust technique. The transparent chamber allows for intermittent inspection. The splint can be left in place for 7 to 10 days. Removal of the splint is achieved by cutting the suspension suture when required. We have found that this nipple splint easily fits nipples of different sizes.

The construction of a simple, inexpensive, and reliable nipple splint has been described using readily accessible sterile syringes. We recommend this modification of a "syringe" nipple splint for its use in the postoperative management of the surgically corrected inverted nipple.

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#### THE CE MARK

Sir:

Dr. R. A. Ersek discussed the CE mark in a recent issue of the *Journal*.<sup>1</sup> Medical devices can only be put on the market in European countries when they carry a CE mark. CE stands for Conformité Européenne, not for Consultants Europe. Comité Européen de Normalisation is an equivalent of the International Standards Organization and not so much an equivalent of the U.S. Food and Drug Administration. The latter seems to be much more under political influence than the Comité Européen de Normalisation and the International Standards Organization. Technical Committee 285 of Comité Européen de Normalisation at present is concerned with the specific standard for breast implants. General requirements already exist, and breast implants need to conform to these standards to obtain a CE mark.

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#### NEVUS COMEDONICUS

Sir:

Nevus comedonicus was first described by Koffman in 1895. In 1896, this entity was termed as nevus follicularis unilateralis by Selhorst. In the following years, some cases were reported as nevus follicularis keratosus, nevus unilateralis comedonicus, or comedo nevus. In 1975, it was proposed by Rodriguez that the most suitable name for this rare condition is nevus comedonicus.<sup>1-3</sup>

Nevus comedonicus is an infrequent developmental anomaly that resembles a deformed pilosebaceous apparatus. It is evident clinically as confluent clusters of dilated follicular orifices plugged with keratin, giving the appearance of ag-

gregated open comedones.<sup>3-5</sup> We report a case with nevus comedonicus, as it is an uncommonly observed disease.

A 21-year-old man was referred to the plastic surgery unit of Isparta Military Hospital because of lesions on his face. Lesions had been present on the patient's face for 10 years (Fig. 1).

Physical examination revealed scarred areas measuring 1 to 2 cm in diameter with dilated follicular orifices plugged with dark keratinous material at the left eyebrow. No other skin lesion was seen, and systemic examination was normal. The family history was unremarkable.

Histopathological examination revealed foci of deep and wide epidermal invagination with hyperkeratosis and acanthosis. Corneal plugs developed in dilated follicular orifices, forming comedones. Nevus comedonicus was diagnosed both clinically and pathologically. The patient has been followed for 1 year without any recurrence.

Nevus comedonicus involves both sexes equally and is not hereditary. Although lesions may develop at any time from birth to middle age, it occurs usually at 10 years of age.<sup>6</sup> In our case, lesions had existed since the patient was 10 years old.

Lesions may be localized in a small area or may involve a large area in a nevoid pattern. Skin lesions of nevus comedonicus are usually arranged in groups or in a linear pattern along Blaschko's line. They are usually unilateral, although bilateral occurrences have been reported. Sites of predilection are the face, neck, trunk, and upper extremities. Involvement of the palms, soles, penis, and scalp is very rare.<sup>1,6,7</sup> Nevus comedonicus has been reported to be associated with various developmental abnormalities of the skeletal system, the central nervous system, and other lesions of the skin and eye.<sup>8,9</sup> We have not observed systemic pathology in our case.

In nevus comedonicus, pilosebaceous follicles are dilated and filled with keratin plugs. Comedones may be the size of a pinhead or larger. Secondary inflammatory changes such as

papules with irregular borders, nodules, cysts, pustules, abscesses, and scars are frequently observed.<sup>1,3,10</sup>

The differential diagnosis of nevus comedonicus includes various types of epidermal nevi, familial dyskeratotic comedones, and linear comedone formations usually associated with acne vulgaris and chronically sun-damaged skin (Favre-Racouchot disease). Infrequently, multiple comedones in other unusual contexts may suggest nevus comedonicus as a possible diagnosis.<sup>11,12</sup>

Spontaneous regression of nevus comedonicus has not been reported. Treatment is advisable for cosmetic concerns or for treatment of inflammation and superinfection. Asymptomatic lesions may be left untreated. Solitary lesions are incised, and keratin content is drained in time. In some cases, topical retinoic acid treatment may be beneficial. For more extensive lesions, the most effective treatment is topical application of ammonium lactate lotion. Patients presenting with recurrent inflammation and cyst formation may be treated with systemic antibiotics, intralesional corticosteroid injection, incision and drainage, or systemic isotretinoin. In addition, in some patients with extensive lesions, tissue expanders have been used for reconstruction after excision.<sup>1,13-15</sup> The lesions on our patient were excised because they were localized only on the face.

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FIG. 1. Clinical appearance of the lesion on our patient's face.

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#### **HIRUDO MEDICINALIS: THE NEED FOR PROPHYLACTIC ANTIBIOTICS**

Sir:

The therapeutic use of *Hirudo medicinalis*, the medicinal leech, dates back to ancient Egypt and the beginnings of civilization. Their popularity has varied over the years, with leeches enjoying a renaissance in the world of reconstructive microsurgery during the last 15 years. The medicinal leech has been used by plastic and other reconstructive surgeons<sup>1</sup> to aid salvage of compromised microvascular free-tissue transfers,<sup>2,3</sup> lips,<sup>4,5</sup> and nasal tips.<sup>6</sup> Peer-reviewed evidence suggests that the survival of compromised, venous-congested tissues is improved by early application of a leech.<sup>7-9</sup>

The use of prophylactic antibiotics with *Hirudo* therapy is not ubiquitous,<sup>1</sup> and when it is employed, a range of antibiotics are used. In this brief communication, we argue for the use of prophylactic antibiotics during leech therapy and attempt to widely disseminate this information throughout the plastic surgery community. This should send a valuable message to those who have used leeches in the past and to those considering using them to attempt to salvage failing tissue transfers in the future.

Infection is possibly the most worrisome complication of leech application and generally presents as cellulitis or a local abscess. The exact incidence of leech-associated infection is difficult to assess, with incidences ranging from 2.4 percent to 20 percent being reported in the literature.<sup>7,10,11</sup> The results of these infections range from minor wound complications to extensive tissue loss and septicemia,<sup>12,13</sup> particularly in those patients prone to infection, such as immunocompromised and neutropenic patients.

Extensive studies have been carried out on the surface and mouth flora of leeches.<sup>14</sup> *Aeromonas* are prominent in the resident flora, and since 1976, three *Aeromonas* genospecies (*Aeromonas hydrophila*, *Aeromonas sobria*, and *Aeromonas caviae*) have been subdivided into 14 monospecies.<sup>15</sup> Infections due to *A. hydrophila* are a recognized complication of postoperative leech application.<sup>12,16</sup> Apart from *A. hydrophila*, pathogens causing wound infection following *Hirudo* therapy that have been reported in the literature include *Serratia marcescens*,<sup>17</sup> *A. sobria*,<sup>18</sup> and *Vibrio fluvialis*.<sup>19</sup> The isolated report of *S. marcescens* infection<sup>17</sup> may well represent a surface contam-

inant, although both fermenting and nonfermenting coliforms are found in the leech's microflora. The single report of *V. fluvialis*-associated infection<sup>19</sup> may well have been misnamed, as the API20E method was used for identification purposes. The microbe was almost certainly an aeromonad.<sup>20</sup>

In view of the frequency of human infections following leech treatments, it would seem logical to give antibiotics prophylactically. The occurrence of  $\beta$ -lactamases rules out the use of first-generation cephalosporins and penicillins,<sup>21,22</sup> and the occasional finding of extended  $\beta$ -lactamases would militate against the use of synthetic or semisynthetic cephalosporins or even penems. Resistance to septrin and tetracyclines has also been reported. One is therefore driven to recommend a quinolone (for example, ciprofloxacin) with perhaps an aminoglycoside, as resistance to these groups has not been cited. The antibiotics of choice should be incorporated into a hospital protocol and should be used with all leech applications. Patients treated with leeches and discharged with echars or open wounds would benefit from oral antibiotic therapy until wound closure.<sup>12</sup>

In an ideal world, one would be able to breed a germ-free leech. Unfortunately, *H. medicinalis* has a virtually obligatory symbiotic relationship with the bacterium.<sup>23</sup> *A. hydrophila* is important to the leech in several respects.<sup>24</sup> It secretes an antibiotic that prevents the growth of other bacteria and in this way retards putrefaction so that blood can be stored for long periods. It contributes enzymes that play a major role in digestion. It assumes a role in the production of vitamins, the context in which endosymbiosis evolved in leeches in the first place. It is of interest that a species of *Pseudomonas* plays a similar role in the gut of the hematophagous vampire bat.<sup>25</sup> Future work might be directed to constructing a less invasive genotype that retains only the proteolytic determinants. Alternatively, vaccination of the host to be "treated" with leech therapy could be undertaken, with the caveat that *Aeromonas* should not be killed in the gut of the leech.

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### ANATOMICAL BREAST IMPLANTS: DIFFERENT EXPERIENCE

Sir:

With great interest, I followed on the pages of this *Journal* the ongoing dispute about the disadvantages and virtues of the anatomical, teardrop-shaped breast implants.<sup>1-7</sup>

Dr. John Baeke reported in his article "Breast Deformity Caused by Anatomical or Teardrop Implant Rotation"<sup>6</sup> that during the years 1995 to 1999, 14 percent of his patients encountered rotation of one or both mammary implants. Most of us who are in private practice could not afford to continue to pursue over several years a procedure with such a complication rate. One of the charms of our specialty is that there are almost always several ways to solve any given clinical problem. Not every coat fits every surgeon. We keep trying many techniques, incorporate some of them into our repertoire, and abandon the others, but not Dr. Baeke.

The statement in this article, that the problem of rotation of the anatomic implants was previously not given any substantial attention, is inaccurate.<sup>8,9</sup> The study from Dusseldorf by Heitmann et al.<sup>8</sup> is quoted, but the findings concerning complications after breast augmentation are omitted. This study actually has three authors. My publication in *Aesthetic Plastic Surgery* is erroneously referred to as the study from Switzerland. However, implant of my design with the fixation plate described in this article, which promotes its anchoring into the surrounding tissues, is not mentioned (Fig. 1).

Dr. Tebbetts defined eight factors that affect the risk of malposition of anatomic implants, which include the implant's shape, its surface, width of the pocket, and compliance of each patient's tissues.<sup>7</sup> I want to add another important factor, which is the type of the implant's filler. Anatomic implants include saline-filled and liquid or cohesive silicone gel-filled implants. Dr. Baeke's studies were entirely based on the horizontally oriented, oversized (mean 390 cc) and overfilled saline implants, which are obviously the candidates most prone to rotation.

Contrary to the statement that the surgical technique was

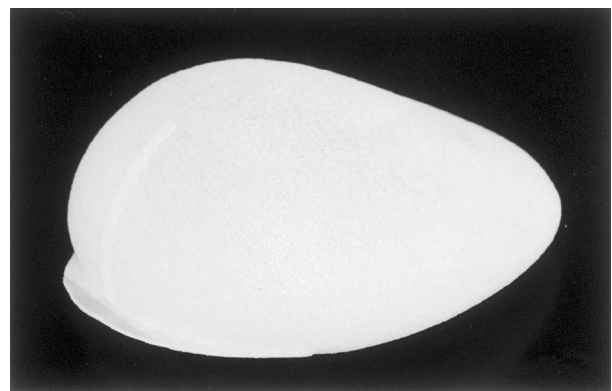


FIG. 1. Anatomic implant with vertical marker on the front and the fixation plate. Marketed for 2 years by Laboratoires Eurosilicone, France (patent pending).

“consistent with that well documented in the surgical literature,” the periareolar incision was used, and patients were sent home on the day of surgery, risking bleeding during an early transportation. Surgeons striving for good quality of care recommend hospitalization for 24 hours and the sub-mammary approach when using anatomic implants, because they require an exact pocket dissection.<sup>1,8-11</sup> Considering the size of implants used, it is hard to believe that such dissection can be satisfactorily done through the periareolar incision. The conclusion of this article is condemnation of all anatomic implants with no distinction.

Having access to both the saline and the cohesive gel-filled mammary implants of various brands and shapes, it is my and my local colleagues' opinion that indications for the horizontally oriented implants are very rare, since in the normal breast the height is larger than the width. Saline-filled anatomic mammary implants do not make sense at all, because of their pliability.

Anatomically formed, vertically oriented, silicone gel implants filled with cohesive behave differently than the implants used by Dr. Baeke. Since the mid-90s, more than 150 patients a year have received these implants at two private clinics in Stockholm, the total cases at each clinic being 1100 and 745, respectively.<sup>9-11</sup> Our conclusions are that the anatomic implants give us excellent results in the primary cases, but the margin for surgical mistakes is very narrow. In the secondary cases, we prefer to use cohesive silicone gel implants with the round shape.

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#### A SIMPLE METHOD TO FACILITATE THE APPLICATION OF RESIN-BASED CASTS USING WATER-SOLUBLE GEL

Sir:

Our institution offers a children's upper limb surgical service. The requirement is for robust, lightweight casts to protect and immobilize the upper limb after surgery, such as release of internal rotation contractures and latissimus dorsi muscle transfer in obstetrical brachial plexus palsy (Fig. 1). We use Softcast and Scotchcast (both from 3 M Healthcare, St. Paul, Minn., United States). These are knitted fiberglass fabrics that are impregnated with polyurethane resin. When the resin is exposed to water or water-based products, an exothermic chemical reaction is initiated, causing the cast to set.

Manufacturer's instructions advise soaking the material in water at room temperature and immediately removing it to prolong setting time. When the material is being used for complicated splints or if a child is reluctant to have a damaged splint replaced, we have encountered difficulty with premature setting toward the end of the roll. This requires further expense as a new roll is opened, while the child becomes steadily more agitated.

Our method involves using water-based gel, such as Aquagel (Adams Healthcare Ltd, Leeds, United Kingdom). This gel contains sodium polyacrylate, glycerol, disodium etidronate, nipasept sodium (which prevents microbial contamination when the tube is opened), and purified water. Its sterility is ensured using gamma irradiation. There are no contraindications to its use.

At room temperature, a three-layer cast wrapped around cotton wool roll takes 7 minutes to set if left in air. After soaking and immediate removal from water, the same cast sets in 3 minutes and 30 seconds. When Aquagel is applied to an unsoaked cast after its application to the limb, the cast also takes 3 minutes and 30 seconds to set.

Delaying the onset of the chemical reaction until after the



FIG. 1. An external rotation transfer splint.



cast is in an optimum position enables more exact and easier application of the cast and more accurate molding without increasing the set time.

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### VACUUM-ASSISTED CLOSURE FOR ABDOMINAL WOUND DEHISCENCE WITH PROSTHESIS EXPOSURE IN HERNIA SURGERY

*Sir:*

The ideal technique for incisional hernia surgery has always been a matter of debate among abdominal surgeons and is still controversial today.<sup>1-3</sup> What seems, however, to be broadly accepted is the concept of "tension-free repair," leading to diminished postoperative pain and lower recurrence

rates.<sup>4</sup> This has considerably increased the use of prosthetic material but also the rate of specific complications that unfortunately are not infrequent, including seroma, hematoma, infection, erosion, and fistula.<sup>5</sup>

The recommended treatment for primary wound infection after hernia repair with prosthetic mesh is the administration of a broad-spectrum antibiotic. If swelling and tenderness do not abate after 48 to 72 hours, the subcutaneous tissue should be débrided. Swabs and, when available, tissue samples should be sent for culture, and the antibiotherapy should be adapted according to the sensitivity results. In some patients, the aforementioned attitude leads to chronicity, which is characterized by chronic suppuration and eventual sinus tract formation. In a few cases, systemic antibiotherapy with frequent wound irrigation will solve the problem. In others, however, extended wound débridement and removal of prosthetic material will be necessary.<sup>6</sup> This must be performed under general anesthesia.

To delay reoperation and to lower the morbidity rate, we have proposed the application of negative pressure therapy with the V.A.C. System (Kinetic Concepts, Inc., San Antonio, Texas) as a salvage solution on four consecutive patients in poor medical condition (ASA III) presenting abdominal wound dehiscence with prosthetic mesh exposure. This method has already proved to be very effective in complex acute and chronic wounds.<sup>7-11</sup> The prosthetic material was nonresorbable in three patients (Marlex, Teflon, Mersilene) and resorbable in one (Vicryl) (Fig. 1). All patients were treated in the same way. First, any cavity was laid open and

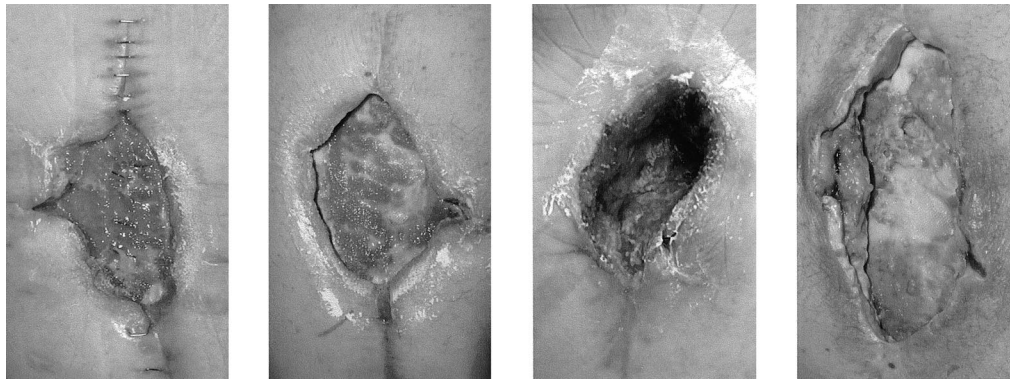


FIG. 1. Abdominal wound dehiscence with prosthesis exposure in four patients. Material exposed from left to right: Vicryl, Mersilene, Teflon, Marlex.



FIG. 2. Midterm result after negative pressure therapy. From left to right: Vicryl (11 months), Mersilene (10 months), Teflon (8 months), Marlex.

débridement of all necrotic tissue was performed. Then the V.A.C. therapy was initiated. Once the prosthetic mesh was totally covered by homogeneous good-quality granulation tissue, the V.A.C. was taken over by the MiniV.A.C. (Kinetic Concepts) to allow the patient to be treated on an outpatient basis. The median time of V.A.C. therapy was 24 days (range, 18 to 32 days). Two patients needed skin grafting (Vicryl, Mersilene), and the others were allowed to heal by second intention (Teflon, Marlex). Three wounds were stable on midterm follow-up (Vicryl, 11 months; Mersilene, 10 months; Teflon, 8 months). The fourth patient (Marlex) had to be reoperated on for prosthesis removal because complete healing could not be achieved (Fig. 2). This patient was receiving chemotherapy for metastatic ovarian carcinoma.

The preliminary results obtained with the negative pressure dressing for abdominal wound dehiscence with prosthesis exposure are encouraging. It is another option in the armamentarium of surgeons who have to treat patients in a poor medical condition for whom reoperation is not recommended.

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#### FRONTAL RHYTIDECTOMY: A NEW APPROACH TO IMPROVE DEEP WRINKLES IN A CASE OF PACHYDERMOPERIOSTOSIS

*Sir:*

Pachydermoperiostosis, also known as Touraine-Solente-Golé syndrome, is a primary hypertrophic osteoarthropathy that is inherited as an autosomal dominant trait with variable expression. This rare disease usually begins insidiously at puberty and is more common in men than in women.<sup>1</sup>

Among other clinical manifestations, mainly in the osteo-articular system, the skin of the face and scalp thickens, producing deep nasolabial folds, furrowed forehead, and corrugated scalp, giving a leonine appearance to the face. Often the vertical and horizontal dimensions of the upper eyelids are increased, causing varying degrees of blepharoptosis.<sup>2,3</sup> The skin of the face and scalp is usually greasy, and there is excessive sweating, particularly of the palms and soles.<sup>1,4</sup>

The authors present a clinical case of a 27-year-old male patient with pachydermoperiostosis, who complained mainly of furrowed forehead, with secondary to deep frontal and



FIG. 1. Preoperative view of frontal and glabellar wrinkles.

glabellar wrinkles (Fig. 1). On physical examination of the upper aesthetic unit of the face, he presented with a low-positioned hairline and thickened skin with folded horizontal frontal and vertical glabellar furrows not amenable to correction by manual distension of the skin. He also had frontal bossing in the lateral parts of the brows, but there was no brow ptosis. A slight asymmetric position of the upper eyelids was noticed, with the left eyelid lower than the right, but without visual impairment. In the mid-lower face he had some moderately deep nasolabial folds.

Our surgical strategy was to excise the deepest and most inferior horizontal wrinkle and the more pronounced right glabellar wrinkle. Under general anesthesia, the desired excision was marked, after infiltration of a small amount of lidocaine hydrochloride with 1:100,000 epinephrine (Fig. 2).



FIG. 2. Intraoperative schema of the planned excision of the frontal and glabellar wrinkles.



FIG. 3. Postoperative result after 6 months, demonstrating an improved cosmetic appearance.

The final closure was achieved with 4-0 nylon intradermic suture.

There were no wound healing complications, and the sutures were removed on the fifteenth postoperative day. The result 6 months postoperatively was good, with a more harmonious forehead and improved cosmetic appearance of this aesthetic unit (Fig. 3). As expected, the removal of the inferior horizontal wrinkle had smoothed the superior horizontal wrinkle, mainly in the lateral aspects.

This unusual case is a true challenge and poses special problems when choosing the best surgical strategy. The classic methods of forehead rejuvenation are not effective because the primary cause of the deep horizontal and vertical wrinkles is thickened skin (mainly dermis<sup>5</sup>), and not the repetitious use of the frontalis and corrugator muscles. Therefore, the endoscopic forehead rejuvenation with resection of the corrugator supercilli could be deleterious and probably would have little effect in this case. On the other hand, the injection of botulinum toxin would also not improve significantly the cosmetic appearance, because the contribution of the repetitious use of the forehead muscles to these wrinkles was scarce, as we could assess when asking the patient to frown.<sup>6</sup> The injection of fat in this case would also be more unpredictable than in usual cases,<sup>7</sup> because the skin was thickened and folded on itself and the concomitant release of the fibrous bands connecting the dermis to the deep layers would not be sufficient to obtain a good result.<sup>8</sup> Similarly, the use of alloplastic injection materials would be unable to unfold the skin in the wrinkle, and potentially could add some contour irregularities.

In conclusion, our surgical option of replacing a deep wrinkle by a linear scar, albeit not ideal, improves the cosmetic forehead appearance without interfering with the forehead sensibility, and is an original solution for an uncommon cause of forehead wrinkles.

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#### SALVAGE OF NEUROCUTANEOUS FLAPS WITH VENOUS CONGESTION USING INTRAVENOUS CANNULA

Sir:

Since 1992, neurocutaneous flaps have been used successfully in lower leg reconstruction. These flaps can be designed in orthograde or retrograde fashion. Obtaining one-step reconstruction with minimal donor-site morbidity and harvesting major arterial vessels are the main advantages of these flaps. But venous congestion is also a major disadvantage of these flaps. Obstruction of venous flow out of a flap for more than 8 hours often results in complete flap necrosis.<sup>1</sup>

Pedicle flaps' venous circulation problems can be solved with various methods. Medicinal leeches are a conventional method for treating venous congestion. Leeches increase perfusion within congested tissue by actively drawing off blood as a bloodmeal. Furthermore, the leech bite continues to bleed and relieve congestion after detachment because of the anticoagulation effects of leech saliva left behind in the bite.<sup>2</sup> Another procedure is to obtain a thin split-thickness graft from the distal part of the flap and apply heparin-soaked gauze on the flap. Postoperatively, to control bleeding, the heparinized dressing was changed with a new one, and this procedure continued until venous congestion ceased. Epithelialization is complete in 12 to 14 days.<sup>3</sup> If the pedicle of the flap is too narrow or the rotation arc is too large or the pedicle has been tunelized, venous congestion will occur more frequently. From the common use of neurocutaneous flaps to minimize the risk of flap necrosis as a result of venous congestion evolved a technique to bleed the congested flap intraoperatively and postoperatively. Venal branules  $22 \times 0.9 \times 25$  mm are placed within the lumens of the major vein of the six saphenous neurocutaneous flaps. All flaps are checked every hour for the first 24 hours and every 2 hours for the next 48 hours. Edema, venous discoloration, and capillary refill time are monitored and recorded (Fig. 1, *left*). The hematocrit value is monitored every 12 hours in all patients. If edema shortened capillary refill time or if a venous discoloration is observed, venous decongestion is obtained by bleeding from the branule in the great saphenous vein. With this technique, no partial or total flap necrosis occurs (Fig. 1, *right*). Intermittent venous bleeding from the great saphenous vein allows a congested flap time to improve venous outflow and adapt to the new reversed blood circulation.



FIG. 1. (*Left*) Early postoperative view. (*Right*) Late postoperative view.

The use of the branule technique for venous decongestion is cheap and easy and has no known complications.  
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#### A POOR EXPERIENCE WITH ANTHRAX

Sir:

Anthrax is an infectious disease of wild and domesticated animals. It is quite rare in humans. Nevertheless, it can be encountered in developing countries where public health services are poor. In developed countries, the disease may appear following exposure to industrial wastes or following a terrorist attack with biological weapons.

*Bacillus anthracis* is a Gram-positive, facultative anaerobic, encapsulated rod.<sup>1</sup> The bacterium also has spores that are quite resistant to damage and can live in the soil for decades. It has two toxins; one is edema factor and the other is lethal factor.<sup>2</sup>

Anthrax may have three clinical presentations: cutaneous, pulmonary, and gastrointestinal. Cutaneous anthrax is transmitted by direct contact with contaminated meat and infected animals' skin, wool, bone, and food. Pulmonary anthrax is caused by inhalation of the spores. This form of the disease is frequently seen in people selling wool or in spinners. It can also be seen after terrorist attacks with biological weapons. Gastrointestinal anthrax occurs in people who have drunk contaminated milk and have eaten contaminated meat.<sup>3</sup>

In addition, the disease may present as meningitis. It is usually secondary to skin lesions, but it may be a complication

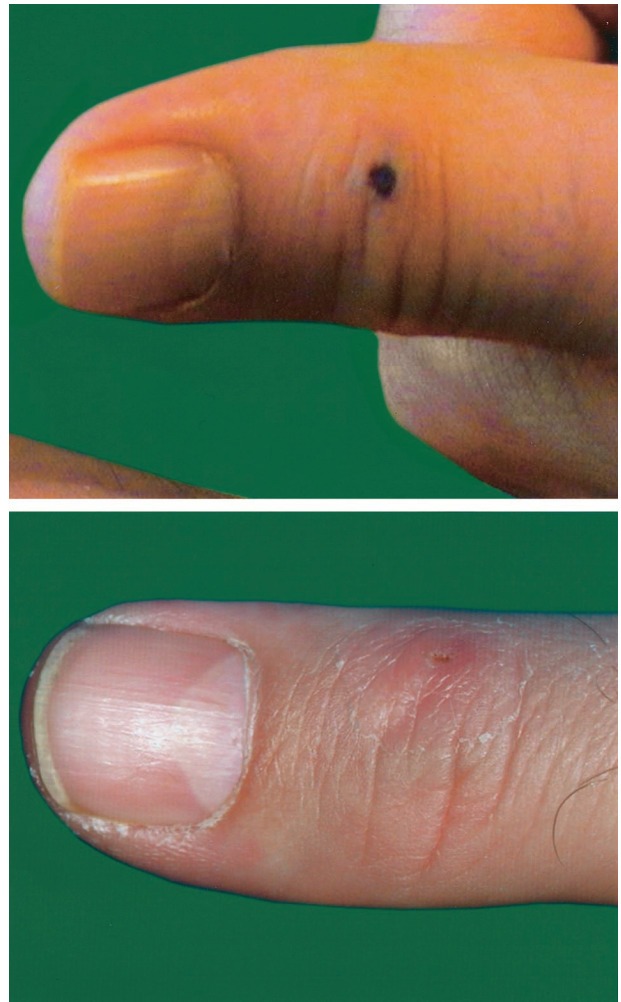


FIG. 1. (Above) Thumb with anthrax. (Below) Thumb in convalescence period.

of the above-mentioned forms of the disease. It has been reported that a newborn baby contracted anthrax meningitis from his mother during delivery.<sup>3</sup>

It is estimated that about 2000 to 20,000 people contract anthrax every year. More than 95 percent of these cases are cutaneous anthrax. The disease can be transmitted not only by a direct contact but also by insects leaving the bacterium or its spores on abrasions or wounds. Cutaneous anthrax has an incubation period of 3 to 10 days. First, it presents as a painless pruritic papule. Then, it rapidly turns into serous or serous-anginous vesicle. Finally, the lesion develops into a black eschar in the middle and erythematous and edematous in the peripheries. In more than 50 percent of the cases, there are features of toxicity. The eschar forms an inflammatory line, and the lesion is made up of epidermal necrosis without a dermal inflammation and vascular thrombosis.<sup>1,4</sup>

With a case of anthrax reported in a letter titled "Public Health Dispatch" published in the *Journal of the American Medical Association* in July of 2002, it occurred to everyone that anthrax may still do harm.<sup>5</sup> In fact, it was reported that the laboratory assistant who died of anthrax had been working

ona project on anthrax caused by biological weapons. While people in developed countries are deeply sad about cases of anthrax, people in developing countries such as Iran, Pakistan, Sudan, and Turkey think that such cases are usual and the disease is endemic.

It is reported that person-to-person transmission of the disease is not possible.<sup>6</sup> We live in Turkey, where anthrax is endemic. The case we are confronted with forces us to be extremely cautious about anthrax.

One of our colleagues, Dr. A.T., had cutaneous anthrax. He is 26 years old and works in the Department of Plastic Surgery, Numune Education and Training Hospital. He contracted the disease from a patient who received 1 week's treatment in our clinic for cutaneous anthrax. The patient had a lesion 45 × 25 cm in size and located on the dorsum of the forearm. Dr. A.T. performed escharotomy on the patient. He wore gloves during the procedure. Unfortunately, our colleague had a painless, red, itchy papule on the first finger of his right hand within 3 days of the operation and an ulcer with eschar black in the middle, 0.5 × 0.5 cm in size, within 5 days of the operation (Fig. 1, *above*). The lesion suggested anthrax, and we referred our colleague to the Department of Infectious Diseases. Microbiological examination of the direct films of the specimen obtained from the lesion showed Gram-positive bacteria. Hematological examination revealed that his white blood cell count was 8700/mm<sup>3</sup>, and his hemoglobin level was 12.5 g/dl. Dr. A.T. was immediately administered antibiotic therapy (Fig. 1, *below*). All of us received prophylactic antibiotic therapy with ciprofloxacin 500 mg, twice a day for 1 week.

Local surgery is contraindicated in the treatment of anthrax. Nevertheless, we performed local surgery on a patient who had been administered antibiotics. Furthermore, clinicians from the Department of Infectious Diseases confirmed that the patient recovered completely and even noted that the patient would not spread the disease after he was administered the initial dose of the antibiotic. Nevertheless, the doctor who performed the local surgery contracted the disease. We would have been accused of malpractice if the patient had had bacteremia, sepsis, or meningitis. Fortunately, we did not have such an experience.

Dr. A.T. wore gloves during the operation, and he had no history of contact with the disease. Nevertheless, he caught the disease. Now, we, as health professionals, have doubts about the working conditions.

To how many patients did Dr. A.T., who had contracted the disease but who was unaware of it, give treatment? How many people have been exposed to the bacterium? Were we exposed to the bacterium? May we have transmitted the bacterium to our family members? Should prophylactic antibiotic therapy be initiated in any patient suspected of having *Bacillus anthracis*? Do you think everyone working in the Department of Infectious Diseases always carries antibiotics in their pockets? Above all, is it still true that anthrax is not transmitted from person to person?

When anthrax is kept under control in animals, the disease is prevented from transmitting to humans. Animals with anthrax must be killed, and people who may be exposed to the bacterium must be vaccinated against the disease. Anthrax has been wiped out in industrial countries. Nevertheless, in developing countries, people working in some fields, such as shepherds, farmers and spin-

ners, and those working in the leather industries are still at risk. Should doctors be included in the risk groups?  
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#### A SAFE TECHNIQUE TO SECURE FLEXOR TENDONS DURING REPAIR

*Sir:*

During repair of flexor tendons, it is important to counteract the longitudinal elastic recoil to allow tension-free approximation. This may be achieved by transfixation of the tendon during repair using stainless steel pins or 25-gauge hypodermic needles placed transversely through skin, tendon sheath, and tendon.<sup>1,2</sup> Lin<sup>3</sup> describes another technique to secure tendon ends using rubber bands and needles. The unguarded needle tip in both these techniques exposes the operating surgeon, assistants, and patients to the risk of needlestick injury. This risk is increased by the reduced field of vision associated with loupe magnification, commonly used during tendon repair. Such injuries place the operating personnel at significant risk of contracting blood-borne viral infections such as hepatitis and human immunodeficiency virus.<sup>4</sup> Use of safety pins instead of hypodermic needles has been described.<sup>5</sup> Safety pins, however, need to be available and sterilized and can be somewhat cumbersome within a small operative field. We propose a safe and effective alternative technique of securing tendons during repair. No special equipment is required and access to the tendons is completely unobstructed.



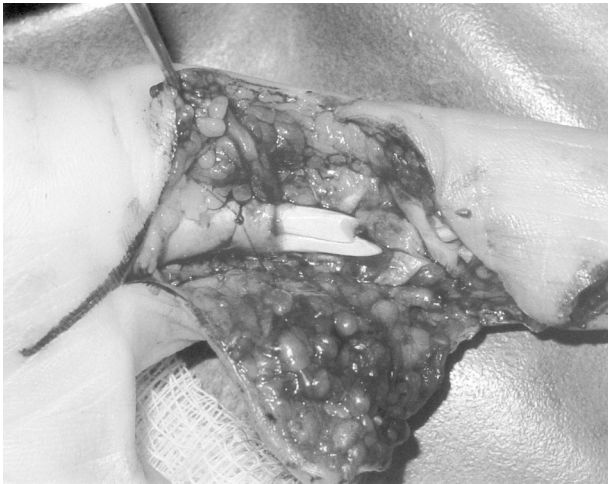


FIG. 1. Retrieved end of divided flexor tendon transfixed to flexor sheath with monofilament suture to allow tension-free repair.

Once the tendon end has been retrieved, a monofilament suture is placed transversely through the tendon sheath, tendon, and through the sheath again before the suture ends are tied (Fig. 1). This simple maneuver of transfixing the tendon to its sheath effectively counteracts the elastic recoil of the tendon, allowing tension-free repair. Because there is no unsheathed needle in the operative field, the risk of needlestick injury is eliminated. The sutures are so unobtrusive that multiple tendons within a small operative field (e.g., flexor digitorum profundus and both slips of flexor digitorum superficialis in zone II) may be individually secured simultaneously without encroaching on access to the tendon ends. Once the repair is complete, the securing suture is removed, allowing free movement of the tendon. This concept is also easily applicable to extensor tendons where the tendons can be temporarily secured to the extensor retinaculum or, indeed, to any other fixed structure conveniently located close to the site of repair.

We recommend this technique as an effective method of eliminating the elastic recoil of tendons during repair, as it allows excellent unobstructed access to the operative field and significantly reduces the risk of intraoperative needlestick injury and the resultant risks and complications thereof. DOI: 10.1097/01.PRS.0000077241.95459.83

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#### DOES ANYBODY REALLY KNOW WHAT DEFLATION RATE IT IS?

Sir:

Recently, a patient asked me about the likelihood of her implants deflating "after the warranty runs out." She is covered by the manufacturer's extended warranty for 10 years from the implantation date. She specifically wanted to know the likelihood of her incurring additional expenses 15 years after implantation. This seemed like a reasonable question.

We turned to the literature and made a few telephone calls.

Here we found the deflation rate expressed from 1 percent to 39 percent.<sup>1-5</sup> This included implants that had been in place from 1 year to 20 years. Rarely could we find any deflation rate expressed as a function of years of implantation. The package insert for one of the manufacturers expressed the deflation rate at 3.3 percent over 3 years.<sup>6</sup> This same manufacturer went on to state that the deflation rate was 9.7 percent for 5 years, but only 5 percent of the patients were seen in follow-up for those 5 years.<sup>7</sup> Nothing was said about the period of time following the warranty period. Is the deflation rate the same? Can one extrapolate and answer the patient's question as 1 percent per patient year? We asked one of the implant manufacturer's representatives and his answer was 5 percent for textured and 1 percent for smooth over 5 years. Still unclear on how to answer the patient's question, we asked the company representative to provide us with the data from the company regarding the deflation rate at 15 years. After 1 week, we again inquired as the patient sat patiently waiting for the answer. This time the implant representative asked the question, "Why do you want to know?" Imagine a manufacturer asking a surgeon why the surgeon would want to know what the performance of their product is over time. Now we really started to wonder what the real deflation rate is.

Clearly, the deflation rate does relate to time. The deflation rate at 1 year is not the deflation rate at 10 years. But does that deflation rate change over time? Is the deflation rate per patient year different at 5 years than it is at 15 years? Can one simply extrapolate the deflation rate at 5 years and multiply it times 3 to answer the patient's question? Does anybody really know the deflation rate?

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### VENOUS INTERRUPTION IS UNNECESSARY FOR ADEQUATE TRAM FLAP DELAY

Sir:

I read with great interest the article by Sano et al. entitled "Venous Interruption Is Unnecessary to Achieve an Adequate Delay in the Rat TRAM Flap Model," which recently appeared in *Plastic and Reconstructive Surgery* (111: 300, 2003). The authors present an experimental study on 43 Sprague-Dawley rats to evaluate the contribution of arterial and/or venous delay on transverse rectus abdominis musculocutaneous (TRAM) flap survival. The animals were randomly assigned to four groups. In group A, both the dominant ipsilateral superior epigastric artery and vein were divided 2 weeks before TRAM flap elevation. In group B, only the artery was divided, and in group C, only the vein was divided. The control group underwent TRAM flap elevation without delay. The percentage of flap survival was significantly higher in both groups that underwent division of the dominant artery (groups A and B) compared with the control group and the group in which the vein alone was divided (group C). There was no significant difference between the group with division of the artery and vein (group A) and the group with division of the artery alone (group B). Also, there was no significant difference between the group with division of the vein (group C) and the control group. The clinical implication that the authors derived from their findings is that arterial division is critical for TRAM flap delay while venous division is unnecessary.

When we presented our clinical study on TRAM flap delay by selective embolization of the deep inferior epigastric arteries in this *Journal* 3 years ago,<sup>1</sup> the lack of venous delay that could be affected by this technique was a common criticism.<sup>2</sup> Reversal of flow in the superficial inferior epigastric veins caused by venous incompetence following their division has been believed to be an impor-

tant aspect of surgical TRAM flap delay.<sup>3</sup> However, Taylor et al.<sup>3</sup> and Callegari et al.<sup>4</sup> performed extensive clinical and experimental studies on the delay phenomenon and concluded that the opening or dilation of interconnecting "choke vessels" between two adjacent angiosomes following division of the dominant source artery is the main effect of surgical delay. This was confirmed by Hallock and Rice<sup>5</sup> in the rat TRAM flap. Selective embolization is a minimally invasive interventional radiologic procedure by which one or two minicoils, introduced via an F3 angiography catheter, are used to occlude the deep inferior epigastric arteries. The deep inferior epigastric veins and superficial epigastric vessels are spared with this technique. Review after 4 years of experience with selective embolization for TRAM flap delay revealed an improvement in clinical results with a reduced incidence of fat and flap necrosis in our patients.<sup>1</sup> In accordance with experimental studies, the opening of choke vessels between the superior and deep inferior epigastric systems following selective embolization could be verified by angiography in several of our patients before TRAM flap surgery. The experimental data that are now presented by Sano et al. in the rat TRAM flap confirm these clinical findings. I agree with the authors that unnecessary venous division can be a disadvantage, because venous congestion may still pose a significant problem even in the delayed TRAM flap. The superficial and deep inferior epigastric veins may then be optional for microvascular augmentation of venous outflow.<sup>6</sup> Similarly, parts of the arterial superficial and deep inferior epigastric systems may be spared during delay, since Sano et al. have demonstrated in a previous study in the rat model that unilateral division of the ipsilateral deep dominant epigastric artery is equally effective as bilateral division and that contralateral division of the superficial epigastric artery is more effective than bilateral or ipsilateral division.<sup>7</sup> However, this matter remains open to debate, because the rat model has several technical and anatomical limitations that restrict direct application to the human TRAM flap.<sup>8</sup> Also, in the clinical setting, TRAM flap delay has been reserved for patients at high risk for pedicled flap complications, a group that has no correlate in the animal model.<sup>9</sup> Although the free TRAM flap and DIEP flap have replaced the pedicled TRAM flap in centers equipped with microsurgery teams, the pedicled flap remains a standard procedure for autogenous breast reconstruction in many hospitals throughout the world. Its reliability can be enhanced by different delay procedures in selected cases. Despite the lack of sound clinical data, most surgeons perform bilateral division of the deep and/or superficial inferior epigastric vessels,<sup>2,8,9</sup> presumably because they fear that more selective delay procedures could be inadequate by doing "too little." In fact, the recent experimental data suggest that they may be doing "too much" instead. Preservation of any source vessels of the TRAM flap that do not contribute to the delay effect would yield potential "lifeboats" in critical situations.<sup>10</sup> In this regard, further experimental and clinical studies will expand our knowledge on the delay phenomenon and may allow us to individualize our strategies. In addition to new minimally invasive interventional radiologic<sup>1</sup> and endoscopic<sup>11</sup> techniques, this could also make the additional discomfort before surgery more acceptable for our patients. And finally, it could supply us with more objective arguments when justifying the

additional costs to increasingly demanding health care providers to obtain reimbursement.  
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#### SURFACE MARKING THE VASCULAR PEDICLE OF SCAPULAR FLAPS: "SCAPULAR TRIANGLE"

Sir:

Scapular flaps are based upon the horizontal and parascapular branches of the descending limb of the circumflex scapular artery. The point of emergence of these vessels from the omotri-

cipital triangle is of the utmost importance in planning these flaps. Original studies have shown that this point can be identified by palpation or by the formula  $D_1 = (D - 1)/2$ , where  $D$  is the distance between the middle of the scapular spine and the tip of the scapula, and  $D_1$  is the distance from the middle of scapular spine to the omotricipital triangle on the lateral border of the scapula.<sup>1</sup> However, this is a complex process that is accurate in only 68 percent of cases.<sup>2</sup>

In our series of 20 cases, with the patients in the prone position both in full adduction and abduction, a single clinician marked out an equilateral "scapular triangle" using the most prominent part of the scapular spine laterally, the root of the scapular spine, and a corresponding point on the lateral border of the scapula, marked as A, B, and C, respectively, in Figure 1. The latter represents the point of emergence of the circumflex scapular artery and its branches from the muscular omotricipital triangle and into the fascial layer. We have found that these three points maintain an equilateral triangle on the scapula in both full adduction and abduction, as shown in Figure 2. Although the point of emergence of the vascular pedicle varies with movement of the scapula, this geometric relationship is maintained. It is important to ensure that the root of the scapular spine is not mistaken for the superior angle of the scapula. This can be avoided by marking the patient in his or her operating position either in full adduction or in full abduction, when the bony landmarks are most prominent.

This technique accurately marked out the vascular pedicle, which was identified with a hand-held pulsed Doppler device, in 20 cases despite the various anatomical variations described.<sup>3</sup> We confirmed our finding on operative flap

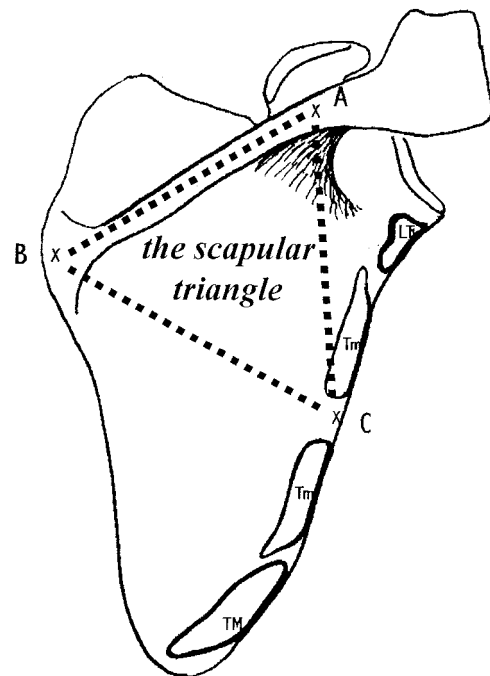


FIG. 1. An equilateral triangle drawn over the scapula to locate the vascular pedicle of the parascapular flap with the three points marked A, B, and C. The origins of the long head of the triceps, teres minor, and teres major, all of which form the omotricipital triangle, are also marked out.



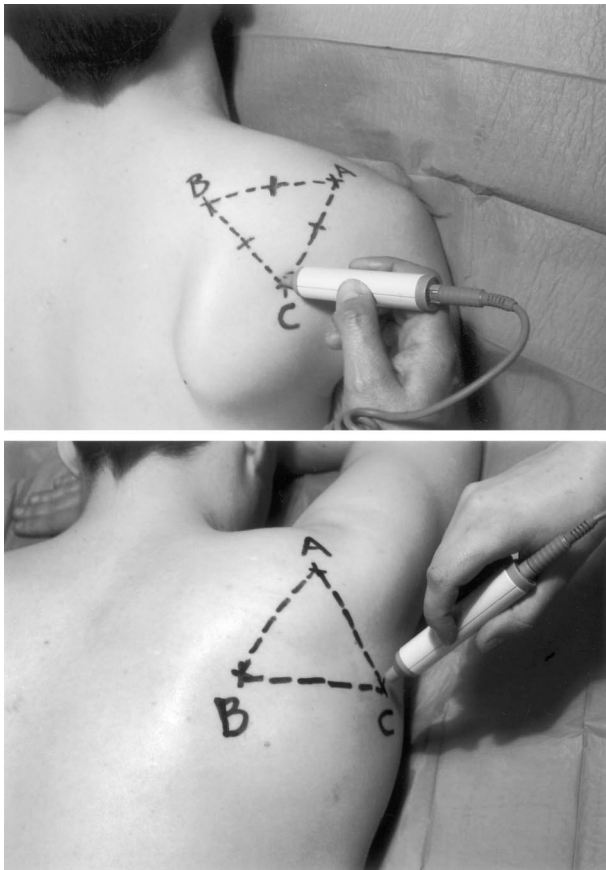


FIG. 2. The "equilateral triangle" maintains itself in either (above) full adduction or (below) full abduction.

raising. This simple method is quick, easy, and reliable. We highly recommend its use in clinical practice.

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#### COMPUTER-ASSISTED DETERMINATION OF FLUID REQUIREMENTS IN BURNED PATIENTS

Sir:

I read with great interest the correspondence by Drs. Kononas and Kofinas on the "Computer-Assisted Determination of Fluid and Nutritional Needs for Burn Patients" published in the December of 2002 issue of the *Journal (Plast. Reconstr. Surg.* 110: 1801, 2002). While the computerized program mentioned in the article calculates the additional nutrient and caloric needs of these patients, I was disappointed that the authors failed to mention the extensive work already done on the subject of calculation of fluids in resuscitation of thermal burns as early as 1993.<sup>1-3</sup> A computerized version of the fluid requirements was subsequently developed in 1996.<sup>4</sup> A hand-held computer version was also reported in *Plastic and Reconstructive Surgery* in 2001.<sup>5</sup> The program has been available for a free download at [www.journalofburns.com](http://www.journalofburns.com) since January of 2002.

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#### BILATERAL MYOCUTANEOUS UPPER EYELID FLAPS FOR DORSAL NASAL DEFECT RECONSTRUCTION

Sir:

There is an increasing incidence of moderate-sized dorsal nasal defects, as the nose is the most prevalent site of skin cancer.<sup>1</sup> Since 1998, we have occasionally utilized bilateral myocutaneous eyelid flaps for coverage of such defects, since it results in minimal donor-site defects. We applaud authors Jelks et al.<sup>2</sup> for their anatomic description and clinical depictions of this flap. Myocutaneous flaps based on a medially based axial pedicle to the orbicularis oculi muscles were transposed into the dorsal nasal defects. To transpose this tissue into the defect, the authors have extended their donor blepharoplasty incision design medially onto the defect. We believe that this design results in increased scarring of the medial eyelid area, as evident by the postoperative photographs presented in Figures 5, 6, and 7. In contrast, we trans-

fer these flaps as interpolated flaps, thus preserving the strip of native skin between the standard blepharoplasty incision donor site and the dorsal nasal defect. We believe that this minimizes donor morbidity, resulting in an aesthetically improved upper eyelid medial contour. The obvious disadvantage of using an interpolated flap includes commitment to a two-stage procedure. Thus, patients must be properly counseled and advised that a delayed pedicle division and flap inset will be required.

The bilateral medially based orbicularis oculi myocutaneous flap provides a reliable tissue donor as well as an inconspicuous local donor site. Moreover, using this flap will spare alternative, conventional local and regional flaps for future defect coverage in cases of recurrence. Yet, several limitations have minimized our use of this flap. First, patients may be excluded if they do not possess redundant upper eyelid skin which would benefit from a blepharoplasty procedure. In addition, patients should be excluded if noncompliance with a two-stage commitment is suspected. Perhaps the most significant limitation of this flap is the thin donor tissue that is not an ideal match of the thicker skin of the more cephalad extension of the nasal dorsum at the nasofrontal groove. Moreover, we have observed significant color mismatch and urge careful preoperative evaluation of the eyelids without eye shadow, especially in female patients. Finally, patients must be informed of risks intrinsic to upper eyelid blepharoplasty.

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#### THE "NEW" BILATERALLY PEDICLED V-Y FLAPS ARE NOT NEW!

Sir:

Pontes, Ribeiro, and Monteiro from Porto, Portugal, in a recent article in *Plastic and Reconstructive Surgery*,<sup>1</sup> made claim to a "new" technique in evolving bilaterally pedicled V-Y advancement flaps in the subcutaneous tissue. This was heard by the undersigned during a presentation by Dr. Pontes in Portugal on this particular subject at the 23rd Congress of the International Society for Dermatologic Surgery and the National Meeting of Portuguese Group of Dermatologic Surgery, Porto, Portugal, September 18 to 22, 2002. Many people in that audience already knew of the undersigned's previously

presented work on the "subcutaneously bipedicled island flap," beginning in 1979<sup>2-4</sup> (including one in Lisbon, Portugal) and first published in 1980.<sup>5</sup> Presentations continued on an interspecialty<sup>6,7</sup> and international basis.<sup>8,9</sup> Additionally, the bipedicled flaps have been presented and demonstrated at the annual interspecialty faculty fresh cadaver course at the University of California, San Diego for more than two decades now.<sup>10</sup>

My own statistics during these decades are incomplete, but I know I lost only one flap in many hundreds of cases, an extended transfer from the lower cheek to the temple region in which too much of the pedicle had to be severed to accomplish adequate forward movement of the island. And in all honesty, as I told Dr. Pontes, many of his cases were of larger magnitude than mine, partially due to the fact that mine were almost invariably guided by Mohs micrographic control, while those at the Portuguese Institute of Oncology were not.

Dr. Pontes was most gracious when I made these revelations at the meeting, for we both realize that different professional journals and different languages present difficulties in cross-transfers. He requested I send him confirmation, and I have done so. Now I trust your readership will be apprised of the correct history of "newness." However, Dr. Pontes and his group have again reconfirmed the correctness of the undersigned's initial observations of a quarter century ago. This approach to subcutaneous bipedicled island flaps has many advantages over the long-held concept of a monopedicled island flap. Indeed, it was the unwanted mounded configuration of the single pedicle that precipitated the original search for a more satisfactory aesthetic result. Several additional modifications by others and myself have since occurred, including obliquely angled pedicles, the partial severing of the pedicles themselves, and incorporation with other flap procedures.<sup>9</sup> But the central theme of superiority over single-pedicled island flaps is, in our collective dermatologic surgery and plastic surgery opinion, absolute.

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#### LATE PEDICLE OBSTRUCTION IN A FREE DIEP FLAP

Sir:

Deep inferior epigastric perforator (DIEP) flap reconstruction of the amputated breast has become commonplace worldwide. Its high reliability and low morbidity, along with its consistently good cosmetic results, have been extensively reported in the literature.

The purpose of this brief communication is to report on an unusual late complication of a breast reconstruction using a free DIEP flap. The patient was a 43-year-old woman with a modified left radical mastectomy performed previously. She had been given radiation therapy and was a heavy smoker. A routine free DIEP flap was performed for breast reconstruction, using the internal mammary vessels as recipients. The intraoperative and early postoperative courses were completely uneventful, and the patient was discharged from the hospital on postoperative day 4. The outpatient follow-up was uneventful, but on postoperative day 15, the patient complained about the reconstructed breast being colder and bluish over the last 24 hours. On examination, the reconstructed breast was definitely ischemic, although some circulation was present (Fig. 1). There was no sign of infection or any precipitating factor. The decision was to observe, as the chances for surgical salvage were considered extremely low. The final result was partial necrosis of the central and medial areas (Fig. 2). The central location of the necrosis precluded any attempt at revising and redistributing the remaining viable tissue. The flap was deepithelialized and used for bulk, and covered with a latissimus dorsi myocutaneous flap to provide a smooth skin coverage. The final result, although far from optimal, was considered acceptable by the patient, given the stormy course of the postoperative period (Fig. 3).

There is another report of late obstruction of the pedicle in a DIEP flap by Gahankari et al.,<sup>1</sup> at postoperative day 5, due to a forced abduction of the shoulder. The pedicle was successfully reexplored. In the case reported herein, the real cause of the late obstruction remains unclear, as do all late microvascular obstructions in the absence of infection, ex-



FIG. 1. Ischemic deep inferior epigastric perforator flap on postoperative day 14. Note the completely healed scars.



FIG. 2. Central and medial necrosis of the flap.



FIG. 3. Final result after deepithelialization of the remaining viable deep inferior epigastric perforator flap and latissimus dorsi pedicled flap.

position, or traumatic events. The vascular anastomoses are supposed to be completely endothelialized by the fourth postoperative day, so it is hard to explain obstruction past this point. The fact that the patient had received radiation therapy made the chances of autonomous flap survival at 14 days remote.<sup>2,3</sup> Had the patient not been given radiation therapy,



the flap could have survived the occlusion of the pedicle by postoperative day 14.<sup>4</sup>

The decision not to use the whole remaining viable flap (about 70 percent) was made based on the central location of the area of necrosis, which had resulted in unfavorable scars. The technique of using the remaining deepithelialized flap as an "autologous prosthesis" and cover it with a latissimus flap seems reasonable, as it yields a more uniform surface (S. Kroll, personal communication).

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