



GUIDELINES

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Letters

Correction of Ectropion in Facial Paralysis

Sir:

We read the article by Hayashi et al. entitled "Use of a Suture Anchor for Correction of Ectropion in Facial Paralysis" (*Plast. Reconstr. Surg.* 115: 234, 2005). They utilized the Mitek Micro Quick Anchor System for suspension of the lower eyelid to correct ectropion in

facial paralysis. They performed this technique in seven patients and in only one patient was it necessary to perform a second operation.

It is crucial to prevent any eye complications in facial paralysis before the accurate treatment is implemented. Correction of ectropion is one of the emergency situations that should be handled. There are plenty of methods for correction of ectropion that include organic or inorganic materials, including resection of skin and soft tissue and harvest of fascia or other autogenous tissue, as described in previous reports.¹ Those techniques that include autogenous tissue present better results when infection and tissue rejection are taken into consideration. The method described by the authors had the advantage of no donor-site morbidity, but it increased the risk of infection. We routinely use the fascial sling method for ectropion corrections, and the rate of infection is low.

The anchor application to the thin walls of the facial bones could present better options in fixation, but the important point is the possible weakness of the fixation in long-term, 5- to 10-year follow-ups. The metallic corrosion and possible osteoporosis in elderly patients could be drawbacks of this technique. Saturation of the fascia graft of the nonabsorbable suture to the medial and lateral tendons could then present longer-lasting results. Did the authors encounter any relaxation of the anchors in their follow-up period of 40 months, or observe any difference between the young and old patients with regard to osteoporosis?

The authors performed three stab incisions for the passage of the anchor and the suture. With a Riverdin needle, however, no extra incision is necessary. We prefer to utilize only the medial and lateral incisions to pull the fascia or the suture.

In the correction of facial paralysis, we usually prefer nonmicrosurgical techniques, such as dynamic transfer of the temporalis, masseter, or digastric muscle.^{2,3} The experience with microsurgical reconstruction of facial paralysis in the literature and also the authors' experience are marvelous.^{4,5} We thank the authors for their excellent study.

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Reply

Sir:

We thank Dr. Uraloglu and his colleagues for the attention they gave to our article.¹ We agree with their comments that inorganic materials would increase the risk of infection. Actually, one of our patients developed a suture abscess in the medial region of the lower eyelid, but infection was healed after simple removal of the nonabsorbable suture. Six months later, the same procedure was successfully reperformed in this patient. We assessed this case as an accidental incident. There were no other acute or chronic reactions around the anchor in our series.

Dr. Uraloglu and his colleagues advised attention to the possible weakness of bony fixation on long-term follow-up of 5 to 10 years, metallic corrosion, and possible osteoporosis in elderly patients. These subjects should be analyzed later using patients who have appeared in the literature.²⁻⁴ In our clinical series, four patients had been followed for more than 2 years at the time our article was prepared, and we did not encounter any relaxation of the anchors, even in the oldest patient, who was 80 years old.

Even though three stab incisions were made for passage of the suture, there were neither scars nor dimples along the subciliary line. To pass the threads precisely through the pretarsal space along the subciliary line, as well as to take bites of the periosteum through a small incision along the periorbital line, we prefer to use small needles mounted originally on the device.

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Correction of Ectropion in Facial Paralysis

Sir:

Hayashi et al.¹ describe a novel approach to repairing paralytic ectropion, using the Mitek Micro Quick Anchor. I read the study with much interest but was concerned with both the data and the conclusions made by the authors. The authors used this device in six patients. Postoperatively, one patient developed an abscess that necessitated removal. Six months later, the procedure was repeated without difficulty. The authors report no recurrence of eyelid malposition in any patient. Furthermore, they note excellent results in five patients and good results in two patients, although only six were noted to be enrolled.

The authors include three photographic vignettes with the study. In the first vignette, they show a patient with paralytic lagophthalmos and what appears to be a non-ectropic eyelid on the affected side. The lagophthalmos is due to retraction of the upper eyelid. Forty months later, the lagophthalmos is resolved, but the facial palsy is also resolved on that side, as demonstrated by the symmetric eyebrow position. The second vignette demonstrates a patient with ectropion and paralytic lagophthalmos secondary to Bell's palsy. Again, although there is mild lower eyelid malposition, the lagophthalmos is due to upper eyelid retraction. A postoperative photograph at 16 months demonstrates resolution of facial paralysis and an eyelid in good position. The final photographic vignette demonstrates a patient with paralytic lagophthalmos and mild ectropion. As with the other two cases, the lagophthalmos is due mostly to upper eyelid malposition. In the 14-month postoperative photograph, the lagophthalmos and the paralysis have both resolved.

I have concerns about this approach to addressing paralytic lagophthalmos and ectropion repair. Use of the implant requires fairly invasive surgery, including placement of an implant into the nasal bone for fixation. This may lead to an increase in infection due to communication with the nasal cavity. Furthermore, passage of sutures across the eyelid places the lacrimal drainage structures at risk for damage. In the cases presented in the photographs, the eyelid malposition was mild and the lagophthalmos was due to upper eyelid retraction; all cases improved with resolution of paralysis. If the lagophthalmos was vision-threatening, the upper eyelid retraction should have been addressed with a gold weight, which is easily removed with resolution of paralysis. Permanent sutures are also at a risk of extrusion or eventual mechanical failure. As an oculoplastic surgeon, I often encounter failed canthal surgery in which a permanent suture is still present in the periosteum but not functioning long term. Finally, lower eyelid malposition can be addressed with a less invasive procedure, such as the lateral tarsal strip with nonpermanent sutures.² Given the data presented in this study, I caution the use of this device in lower eyelid malposition, particularly that due to transient pathology such as Bell's palsy.

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Reply

Sir:

We thank Dr. Bernardino for his thoughtful comments concerning our article published in the January 2005 issue of the *Journal*.¹ Among the seven patients in our series, one patient developed a suture abscess in the medial region of the lower eyelid, but the infection was healed after simple removal of the nonabsorbable suture. Six months later, the same procedure was successfully reperformed in this patient. We assessed this case as an accidental incident, so the postoperative evaluation of this patient was based on the second procedure. There were no other complications related to permanent materials, including infection or exposure of sutures or anchors, in our series.

As indicated in our article, a single-stage neurovascularized muscle transfer was carried out simultaneously in case 1 and case 3. We suppose that neurotization occurred in these patients and that this

contributed to some extent to recovery of the orbicularis oculi and frontalis as well as static tension of the right cheek. Actually, some recovery of the orbicularis oculi and support of the cheek by the transferred muscle might have partially contributed to resolution of the lagophthalmos. We do not agree that the lagophthalmos in these cases was merely "due to upper eyelid retraction." We considered that the correction of ectropion variously contributed to resolution of the lagophthalmos in all of our patients. We would like to emphasize that our procedure is a good option for correcting ectropion as part of the complex management of facial paralysis, and that reliable results, including consistent suspension of the lower lid, were obtained in our patients. When contractile force or gravity continuously pulls the cheek region downward, our method for ectropion repair should not be used in isolation. In such situations, release of the contracture and correction of midfacial descent are necessary in addition to ectropion repair.² If the lagophthalmos is due to upper eyelid retraction and remains vision-threatening, a gold weight is a good option to be considered.³

The cause of facial paralysis was Bell's palsy in two patients, a 78-year-old woman and an 80-year-old woman, and the preoperative periods of complete paralysis were 4 years and 6 years, respectively. Therefore, we recognized these patients as having established facial paralysis and performed correction of ectropion using our simple, easy, and less invasive procedure.

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Successful Soft-Tissue Coverage of a Tibial Wound in the Distal Third of the Leg

Sir:

We read and discussed the article describing the distally and proximally based hemisoleus flap for coverage of wounds in the distal third of the leg by Lee L. Q. Pu ("Successful Soft-Tissue Coverage of a Tibial Wound in the Distal Third of the Leg with a Medial Hemisoleus Muscle Flap," *Plast. Reconstr. Surg.* 115: 245, 2005). The author used the proximally and distally based hemisoleus flap to successfully reconstruct defects of the distal third of the leg in six patients.

Coverage of defects of the distal third of the leg is still a great challenge for plastic surgeons. Unlike some other parts of the body, local tissues are not enough to cover large defects. In most cases, coverage of the defect in the distal third of the leg requires free flap transfer. Proximally based gastrocnemius and soleus muscle flaps are only suitable for defects in the proximal and middle thirds of the leg, since their arc of rotation is limited.¹⁻³ In our clinical experience, we have not been able to cover defects of the distal third of the leg with a proximally based soleus muscle flap.

Use of a distally based hemisoleus muscle flap for defects of the distal third of the leg has been described in textbooks, so it is neither a new idea nor an innovation. It is also known that the distally based flap is not always reliable and segmental distal transfer is preferred, but the small mass of the distally based hemisoleus flap limits its utilization.^{4,5}

The soleus muscle flap still remains a valuable tool in selected cases for coverage of the proximal and middle thirds of the leg. We thank Dr. Pu for reconsidering the use of the hemisoleus flap for defects of the distal third of the leg.

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Reply

Sir:

I appreciate very much the thoughtful discussion of my article (*Plast. Reconstr. Surg.* 115: 245, 2005) by Drs. Uraloğlu et al. from Ankara, Turkey.¹ It is still true that coverage of soft-tissue defects in the distal third of the leg is a great challenge for plastic surgeons. Unlike some other parts of the body, local tissues are not enough for coverage of a larger soft-tissue defect in the distal third of the leg. Free tissue transfer still remains a standard option for management of this complex clinical problem. The focus of my article deals with a less extensive soft-tissue defect in the distal third of the leg. The size of the soft-tissue defect is usually less than 40 cm². For a limited soft-tissue defect in the distal third of the leg, I have tried a proximally or distally based hemisoleus muscle flap as an alternative option for soft-tissue coverage in this region for the last 3 years. I think the surgical technique described in my article would provide a more cost-effective approach, although a free tissue transfer is still the standard option of choice. Because of the volume of orthopedic traumas in our medical center, free tissue transfers have been routinely performed for soft-tissue coverage of lower extremity wounds and a number of refinements have been made by our group with good success.^{2,3} Given a number of previous studies and my clinical experience with more than 50 soleus muscle flaps,⁴⁻⁷ I believe that the proximally based hemisoleus muscle flap can be used to cover relatively smaller soft-tissue defects in the distal third of the leg. The level of insertion of the soleus muscle can be quite low and can be determined by physical examination and intraoperative exploration, although magnetic resonance imaging would be a good noninvasive study.⁵ With such a low level of insertion of the soleus muscle, the proximally based hemisoleus muscle flap can be used to cover the defects located in the distal third of the leg when the surgeon makes an intraoperative decision based on the size of the soft-tissue defect in the distal third of the leg and the size of the distal soleus muscle mass.

I agree with Drs. Uraloğlu et al. that use of a distally based hemisoleus muscle flap for defects in the distal third of the leg is not a brand new idea.^{7,8} However, the refinement of the flap dissection would represent an innovative idea to maximize the reliability of the so-called distally based hemisoleus muscle flap. Based on my experience with nine cases so far, the distally based hemisoleus muscle flap would be a reliable alternative in a healthy patient who is not a smoker. I would be cautious in using this flap in a smoker, because it has been my experience that tip

necrosis of the flap may occur. However, tip necrosis of the distally based hemisoleus muscle flap can be débrided and the flap can be re-advanced to cover the defect, with ultimate success, as I described for patient 5 in my article.¹

I am glad to know that Drs. Uraloğlu et al. also agree that the soleus muscle still remains a valuable option in selective cases for coverage of lower extremity wounds. The surgical procedure described in my article represents a more cost-effective approach for management of this complex problem, which is often related to orthopedic injuries.⁹ I will continue to refine my techniques with the soleus muscle flap for soft-tissue coverage in the distal third of the leg, so that a more cost-effective approach can be successfully developed to manage this complex clinical problem.

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Elevation of the Umbilicus with Skin Hooks Aids Excision in Abdominoplasty

Sir:

We read with interest the letter entitled "Elevation of the Umbilicus with Skin Hooks Aids Excision in Abdominoplasty" (*Plast. Reconstr. Surg.* 115: 349, 2005). The technique described by the authors is not original and is well illustrated in Pitman's chapter entitled "Liposuction and Body Contouring" in the fifth

edition of *Grabb and Smith's Plastic Surgery*.¹ The authors failed to find this despite their extensive literature search. This is a salient lesson that in the age of Internet access, textbooks are still needed to complement literature searches using search engines such as Entrez PubMed. This illustrates the importance of established textbooks remaining as the starting reference point for the development of plastic and reconstructive surgery. DOI: 10.1097/01.prs.0000205565.62519.0c

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Botulinum Treatment of Forehead Wrinkles

Sir:

We read with interest the article by Clark and Berris in the February 2005 issue of the *Journal (Plast. Reconstr. Surg., 115: 573, 2005)*. In that article, the authors say "it appears that Carruthers and Carruthers have been erroneously credited for originating the use of botulinum treatment of forehead wrinkles. . ." While others may have done so, we have never made such a claim. Indeed, we have credited Dr. Alan Scott with probably the first treatment for cosmetic reasons alone (Carruthers, A., and Carruthers, J. "History of the Cosmetic Use of Botulinum A Exotoxin," *Dermatol. Surg.* 24: 1168, 1998). According to Dr. Scott, he treated a patient who had no pathology, as distinct from the case described by Drs. Clark and Berris. Indeed, in the late 1980s, a number of physicians had become aware of the positive effects on appearance that could be produced by botulinum A exotoxin used in various clinical situations.

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Reply

Sir:

The first documentation of the use of botulinum toxin to treat wrinkles was published in *Plastic and Reconstructive Surgery* in 1989.¹ This is not a matter of opinion but a statement of fact reinforced by both a simple literature search and by the esteemed opinion of Rod Rohrich, M.D.: “The first described use of the toxin in aesthetic circumstances was by Clark and Berris in 1989.”²

Plastic and Reconstructive Surgery is not an obscure journal, and yet the Carruthers have overlooked the “White Journal” on two rather convenient occasions. First, they have steadfastly ignored our 1989 article that preceded their first report in 1992.³ Second, they are seemingly unaware of the contents of the November 2004 *Plastic and Reconstructive Surgery* botulinum toxin supplement, “Introduction to the Consensus Recommendations,” despite the fact that Jean Carruthers was the primary author.⁴ Therein she states that “Carruthers and Carruthers described the first aesthetic use of Botox,” yet in the above letter she writes, “While others may have done so, we have never made such a claim.”

While Drs. Jean and Alistair Carruthers may have the charm, elegance, clinical expertise, and political clout to become media darlings to *Newsweek* and “Oprah,” they still must be historically accurate in the arena of scientific reporting. For many years I have been reticent to speak out because we are not talking about something as important as the cure for cancer, just the cosmetic application of botulinum toxin. Dr. Robert Goldwyn pointed out in his *Plastic and Reconstructive Surgery* editorial concerning “battles for priority” that they “are fought over the least important matters.”⁵ On the other hand, botulinum toxin injection has indeed become the most common cosmetic procedure and, according to the Carruthers’ Web site, they “are famous for their pioneering discovery of the cosmetic use of Botox.”⁶ Self-aggrandizement is not my motivation, and I thank Dr. Goldwyn and Dr. Alan Scott for encouraging me to champion historical accuracy.

It was truly an original idea when I began my clinical trial in 1987, but it does not surprise me that the same good idea was surfacing in other minds. Last year, Dr. Scott shared with me that he had treated a patient for wrinkles before my study and never reported it. Original means inventive and not imitative, and an idea can certainly be original to more than one person at approximately the same time.

At any rate, I am a surgeon, and botulinum toxin is a very small part of my practice. My level of interest in this modality has been far surpassed by that of the Carruthers and others. I recognize that there are more important accomplishments to hang one’s hat on, but for what it’s worth, I did publish the first report on the use of botulinum toxin for wrinkles.

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Viewpoints

Is Surgery Always Necessary in the Treatment of Aplasia Cutis Congenita?

Sir:

Aplasia cutis congenita is a rare disease characterized by noninflammatory, well-demarcated defects of all skin layers and subcutaneous tissue and, more rarely, the periosteum, skull, and dura. The most common form of the disease is aplasia cutis congenita of the scalp. The majority of defects are on the vertex.¹

The patient was a full-term female infant with a defect on the vertex. She was born at week 39 of a normal pregnancy in the university hospital, was delivered vaginally, and weighed 2900 g. The father was 34 years old, and the mother was a 29-year-old primigravida. Neither parent had any medical problems, and there was no family history of congenital anomalies, including aplasia cutis. The patient had a 12 × 5-cm defect extending from the anterior to the posterior fontanel (Fig. 1). The defect included skin and bone, with a thin membranous layer covering the underlying brain and sagittal sinus. At day 10 after delivery, a scalp rotation flap was used to cover the defect on the anterior fontanel; the other defect areas were covered with a full-thickness skin graft. After a week, two-thirds of the flap had necrosed and was no longer viable. After débridement, the defect was dressed with polyurethane foam (Epigard; Biovision GmbH) to avoid the possible complication of infection and hemorrhage. The dressing was changed two or three times a week. The defect on the anterior fontanel healed by spontaneous epithelialization within 5 weeks (Fig. 2).

The follow-up time was 2 years. No complications, such as hemorrhaging or meningitis, were encountered. The final result was satisfactory.



Fig. 1. The defect extended from the anterior to the posterior fontanel.

Both conservative and surgical methods have been proposed to treat this condition. Superficial lesions may heal spontaneously and small defects may be treated conservatively.² Conservative management includes the use of continuous saline drips, gauze dressing, and topical silver sulfadiazine.³ The advantage of conservative management is the avoidance of potential operative risk to a newborn. However, conservative management carries potentially fatal risks of infection and sagittal-sinus hemorrhaging in patients with large scalp defects.⁴

Flap necrosis is very common in scalp reconstruction in aplasia cutis congenita because of the lack of skin appendages. Using bipedicle flaps, delaying the procedure, and checking that perfusion is adequate using fluorescein injections may be thought of as a safe procedure.⁵

Skin grafting is simple but does not provide ade-



Fig. 2. The defect on the anterior fontanel healed by spontaneous epithelialization within 5 weeks.

quate brain protection in the long term. Initially, it was thought that a skin graft was sufficient for defect closure. However, the vertical, central part of the defect was covered only by dura and was not capable of sustaining a skin graft. A rotation flap was used, but the distal part did not survive. A small skull defect usually closes spontaneously before the age of 6 months.⁴ Our patient's remained open at the 24-month postoperative visit. The parents would not agree to any operation for skull reconstruction.

In the treatment of aplasia cutis, for better results, conservative methods are recommended if there is no absolute indication for surgery.

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Facial Injury of Infant by Domestic Pig Bite: Neglect, Ignorance, or House Designs Defect?

Sir:

Children are exposed to various kinds of animal bites. In developed countries, dogs are the most common cause of such injuries. In developing countries, childhood injuries from domestic animals have not been given much attention.¹ Domestic pigs are rarely a cause of injury to children.² Most of the bites are usually caused by playing with or unduly provoking the animal. The design of the house can also be a cause of animal injury, as in this case. We report a case of facial injury to a 9-month-old infant due to a fall from the first floor of a wooden house into a piggery.



Fig. 1. Infant with severe facial injury caused by domestic pig bite.



Fig. 2. Same infant after primary repair of facial wounds.

A 9-month-old infant was sleeping with its parents in the attic over a piggery. In the middle of the night, the infant fell into the piggery. Since both parents were sleeping, the fall went unnoticed. The parents were awakened by the child's cries coming from the ground floor of their wooden house. They found the infant among the herd of pigs. The child fell either through a gap in the wood roofing or from the unprotected side of the roof. The pigs thought it to be an intruding foreign body, became frightened, and attacked the infant. The parents immediately rushed to rescue the infant, but severe damage to the infant's facial structures had already occurred by the time the parents reached the child (Fig. 1). The infant was rushed to the hospital, which was reached within 5 hours. The infant was resuscitated and, since the injury was recent, primary repair of the facial wounds was performed (Fig. 2). Proper antibiotics were given and the child was discharged after the wound healed.

Injury by animal bite is common among children. Various animals, such as dogs, cows, camels, and don-



Fig. 3. House made of wood, housing cattle and other animals on the ground floor. The living space for humans is on first floor.

keys, are the causes of animal bites.³ Knocks from cow horns, falls, and dog bites are common modes of injury. Domestic pigs are rarely a cause of injury. Only a single case report is available in the literature describing the eating of a 2½-year-old child's prolapsed rectum by a pig.² In the present case report, the child's facial injury was caused by a fall into a piggery. Due to the late-night hour and the other household members being asleep, the fall went unnoticed. Normally, domestic pigs are not aggressive, but the pigs were frightened and attacked the infant in self-defense, thinking the child to be an intruder and a threat.

Many houses in Nepal are made of wood or bamboo, with animals on the ground floor and humans in the attic or on the second floor (Fig. 3). Many domestic animals, such as pigs, cows, and buffalo, are kept in this manner. Children are constantly present in the vicinity of these kinds of houses. Because of the inherent design of the house, there is always a chance of injury to children.

The present case emphasizes that (1) pet animals can be a source of danger to infants if care is not taken; (2) the possibility of mishap and danger to children is always present when animals are in the vicinity of human dwellings; (3) poor living conditions, as a result of poverty and ignorance, have a direct relationship to the exposure of children to danger; (4) unfortunate incidents such as this can be prevented by educating the illiterate and lay public, changing the living conditions with proper planning, and keeping animals away from places of human habitation.

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Posttraumatic Lipoma in a Patient with Congenital Factor X Deficiency

Sir:

Although lipomas are well-known fatty tumors, both clinically and pathologically, their precise etiology is still unknown. Lipomas arise most often from the fascia or periosteum of the scapula, the clavicle, or the vertebrae.¹ So far, however, nothing is known about the genesis of lipoma. The pathogenetic mechanisms of posttraumatic lipomas have been reviewed in the literature and found to be incompatible with some of the cases presented. Instead, the hypothesis of a true adipose tissue neoformation following trauma has been suggested.² Gottfried³ presented a series of posttraumatic lipomas in which all patients described a hematoma of long duration and the onset of the lipoma 6 to 10 months later. In contrast to spontaneous lipomas, all posttraumatic lipomas grew to the size of a fist within a few months. My experience with the subject has been interesting. A 30-year-old female patient was admitted for a frontal subcutaneous solid mass with a diameter of 1 × 2 cm. After an evaluation with magnetic resonance imaging, it was determined to be a

lipomatous mass. The mass was excised under local anesthesia, and pathologic analysis of the specimen indicated that it contained mature adipocytes. A notable event at the early postoperative period was extensive ecchymosis involving even the contralateral upper eyelid. Although meticulous hemostasis was achieved, a large hematoma was evacuated on the third postoperative day and a compression bandage was applied. At the second examination of the patient, a minimal hematoma was observed and this was also evacuated. On the twelfth day, the problem of recurrent hematoma was completely improved and the clinical course of the patient was evaluated. A detailed analysis of coagulation, including activated prothrombin time, partial thromboplastin time, and thrombin time, was performed, and all tests failed to show an abnormality. An advanced special test for factor X (i.e., activation with Russell's viper venom) revealed the factor X deficiency, and it was understood that the patient had factor X activity of approximately 50 percent. At these activity levels in heterozygous patients, the only clinical symptom may be musculoskeletal bleeding after minor trauma. The patient's history revealed that a blunt trauma to the frontal region of the lipomatous mass had occurred 10 years earlier, with the mass growing 2 years before presentation. Her older sister also had bleeding problems after minor surgical procedures.

Considerable phenotypic heterogeneity exists among factor X variants. Factor X is a plasma glycoprotein required in both the intrinsic and extrinsic pathways of blood coagulation. Those with factor X activity levels of approximately 50 percent are considered phenotypically heterozygous. Congenital factor X deficiency is inherited as an autosomal recessive trait. It is synthesized in hepatocytes as a single polypeptide chain; after several post-translational modifications, including glycosylation, vitamin K-dependent carboxylation of the γ -carbon of the first 11 glutamic acid residues, and cleavage of the leader sequence, the mature protein is secreted into the circulation. Persons with factor X activity of less than 10 percent are considered phenotypically homozygous, and these patients show abnormalities in routine coagulation analysis.⁴ This clinical experience suggests that there may be a close relationship between posttraumatic lipoma and hematoma.

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Fig. 1. Patient with subcutaneous solid mass.

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A Little Trick to Reduce Pain at the Moment of Blepharoplasty Stitch Removal

Sir:

Blepharoplasty is one of the most frequently performed procedures in aesthetic plastic surgery. Removal of stitches from the lower lid often causes great discomfort for the patient. The more annoying to remove, in our experience, are the stitches next to the lateral canthus. This is due in part to the tension given to this area, at the end of the procedure, to support the superolateral lifting effect of the lower lid, achieved at the moment of skin resection. We always remove the stitches between fifth and seventh postoperative days. We found this maneuver to be painful in 95 percent of patients.

Since 1999, we have instilled, in the conjunctival sac, two drops of ossibuprocaine chlorohydrate (Novesina) about 10 seconds before stitch removal. In all patients in whom this instillation was performed, the discomfort caused by the soft traction of the stitch, necessary for removal, was consistently decreased or absent. The algaesthesia provided by this instillation was even tested by needle stimulation of the skin of the external canthal area. The hypesthesia usually starts from the lateral canthus and extends to the lateral edge of the orbit.

Innervation of the lateral canthus area can be provided by both the ophthalmic and maxillary branches of the trigeminal nerve. It is evident that some of the small fibers¹ that end in the skin pain receptor of the lateral canthus reach this skin area, passing next to the subconjunctival layer. This layer is very thin and allows diffusion of the chemical, thereby explaining the absence of pain experienced by patients in whom this trick was employed.

This simple procedure, before removal of stitches, reduces or prevents pain, so that patient anxiety and concern are avoided.

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Decongestant Sympathomimetic Drugs Sold "Over the Counter" Can Produce Skin Slough of Face Lift Flaps

Sir:

Wound-healing problems after face lifts, such as skin slough and necrosis, prolonged recovery periods, and scarring, are mostly related to patients who smoke. Tobacco produces vasoconstriction of the subdermal plexus, with compromise of both the arterial supply and venous drainage of the facial flap.¹⁻⁴

We present the case of a 56-year-old woman who underwent a face lift after a thorough clinical and laboratory evaluation that catalogued her as an American Society of Anesthesiologists type I healthy patient. She had never smoked in her life. The surgery was performed as an outpatient procedure under local anesthesia (50-cc infiltration per side of 2% lidocaine and 1:100,000 epinephrine), with surveillance by an anesthesiologist, and consisted of a subcutaneous elevation of the facial-cervical flap and limited mobilization of the superficial musculoaponeurotic system, with a multivectorial redraping of the superficial musculoaponeurotic system and skin flaps. Drains were left in place. The surgery was uneventful and lasted 6 hours. She was left with a noncompressive bandage on the face and neck, which disallowed her from reading or watching



Fig. 1. A 56-year-old woman at day 7 after face lift. She had never smoked in her life, but for 6 days had taken oral overdoses of sympathomimetic drugs to treat symptoms of the flu.



Fig. 2. (Left) A view of the 56-year-old patient before the face lift. (Right) Postoperative view after 10 sessions in a hyperbaric oxygen chamber.

television, except in the chin-up position to decrease tension on the postauricular flaps. She was seen the next day in the office, and the drains were removed without incident. The flaps looked perfect, with no signs of compromised circulation, and the loose bandage was left in place. She came back on the seventh day after the operation saying that she had symptoms of a flu. She had started on topical nasal inhalators and oral extended-release decongestant tablets, obtained “over the counter” from a drug store. She had been taking them every 4 hours, when they should have been taken every 12 hours, and reported a fast, pounding heart-beat, headaches, paleness, trembling, and trouble sleeping. The scene after removal of the bandage was tragic (Fig. 1) After 3 months of seeing the patient every 3 days in the office and 10 hyperbaric oxygen chamber sessions, she recovered without the need of skin grafts (Fig. 2).

The only explanation for this devastating event was the overdoses of sympathomimetic drugs taken to control the congestive symptoms of flu. Excessive thinning of the postauricular flap can produce skin slough that is detectable a few hours after surgery. Topical agents used as nasal sprays act rapidly, usually within minutes, and therapeutic doses have no systemic side effects. Decongestant agents function by being taken up into the prejunctional nerve terminal, where they displace nor-epinephrine from storage vesicles. The dispensed nor-epinephrine is then released from the sympathetic nerve terminal to postjunctional α -adrenergic receptors, producing vasoconstriction. Oral decongestants cause generalized constriction of blood vessels, and increased arterial pressure is always a concern. Most of the oral agents

that are available, however, cause blood pressure elevations in normal persons only at doses that significantly exceed the recommended dose. Other possible adverse effects include reflex bradycardia, urinary retention, mydriasis (with effects on glaucoma), and effects on endocrine and other regulators of metabolic function. Only three drugs are commonly used as oral decongestants: phenylpropanolamine, pseudoephedrine, and phenylephrine. Direct-acting sympathomimetics, such as phenylephrine and oxymetazoline, activate α_1 - and α_2 -adrenergic receptors, respectively, also causing intense vasoconstriction.⁵

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Unusually Successive Deflation of Textured-Surface Breast Implants

Sir:

The perfect implantable mammary device remains elusive. No one consensus on the overall prevalence of rupture exists. Data on the incidence of deflation and its causes are few and frequently contradictory.¹⁻⁴ We encountered one unusual case of successive implant deflation, which occurred three times in total.

A 42-year-old woman underwent bilateral breast aug-

mentation on January 30, 1997. Two 175-cc, round, textured-surface saline implants (Mentor) were inserted subpectorally via a transaxillary approach, and each implant was inflated to 175 cc. The implants were entirely satisfactory for her until late 1998, when she developed symptoms and signs suggestive of implant failure on her left side. Explantation of both prostheses was performed on December 8, 1998, and two 200-cc, round, textured-surface saline implants (Mentor) were placed within the subpectoral pockets. Each implant was inflated to 215 cc. These were satisfactory for her until late 2004, when she again developed symptoms and signs suggestive of implant failure on her left side. One month later, she also developed signs of implant failure on her right side (Fig. 1). Explantation of both prostheses was performed on March 4, 2005, and this time, two 200-cc, round, smooth-surface saline implants (Mentor) were placed within the subpectoral pockets via the periareolar approach. Each implant was inflated to 225 cc. Examination of the implants revealed no definite tears in the prostheses (Fig. 2).

There had been no mammographic study of her breasts and no other history of trauma. Capsular contracture was evaluated as grade II using the Baker classification. We would like to communicate this uncommon case of successive textured-surface implant rupture.

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Steal Syndrome of the Hand Complicating an Arteriovenous Fistula

Sir:

Our case report is of a 39-year-old female patient who had diabetes mellitus type II and chronic renal insufficiency. In 2001, removal of a distal arteriovenous



Fig. 1. Preoperative appearance of the patient with signs of implant deflation on both sides.

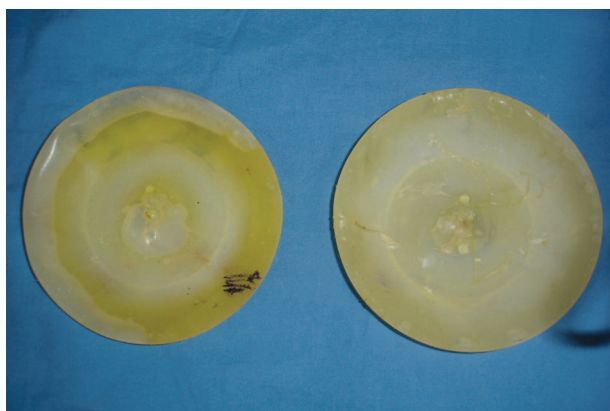


Fig. 2. Deflated breast implants revealed no definite tears in the prostheses.

fistula between the radial artery and vein was attempted but failed. One month after this operation, a second fistula developed between the brachial artery and the cephalic vein. In 2002, she underwent successful kidney and pancreas transplantation, but the fistula was not closed.

Eighteen months later, the patient was treated for a chronic wound of 6 months' evolution that affected the dorsum of the proximal interphalangeal joint of the middle finger of her left hand (Fig. 1). The extensor tendon was exposed, so the wound was débrided and closed with two Hueston flaps. The initial result was good, but 2 weeks later the wound broke down and an infection developed that affected the bone (Fig. 1, *above, right*). A ray amputation was performed, but the wound did not heal properly and the wound became infected again (Fig. 1, *below, left*).

At this point, the Department of Plastic Surgery was consulted to find a suitable cover for the defect. We performed a new débridement and an ipsilateral McGregor (groin) flap (Fig. 1, *below, right*). We kept the pedicle intact for 6 weeks, and the flap showed good signs of vascularization. Shortly after the pedicle was sectioned, signs of flap ischemia developed that finally progressed to necrosis of the distal two-thirds of the flap (Fig. 2). An arteriogram showed a proximal fistula, above the elbow, no filling of the radial and ulnar arteries, and poor filling of the common interosseous artery (Fig. 2, *above, right*).

We decided to reoperate on the patient, and this time we ligated the fistula. Before closing it, we explored the distal arteries with a Fogarty catheter. We found a blockage 7 cm distal to the brachial bifurcation. The problem was solved with a second ray amputation, using the skin as a fillet flap to close the dorsal wound (Fig. 2, *below, left*).

Surprisingly, the postoperative recovery was uneventful and the wound healed properly. Two months after this operation, a new arteriogram showed good filling of both the radial and ulnar arteries and the palmar arch (Fig. 2, *below, right*).

The vascular access for hemodialysis is usually performed at the distal level of the nondominant forearm, between the radial artery and a vein. If this fistula fails, other access is sought in the nondominant arm. The brachio basilic fistula is the most popular,¹⁻⁴ but in our case, the fistula was created with the cephalic vein. If these proximal fistulas are not closed after a successful transplantation, we might have to deal with a steal syndrome with distal chronic ischemia. The incidence of steal syndrome ranges between 0.4 and 5 percent,¹⁻⁴ and it can happen even years after the access has been performed.⁵ The high flow between the brachial artery and the cephalic vein reduces the blood supply to the distal forearm and hand. Therefore, the tissues are more prone to infection, with an awful ability to heal that makes all reconstructive efforts unsuccessful, ending in amputation.



Fig. 1. (*Above, left*) Preoperative view of chronic ulcer. (*Above, right*) View of the finger after the first plasty and subsequent necrosis. (*Below, left*) Flap necrosis and wound dehiscence with exposure of the second and fourth metacarpals and tendons. (*Below, right*) Inset of the flap on the defect.

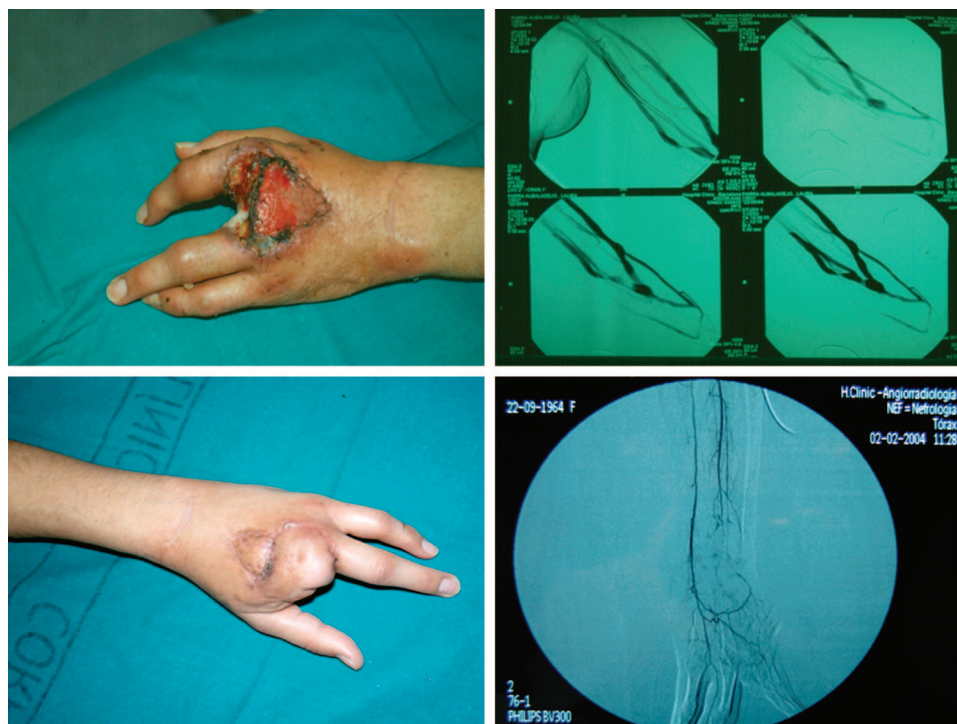


Fig. 2. (Above, left) View of the hand 2 weeks after the pedicle of the flap was sectioned. There was distal necrosis, and only the proximal third survived. (Above, right) Arteriogram showing the fistula and the absence of distal filling. (Below, left) View of the hand 4 months after the last procedure. (Below, right) Angiogram showing good filling of the ulnar artery and palmar arch.

When the angioaccess is no longer needed, ligation should be performed shortly after a successful transplantation. Ligation should be performed even after years have passed, because the blood supply to the hand can improve, as in the case presented here.

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Microvascular Anastomosis Timing in Digital Replantations

Sir:

The proper sequence of vascular anastomosis in digital microsurgical replantation is still controversial.¹ To evaluate whether the sequence of arterial and venous repair and clamp removal affects the success rate in digit replantation, we studied retrospectively 74 cases of digit replantation, with different amputation levels and mechanisms of trauma.

In the avulsion and crush injuries, the artery was repaired first, to permit assessment of the integrity of circulation within the replanted digit and to check the presence of the “no reflow phenomenon.” In guillotine-type amputations, venous anastomosis was generally performed first.

The rule for the timing of anastomosis in the clinical setting is difficult to appraise, because the outcome of digit replantation is influenced above all by the mechanism of injury. The arterial repair restores blood flow to the digit and reduces ischemia, thereby permitting the evaluation of effective circulation and the choice of the proper vein. On the other hand, re-establishing the venous continuity first allows one to avoid venous stasis, and the bloodless field reduces the technical time spent positioning the suture.²

Presently, we make our decision based on the nature of the trauma and the condition of the amputated stump. The arterial repair is performed first in avulsion and crush traumas, when there is a long ischemia time and an inadequately preserved stump. With guillotine or saw lesions, we prefer to suture the veins first, to reduce the operative time and simplify the surgery.

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Occam's Razor Revisited: Potential Hazards of Multiple Pathology

Sir:

Occam's razor—the principle of minimizing assumptions in deriving an explanation—is a much-used instrument in medicine and surgery. It does not necessarily require a single cause for any phenomenon, but casts doubt on multiple causes. Patients do, however, present with multiple pathologies, and hazards may occur when these pathologies lie in different specialties. We present a case in which one such hazard was avoided.

A 41-year-old man was originally referred as a surgical outpatient with a painful anal mass of 2 months' duration. He reported having hemorrhoids for 10 years but had no other significant history.

On examination, there was a raised, firm anal lesion with no associated groin nodes. Biopsy revealed squamous cell carcinoma, which was treated with external beam radiotherapy (40 Gy in 20 treatments). The dose to the femoral head would have been negligible. This was followed by an interstitial implant using two planes, and he had an additional 25 Gy.

The following year, he developed inguinal lymphadenopathy in the right groin and underwent right-sided groin dissection. Adjuvant postoperative radiotherapy was given.

Subsequently, he presented with pain in the right hip and knee. On examination, there was marked radiation fibrosis of the right groin and moderate lymphoedema of the right leg. There was no evidence of local or regional recurrence. Radiographs of the hip and femur were normal.

The pain continued, and 5 years later, he was referred for a plastic surgical opinion for the extensive fibrosis in the groin. Clinical examination revealed an antalgic gait along with a dense, contracted scar in the right groin, with limitation of hip extension (Fig. 1).

Plans were made to release the scar contracture and reconstruct the defect with a rectus abdominis flap. The day before surgery, a second hip radiograph was taken that showed a fractured neck of the right femur (Fig. 2). Surgery was cancelled. The bone scan showed increased uptake around the upper femur, consistent with fracture, but no evidence to suggest metastatic disease.

An orthopedic assessment followed, and the patient underwent a right hip replacement, with complete resolution of his pain (Fig. 3). Histologic analysis of the bone showed no evidence of malignancy. The patient remains pain- and disease-free.



Fig. 1. Radiation fibrosis of the right groin. Reproduced with the patient's permission.



Fig. 2. Radiograph of the pelvis showing fracture of the right femoral neck.



Fig. 3. Radiograph of the pelvis showing the total hip replacement on the right side.

The preferred treatment for carcinoma of the anal canal is chemoradiotherapy.¹ It is well recognized that radiotherapy for carcinoma of the anus or vulva can also be complicated by avascular necrosis of femoral head and pathological fracture.²

At the cellular level, radiation affects the osteoblasts and causes vascular compromise. Csuka et al.³ suggest that radiologic changes may not be seen in the first year after treatment, but if they are going to occur, they are always present by 36 months.

This report illustrates the potentially destructive effect of radiation on bone and the difficulty in recognizing the problem, on a single radiograph, in the early stages of the condition. It has reminded us that repeating investigations in the face of persistent symptoms can yield dividends. Most of all, it has shown us that even when there is an obvious and visible cause for symptoms, it does not necessarily follow that there is not something else less obvious going on at the same time.
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Use of Distally Based Cross-Leg Sural Artery Flap and Cadaveric Achilles Tendon Graft in the Reconstruction of a Combined Defect of the Achilles Tendon and Overlying Soft Tissue

Sir:

Reconstruction of the combined loss of the Achilles tendon and the overlying soft tissue has remained a challenge. There have been numerous reported methods for the surgical reconstruction of such complex defects.^{1,2} Successful reconstruction requires a few must-have prerequisites: a tendon with appropriate strength to meet body dynamics in standing and walking, and skin that is both strong enough to resist friction and thin enough to allow the patient to wear a shoe.

We present a previously unreported combined method of reconstruction that includes a cadaveric Achilles tendon substitute, for achieving tendon continuity, and a cross-leg sural artery flap, for reconstructing the overlying soft-tissue defect. Our method was used to reconstruct an almost-complete Achilles tendon and large overlying soft-tissue defect in a pediatric patient.

A 10-year-old boy sustained right-sided foot and ankle trauma. He had no bony fracture, but a large soft-tissue defect and an almost-complete Achilles tendon defect (Fig. 1, above). With proper preoperative care, the wound was managed for surgery. After débridement, the final size of the soft-tissue defect was 5 × 4 cm, and that of the Achilles tendon was 4.5 cm, with an intact bony attachment.



Fig. 1. (Above) Complex defect of the Achilles tendon and overlying soft tissue, with no bony fracture. (Below) Reconstructed Achilles tendon.

The tendon defect was reconstructed with cadaveric Achilles tendon allograft (Fig. 1, *below*), and the soft-tissue defect was reconstructed with an 8 × 6-cm, cross-leg medial sural artery flap (Fig. 2, *above*). The donor site was closed with a split-thickness skin graft. A single cast was used to keep both legs in position. Antibiotic treatment was given for a week, with local wound dressing until the end of the procedure. When the flap showed full viability for a 30-minute period following pedicle clamping on postoperative day 25, the flap was separated in a second operation. A leg rehabilitation program was instituted. At the end of the 8-week rehabilitation period, the patient was allowed to resume ordinary activities on a schedule. At the end of 3 months, he could walk with no help and stand on his toes (Fig. 2, *below*).

Instead of harvesting an autograft, we used a solvent-dehydrated cadaveric allograft, because of its easy of use, requirement of no additional donor site, consequent shorter operative time, and sufficient desired tendon length. Since the study by Masquelet et al.,³ who introduced the neurocutaneous flap, the interest in this



Fig. 2. (Above) Cross-leg sural artery flap sutured over the defect. (Below) Patient stands on his toes without help.

and some other modifications has begun to increase.⁴ The distally based sural artery flap is the most popular among the flaps. The cross-leg pedicled flaps have proved to be safe, are quick to perform, and do not require specialized facilities for postoperative monitoring.⁵ Besides these advantages, there are some disadvantages, including the difficulty in keeping the position for a few weeks, the need for a second operation, and the limited physical activity between the two operations. In this case, because the ipsilateral side was damaged posteriorly, the contralateral leg was preferred for flap harvest.

Considering all this, the procedure defined here might be an alternative to a free tissue transfer with limited indications.

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Calciphylaxis in a Patient with Chronic Diabetic Renal Failure but Normal Parathormone

Sir:

A 52-year-old woman presented with painful subcutaneous nodes and extensive flat induration on the left thigh. In her personal history, she had suffered from insulin-dependent diabetes mellitus type II for more than 20 years. Chronic renal failure had led to hemodialysis 2 years earlier. Her parathormone and alkaline phosphate levels were normal. Histologic analysis of the subcutaneous lesion showed single calcification of the vessel wall in the small arteries and capillaries. In accordance with the case history, the diagnosis of calciphylaxis was made. To lower her elevated calcium and phosphate levels, dietary measures and low-calcium dialysis were recommended. In addition, calcitonin was given to avoid additional mobilization of calcium out of the bone. With normal levels of calcium and phosphate, a normal calcium-phosphate product, and a normal parathormone level, the patient's condition worsened. Surgical débridement of the lesions on the lower leg was insufficient, and further necrosis occurred on the edge of the wound.

Progression of the disease could be seen at the second biopsy performed 9 weeks after the first histologic analysis (Fig. 1). Calcification was then found in nearly every small and medium-size blood vessel in the deep dermis and subcutaneous tissue, accompanied by thrombosis and fibrinous deposits. Septal calcification in the subcutaneous fat tissue and dermal inflammatory

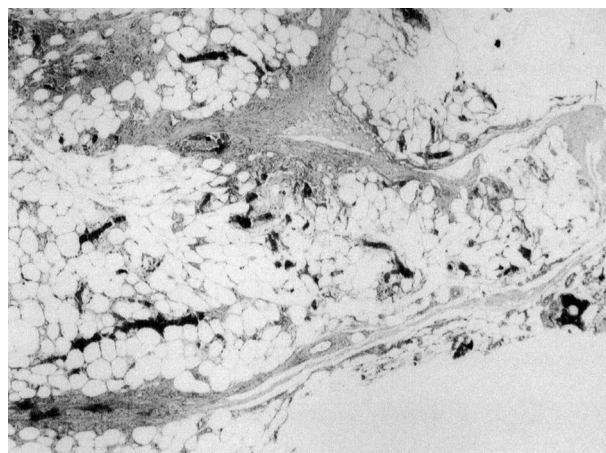


Fig. 1. Subcutaneous lesion with calcification of the vessel wall of the small arteries and capillaries; dermal inflammatory infiltration of the lymphocytes, histiocytes, and neutrophils



Fig. 2. Multiple necrotic ulcers on the lower leg.

infiltration of the lymphocytes, histiocytes, and neutrophils were present. The subcutaneous nodes also developed on both legs and on the abdominal wall; they became bigger and more indurated, and subsequently progressed to extremely painful necrotic ulcers (Fig. 2), so that opiates had to be given in high doses. Various intravenous antibiotic therapies were established to keep the patient from becoming septic. Consequently, the patient became somnolent and died 4 months after being transferred to the hospital.

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Plaster Cast or Three-Dimensional Computer Imaging: Which Is Better?

Sir:

The plaster cast as a tool for preoperative planning in cosmetic surgery, such as rhinoplasty and mentoplasty, has been popular for a long time, and its description can be found in articles from the beginning of the last century.¹

As computer imaging has become more and more popular in plastic surgery, as it did in other fields of modern technology, many plastic surgeons in China have given up this “old” tool and turned their interests to three-dimensional computerized imaging as a tool for preoperative design as well as for better communication with their patients, abandoning the traditional use of the plaster cast.²

We think differently, and would like to explain why we find the plaster cast model of the face to still be very useful in our clinical practice and recommend its routine use.

In our practice, a plaster cast made of the patient’s

face preoperatively can be used in several ways. First, we find it to be the best means of communication between surgeon and patient. In augmentation rhinoplasty, we add an implant made of silicone rubber to the plaster cast in the proposed place and then prepare a “postoperative” plaster cast to show the patient (Fig. 1). We believe that this technique, under natural light, enables the surgeon and the patient to see the exact results of the proposed surgery.

Second, the technique can be used to prepare custom-made implants. After the exact design of the implant is achieved on the mold and agreed upon, the silicone rubber implant is refined, cleaned, and sterilized. It is then inserted into the patient’s nose to achieve a predictable outcome.

Third, the plaster cast technique can be used to teach and train young plastic surgeons. In our experience, they gain theoretical knowledge, but they have to develop their three-dimensional imagination. They also need to refine their skills for carving the implant for use in the patient. We find that the plaster mold helps them to fully understand the defect and to predict the final results. With the help of plaster casts, the ex vivo training becomes clear and simple.

Finally, the mold can be given to the patient for comparison with the postoperative results. Naturally, typical cases can be copied with the consent of the patient and preserved by the surgeon for study, discussion, and education.

Although three-dimensional imaging has the advantages of being “quick and exact,” we can copy a face into a plaster cast in less than 1 hour without



Fig. 1. (Left) A plaster cast is made of the patient’s face preoperatively. (Center) An implant made of silicone rubber is added to the plaster cast in the proper place. (Right) The second, “postoperative” plaster cast.

special equipment, thereby practicing cosmetic surgery in a way that is more an art than an industry. It helps to develop the aesthetics and skills of surgeons in training, turning their thoughts into reality. Just as Photoshop could not take the place of the brush in an artist's hands, we think that three-dimensional imaging cannot replace the plaster cast until the day when a machine will replace the surgeon.

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Ubiquitous Equipment on a Plastic Surgery Ward: An Infection Risk?

Sir:

"No gentleman would infect his patients, and doctors were gentlemen."—Amalie Kass¹

Adequate asepsis, sterilization of equipment, and vigilance of medical practitioners with regard to personal hygiene have been recognized since the early nineteenth century. Ignaz Semmelweis (Austria) and Oliver Wendell Holmes (United States) determined that bacteria were carried on the hands and clothing and transferred as a physician attended to successive patients.² These men pioneered hand washing and the changing into clean surgical attire before surgery to prevent wounds from being contaminated during surgery. Postsurgical infections remained a serious complication of surgery until the 1860s, when British surgeon Joseph Lister applied Pasteur's earlier work to the field of surgery, developing antiseptic techniques that included the use of carbolic acid spray preoperatively. In plastic surgery, soft-tissue infections can be devastating, causing a steep climb up the reconstructive ladder and carry-

ing with them an associated increase in morbidity and mortality rates. With the recent increase of methicillin-resistant *Staphylococcus aureus* cases in the health service, we are concerned that certain infection control measures are being easily overlooked. With this in mind, we investigated the infective potential of tourniquets and dressing scissors used by phlebotomists and nurses in the treatment of plastic surgery patients.

Under aseptic conditions, 10 tourniquets were placed directly onto a blood agar medium for 30 seconds. Ten sets of dressing scissors were swabbed and plated onto an identical medium. Ten control plates were prepared by leaving each plate open to the air for 30 seconds. All 30 plates were incubated under identical conditions at 38°C for 72 hours. After the incubation period, the plates were examined by a consultant microbiologist, and microbial growth was recorded.

The control plates and swabs from the dressing clinic scissors yielded no growth. Our unit does not provide sterile scissors for use in the dressing clinic; the nurses regularly clean the scissors with water and then wipe them with alcohol rubs after every patient, which seems to be effective.

All the tourniquets harbored coagulase-negative *Staphylococcus*, and five had aerobic spore-bearing bacillus. These organisms do not usually cause problems, unless a prosthetic implant becomes infected. Of more concern is the presence of a group A β -hemolytic *Streptococcus* on one of the plates. This bacterium is responsible for a variety of health problems. Infections can range from cellulites to severe, life-threatening conditions, such as toxic shock syndrome (multiorgan failure) and necrotizing fasciitis. Health care providers must recognize and treat such infections quickly.

The antibiotics used to treat infection include penicillin, erythromycin, and clindamycin. If tissue damage is severe, extensive tissue débridement or even amputation is necessary. Those patients at greatest risk from infection would be children with chickenpox, immunosuppressed adults, burn victims, diabetics, and intravenous drug users, all of whom can be found regularly in our plastic surgery wards.

Tourniquets are made of a variety of woven materials. They are typically absorbent and ultimately provide a sound environment in which to harbor and culture microbes, as illustrated from our results and those of others.^{3,4} A certain way of eliminating the risk of cross-infection from a tourniquet is to use a disposable tourniquet for patients who require phlebotomy. We advocate the use of a glove, because it provides a cheap, readily available, disposable tourniquet that can be just as effective.⁵

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Visual Documentation of Oral Consent: A New Method of Informed Consent before Major Gigantomastia Reduction for an Illiterate Population

Sir:

Informed consent is a legal and ethical requirement before every surgical procedure, especially when it comes to aesthetic surgery. The degree to which illiterate people can provide informed consent to plastic surgery is a controversial issue, especially from a juridical point of view.¹ Functional breast reduction for major hypertrophy can be very useful for patients (solving back pain and infectious problems), but numerous complications can occur during these gigantic breast reductions. This study was designed to examine the capacity of illiterate patients to obtain a satisfactory understanding of the risks and benefits of major breast reduction for gigantomastia. This trial aimed to assess the value of visual information in cases involving illiterate patients.

Traditionally, this information has been provided verbally by the clinician as a component of informed consent. Although the doctor-patient interaction must remain at the core of the information process, the patient may have an inadequate understanding of the proposed procedure as a result of the doctor's inability to communicate. Several studies have investigated the use of leaflets to improve and standardize the information received by patients, but these are not suitable for illiterate patients.

Illiterate patients scheduled to undergo breast reduction with an estimated tissue resection of 1 kg or more were approached during the first preoperative consultation. The study information was read aloud to the patient, and after the reading, the investigator in-

vited and answered questions from the patient. All patients completed with the help of the investigator a Spielberger² State-Trait Anxiety Inventory questionnaire to assess baseline anxiety. The patients were then randomly assigned to follow or not follow audiovisual documentation for oral consent,³ consistent with guidelines such as those of the Council for International Organization of Medical Sciences. Two groups were created. The first one underwent a classic informed consent process, with two direct consultations of 30 minutes' duration and the participation of a relative for the completion of informed consent. The second group underwent the audiovisual documentation for oral consent process for informed consent. Two of the basic principles for this process are as follows: (1) the succession of written, oral, medical, and nonmedical steps; and (2) the possibility of implicit refusal expressed by silence or inaction between each of these steps.

To document the consent process in the second group, we documented oral steps by audio recording, video recording, and photography. We labeled and stored all records. There were three steps to oral consent during the first medical appointment. 1. After the first medical consultation, the documentation of our national society of plastic and reconstructive surgery for major breast reduction was read aloud and documented by triple media recording (audio, video, and photographic). After the reading, one nonmedical investigator invited and answered questions from the patient, and permanent communication was encouraged. The patient finished the consultation. 2. An informational CD-ROM was shown to the participant alone in the audiovisual documentation for oral consent group, without the presence of the doctor. In the CD-ROM, the procedure is explained with pictures and artwork. Good results, poor results, and all the complications are shown according to the information sheet of our national society. For example, to illustrate nipple areola necrosis, the images show a necrosis and all the different steps for healing and reconstruction. After the visualization, one nonmedical investigator invited and answered questions from the patient, and permanent communication was encouraged. 3. At the end of the audiovisual documentation for oral consent process, each patient had to decide to either follow the investigator into the third room to complete the informed consent process or give up. If the patient followed the process, the individual oral consent was documented by triple media recording. Finally, while still recording with triple media recording, a written form was presented to participants by a nonmedical investigator, for the patient to sign in writing.

The day before surgery, the patient completed a second anxiety questionnaire.

Sixty-three patients were screened, one declined to participate, and two were unable to complete the form. Of the remaining 60 patients, 30 were assigned to follow

the audiovisual oral consent process and the remaining 30 were not. The groups were similar with regard to age, sex, education, and baseline anxiety.

Patients who followed the audiovisual documentation for oral consent process were significantly less anxious before surgery than those who did not [mean State-Trait Anxiety Inventory score: 43 for the audiovisual documentation for oral consent group (range, 38.2 to 46.3) versus 59 for the other group (range, 49.9 to 63.8)]. The most outstanding result was that 10 patients from the audiovisual documentation for oral consent group (33 percent) did not come forward to give consent to surgery, since in the other group all the patients gave consent. We believe that these patients were able to exercise their freedom of refusal. In Occidental societies, illiterate people are not always able to exercise their freedom to refuse a highly recommended surgery, because explicit refusal is difficult when facing the medical authority and parental pressure, whereas implicit refusal, as expressed by silence or inaction, is perfectly acceptable.

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