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Letters

Transconjunctival Septal Suture Repair for Lower Lid Blepharoplasty

Sir:

I read with great interest the article by Sadove entitled "Transconjuctival Septal Suture Repair for Lower Lid Blepharoplasty" (*Plast. Reconstr. Surg.* 120: 521, 2007). I was performing a different technique for transconjunctival fat preservation until September of 2005, when I visited Dr. Sadove to observe and learn this technique. It reminded me of the classic McVay hernia repair, except for the fact that it is performed in the orbit. I adopted the technique and used to call it in my operation notes "McSadove." Since then, I have operated on 50 patients with high satisfaction rates and 2 years of follow-up.

The anatomical repair of the herniated fat results in a full eye appearance as opposed to hollow eyes when fat is removed. In some of my patients, the eye opening was larger, not because of ectropion or eyelid malposition but because of restoration of the fat to its original place.

My experience with the technique prompts me to add a few precautions. First, I tell all patients that with the former/classic technique, we know the average time for a second operation will be 12 years. As the follow-up is limited with this new technique to only 5 to 6 years, a second operation may be needed earlier. We simply do not know yet whether this technique will last 12 years. Second, caution should be exercised with patients with proptosis, as it may slightly aggravate or exaggerate the lateral fat pad bulging, unless generous lateral fat pad removal is performed. Third, in patients with very thin skin and shallow cheek bones, the patient may sometimes feel the knot of the suture. For this reason, I take care to cut the knot very short and bury it. In patients with excessive skin, carbon dioxide laser resurfacing will help significantly.

I recommend this technique to all of my colleagues. In my opinion, it is superior to any method I have used in the past (Fig. 1).

Fig. 1. (*Above*) Preoperative view. (*Below*) Postoperative view.

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Reply

Sir:

Dr. Talisman is to be congratulated for his experience with transconjunctival septal suture repair for lower lid blepharoplasty. He was performing a different technique of fat preservation before adopting the tech-

nique described in my article (*Plast. Reconstr. Surg.* 120: 521, 2007). Since that time, he has acquired significant experience with this technique. He reports high satisfaction in his 2 years of follow-up.

The issue of the lateral fat pad is important. Dr. Talisman is correct in advocating generous lateral fat pad removal in patients with proptosis. Moreover, the same may be said for many cases of routine blepharoplasty as well. Overresection of fat is less of a concern over the lateral septum, as the posterior lamella there is strengthened by the capsulopalpebral fascia. It is different from the lower middle and medial compartments; absent this fascia, it is where fat herniation takes place.

In terms of the old inguinal hernia model, one may compare the middle/medial compartments as more like an "indirect hernia" and the lateral compartment as more "direct." The middle/medial protrusion takes place with a surrounding ring of strong tissues around its neck (capsulopalpebral fascia and arcus marginalis). The lateral compartment bulge has no such anatomy. The entire wall simply cannot retain the bulge of the lateral compartment fat.

Why remove fat laterally and not medially? First, there are two risks classically associated with entry between the medial and middle compartments. Here, the oblique muscle is at risk for injury. This is also where the artery runs vertically superior from the orbital rim. The lateral compartment has no such dangers where a small septotomy is placed for fat removal. Second, medially, we are concerned about the cosmetic consequences of overresection or underresection, whereas laterally the stout septum helps protect against overresection.

Why not plicate the lateral septum? Mesh patches are used for direct hernia repairs because, in part, there are no strong tissues to suture together. The lateral septum is flexible enough to tolerate a few fine horizontal sutures, but my experience has shown that such treatment alone does not provide sufficiently long-lasting lateral correction in all cases. General surgeons cannot resect the tissues pushing out the inguinal hernia. However, we can safely remove lateral fat, which makes plication a moot point.

As surgeons, we often—rightly or wrongly—continue to perform procedures the way we were taught and with which we are comfortable. Changes in surgery are often slow. Too many instructional courses continue to be taught by esteemed colleagues who advocate orbicularis transection approaches associated with varied types of "tightening" to treat the weakness they create.

Dr. Talisman's results are excellent. He is to be congratulated for being open minded enough to acknowledge an old problem and thoughtful enough to embrace a logical alternative.

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Autospreader Flap

Sir:

Recently, I read an interesting article, "Using the Autospreader Flap in Primary Rhinoplasty" (*Plast. Reconstr.Surg.* 119: 1897, 2007), in this *Journal*. Figures 8 and 9 in that article show a female patient with a Gunter diagram. This diagram demonstrates the autospreader flap technique, which had been performed during her operation. She is also described in the text as follows: "with a nice demonstration of the versatility of autospreader flaps."

The figures of the same patient had appeared as Figures 5 and 6 in an old article by the same author, "Septal Extension Grafts Revisited: 6-Year Experience in Controlling Nasal Tip Projection and Shape" (*Plast. Reconstr. Surg* 112: 1929, 2003),[1] with a detailed operative note and a Gunter diagram, but this note and diagram do not mention autospreader grafts.

In addition, I would like to point out that the autospreader flap technique is very similar to the lapel technique described by Lerma,[2] which was also published in this *Journal* as a letter to the editor.[3]

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The Unrecognized Skeletal Components of the Cleft Lip Nose Deformity

Sir:

We read with great interest the article entitled "Definitive Repair of the Unilateral Cleft Lip Nasal Deformity" by Dr. Byrd et al. on secondary cleft rhinoplasty.[1] They have very correctly identified the two major groups of these patients who have different severities of cleft nose deformities. The pathologic features of cleft nose deformity have been clearly elucidated; however, there remain certain factors that, in our opinion, exert significantly deforming influences on the function, dynamics, and aesthetics of the lower third of the nose.

First, the primary repair of the cleft lip must address the nasal septum in addition to the already described operative steps. The nasal septum in this situation is

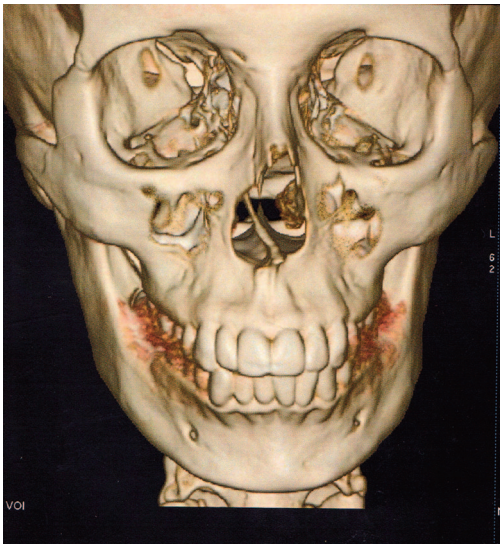

Fig. 1. A three-dimensional computed tomographic scan of a 24-year-old woman with secondary cleft lip nose deformity. The skeletal components of hypertrophied anterior nasal spine, skewed vomerine groove, and deficient pyriform fossa are noteworthy.

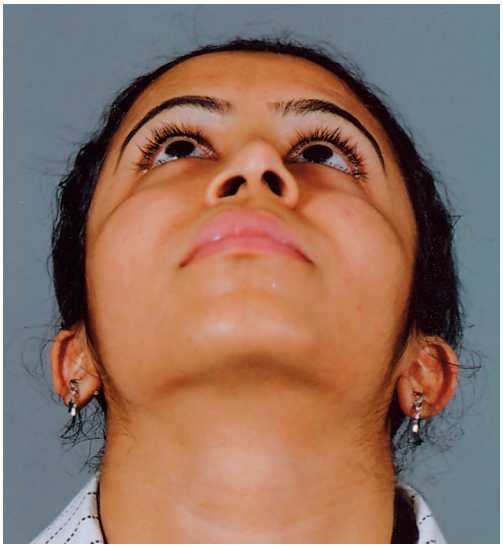

Fig. 2. Clinical photograph of the same patient (basal view) demonstrates the clinical consequence of the uncorrected skeletal components of the right-sided cleft lip nose deformity.

always displaced, especially in its caudal part, and presents in the noncleft vestibule. The body of the septum blocks the cleft vestibule, and the dynamics of this were illustrated in our recent article.[2] This deformity can be well appreciated on three-dimensional computed tomographic reconstructions in adult age groups, where the septal deviation and accompanying deformity of the vomerine groove are unmistakable (Fig. 1). In this case, the vomerine groove is significantly skewed from the midline, and a hypertrophied anterior nasal spine is also present. The septal deformity was not corrected during primary surgery, with the resultant full-blown septocolumellar and vomerine deformity becoming apparent in adult life. Clinically, this deformity manifests more on the basal view, especially in the area of the columella, which is malaligned in an oblique direction, with its base deviated to the noncleft side and the tip deviated to the cleft side (Fig. 2).

Thus, the analysis of any cleft nose deformity at any age must include an inquiry regarding residual septal deformity, physical examination to specifically study the columellar deviation, and a computed tomographic scan to confirm these findings. The operative algorithm must take into account the septocolumellar influences on the tip aesthetics and plan to eliminate them to achieve consistent results.

The frontal and lateral postoperative views of Byrd et al.'s patients show a good result regarding nasal cartilage sculpturing and grafting procedures, but the basal view shows deviation of the columellar base toward the noncleft side and tip deviation toward the cleft side along with a deficient cleft side nose sill, although the authors do mention a septal straightening maneuver. This indicates the presence of a residual deviated nasal septum and consequent malaligned septocolumellar infrastructure.

The skeletal components of the unilateral cleft lip nose deformity thus include a deficient inferior rim of pyriform fossa, hypertrophied anterior nasal spine, and skewed vomerine groove besides the well-described feature of ipsilateral maxillary hypoplasia.

In addition, the nose sill needs to be addressed regarding the muscle and skeletal deficiency and qualifies for a place in the algorithm. The nasal sill is also deficient on the postoperative photographs. Many techniques have been described for augmenting the nose sill, and we have been using a superiorly based turnover orbicularis oris muscle flap for this purpose in addition to performing the other cartilage sculpturing and grafting procedures.[3]

Our recommendations for cleft lip rhinoplasty would be septoplasty with relocation of the caudal part of the septum, excision of the septospinal ligament, relocation of the anterior nasal spine, and augmentation of the nose sill in addition to the standard maneuvers for reconstructing the cartilage infrastructure of the nose.[4,5]

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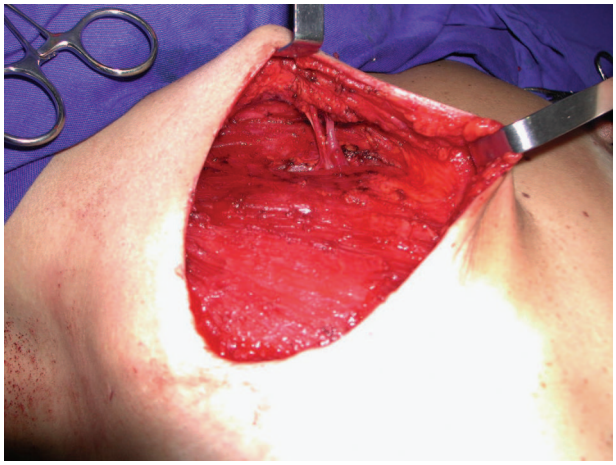

Fig. 1. The internal mammary perforator recipient vessels superficial to the right pectoralis major muscle at the second intercostal space.

Internal Mammary Perforator Recipient Vessels for Breast Reconstruction Using Free TRAM, DIEP, and SIEA Flaps

Sir:

It is with great interest that I read the article by Michel Saint-Cyr et al.[1] regarding use of the internal mammary perforator vessels as recipient pedicles for microvascular reconstruction of the breast. This is a well-prepared retrospective study that discusses what is certainly a topic of controversy. The article makes many good points, and I would not presume to argue with the authors. Although the main aspects have previously been discussed,[1–5] little information has been available regarding clinical experience and outcome. Thus, the M. D. Anderson Cancer Center has made major contributions to our knowledge about the feasibility, indications, technique, and learning curve for the use of internal mammary perforator vessels in breast reconstruction. In my experience, the progress of microsurgical technique and the development of perforator flaps have led to new recipient pedicle alternatives. Thus, sparing of the costal cartilages and internal thoracic vessels and the wide surgical exposure are the main advantages of using the internal mammary perforator vessels as recipient pedicles.[2,3] In my more recent investigation (December of 2006; free full text is available at http://www.teses.usp.br/teses/disponiveis/5/5158/tde-06022007-085258), my colleagues and I analyzed 69 patients with 46 immediate and 31 late reconstructions (77 reconstructions). The anatomical study observed 2.7 perforator vessels per thoracic region, with 93 percent presenting with small and medium caliber and a major concentration in the second intercostal space. The vessels and the perforator pedicles demonstrated an average length of 2.4 cm (range, 1.0 to 3.2 cm) and 3.6 cm (range, 2.1 to 4.5 cm), respectively. In the clinical study, no differences were observed between the immediate and late reconstructions regarding age ($p = 0.599$), body mass index ($p = 0.498$), breast side ($p = 0.671$), hypertension ($p = 0.732$), diabetes ($p > 0.999$), or smoking ($p = 0.828$). Nevertheless, 61.3 percent of patients submitted to late reconstruction had radiotherapy before breast reconstruction ($p < 0.001$). The perforator vessels were observed in 93.5 percent of the immediate reconstructions, and vascular anastomosis was performed in 37.2 percent (Figs. 1 and 2). Vascular injury during mastectomy (48.8 percent) and caliber compatibility (13.9 percent) were observed as the main causes of failure of anastomosis. In late reconstructions, the perforator vessels were present in 12.9 percent and the anastomosis was impossible in all cases because of caliber differences and vascular quality. No statistical differences were observed regarding the incidence of general complications ($p = 0.548$), partial loss ($p = 0.494$), total loss ($p = 0.644$), or mastectomy flap necrosis ($p = 0.193$) in

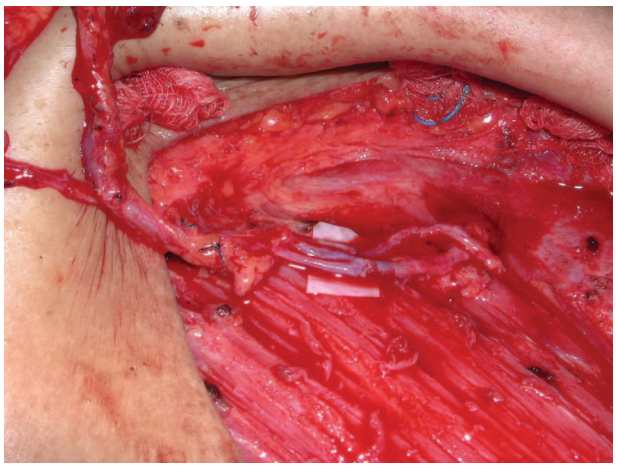

Fig. 2. Image obtained demonstrating anastomosis: close-up view of a right internal mammary perforator recipient pedicle (*on the right*) and deep inferior epigastric vessels (*on the left*).

patients submitted to reconstruction with internal mammary perforator vessels and the other recipient pedicles. The clinical study enabled my colleagues and myself to conclude that the major concentration of perforator vessels in the second intercostal space and the distance between 0.5 and 3 cm from the sternal region represent important anatomical parameters. In immediate reconstructions, preoperative planning between the general and plastic surgeons is fundamental for preserving the main perforator vessels during mastectomy. In late reconstructions, the procedure was not demonstrable, and factors such as previous surgery and radiation therapy may be involved.

On the basis of this more recent clinical knowledge, my colleagues and I have been able to define the selection criteria for using the internal mammary perforator vessels as a recipient site. The main principles are based on availability and features such as integrity and caliber compatibility of the vessels. In the absence of these findings, internal mammary and thoracodorsal vessels remain good options.

Given my experience, a review of the literature, and personal investigation, use of the internal mammary perforator vessels as a recipient pedicle is safe and effective in immediate breast reconstructions and appears justified in more than one-fourth of patients without increased flap or recipient-site complications. In delayed reconstructions, the clinical data concerning their incidence and quality are insufficient, and large clinical series are necessary before one can draw significant conclusions.

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Prefabricated Flaps or Grafts?

Sir:

As we have a particular interest in postburn reconstruction, our attention was drawn to the novel article by Houle and Neumeister.[1] Close reading reveals some curious aspects of reconstructive surgical practice that perhaps need to be highlighted to give some perspective to alternative strategies.

The report begins with a description of a most unfortunate patient who had sustained a very severe burn and brain damage. The report continues that because of the severity of the contractures of his left wrist and elbow and the length of his fingernails, a chronic ulcer developed on his chest wall. Again, this seems surprising, as it is a simple matter to trim fingernails and even apply padded mittens to prevent such self-trauma. The use of a free perforator flap to treat a contracture in a brain-damaged patient would certainly not be our first choice, and there are graduated options of serial splinting and gradual distraction with external fixation. Joint release can be achieved by incising the scar proximal and distal to the joint and leaving intact scar to cover vital structures, and the defects can be grafted or closed with Integra (Integra LifeSciences Corp., Plainsboro, N.J.). A further note is to realize that under the scar in a burn patient there is a plentiful supply of tissue for free fascial and muscle flaps that can be transferred and subsequently grafted.

Having decided on a free tissue transfer, it was unusual that the authors then failed to define the defect before raising the flap. We regard this as an essential prerequisite to flap harvesting because of the variability of release that can be achieved and the unpredictable dimensions of the defect. This certainly accords with principle 17 in Millard's wonderful text.[2] During the raising of the flap, disaster struck and, presumably, as the flap rapidly became discolored, the venous perforator vessel was damaged. The details are not clear, but it appears that an attempt was made to elevate the flap before locating the perforator, which is again unusual. We have previously described our pragmatic approach to anterolateral thigh flap harvest that addresses this point.[3] The rapidity with which the postoperative necrosis appears to have developed is unusual, as this flap would appear to now be a graft albeit with subcutaneous tissue. The alternative is that the flap was fully circumcised and the venous flow was damaged but an arterial input was maintained. In that case, this is a prime indication for leech therapy. The opportunity for salvage having been missed, the only option was to then discard the skin island, and it was at this stage that the authors considered dissecting out the descending branch of the lateral femoral circumflex artery and leaving a cuff of muscle, presumably around the muscle perforator. One wonders where the fascia over the muscle has gone, but this was possibly raised with the flap in the initial operation. The pedicle was covered with a Gore-Tex (W. L. Gore & Associates, Flagstaff, Ariz.) graft and pedicle. The Gore-Tex and muscle cuff were

all then covered with Integra. Five months later, the left elbow contracture was released surgically and tissue was raised from the right thigh and transferred to the antecubital defect. The tissue raised comprised the descending branch of the lateral circumflex femoral artery; the new dermal matrix, and a surrounding cuff of normal skin. This "cuff" was needed because of the size of the defect, so this time, a standard sequence of creating the defect first appears to have been followed. Nevertheless, the cuff died, leaving a 3-cm deficiency in width of reconstructive tissue.

We are not told how much muscle was left underneath the dermal matrix, but we have to assume that there was some subdermal tissue to support a subdermal capillary plexus. The rather strange longitudinal makings in Figure 4 possibly represent the orientation of the descending branch of the LSFA and indicate that there has been significant reduction in width of the reconstructed thigh defect. As such, it would appear that the prefabricated "flap" comprised a vascular pedicle covered with Integra and surrounded by a full-thickness reconstructed skin graft. No follow-up details are reported with regard to long-term outcome.

This report illustrates a series of errors at worst and oversights at best in the management of a post-burn contracture. Despite the seeming lack of cutaneous donor sites in the complex burn survivor, Integra can be used to resurface areas of scar to allow subsequent flap harvest, and we have described this in a report of a series of microsurgical reconstructions in children.[4]

In summary, we commend the honesty of the authors in presenting this extraordinary case and their method of converting a tragedy into a triumph. It will, however, not be a technique that we will be in a hurry to try, and we suggest that it should not be hailed as an innovation.

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Reply

Sir:

I thank Burd et al. for their interest in my case of a prefabricated Integra flap. There are a number of clarifications about the procedure in question and the principles of prefabrication that can be made to address your comments. This unfortunate patient had developed multiple contractures, including those at the antecubital fossa and the wrist. The ulcerations that manifested on the chest were a direct result of pressure and friction of the wrist, not the fingers. Trimming the fingernails would have been of no benefit in this case. The elbow contracture kept the posture of the upper extremity in this precarious position. Multiple attempts at physical therapy and splinting did not resolve the offending posture. A dynamic extension jack was also attempted to no avail. A surgical release was therefore mandated. Release of the elbow contracture would have resolved the problem at hand but would obviously have exposed vital structures, as could be observed in the article (*Plast. Reconstr. Surg.* 120: 1322, 2007). Also noted in the article was that this patient had sustained severe burns to his body and upper extremities, making a local flap a poor reconstructive option. Free tissue coverage is not only considered a sound means of wound closure in these types of cases but may also be thought of as optimal by minimizing donor-site morbidity.[1–3]

The anterolateral thigh flap has been a workhorse flap of mine for a number of years. In designing this flap, as I do with each flap, the descending branch of the lateral femoral circumflex pedicle is outlined in a line drawn from the anterior superior iliac crest to the lateral border of the patella. The skin perforators are mapped out with a Doppler probe so that an appropriate skin paddle can be designed over these vessels. The skin paddle is elevated from the lateral side toward the septum between the vastus lateralis and the rectus femoris muscles. In the presented case, a small perforator was identified and dissected down to the main pedicle. A small piece (2 cm) of vastus muscle was included at the level just below the fascia. The remaining borders of the flap were incised. It was at this point that the flap turned blue and then mottled. Attempts were made to find a peripheral vascular bundle, but this proved fruitless. I could have cut my losses at this point and discarded the flap, but I decided to leave it in situ, hoping for a Lazarus effect. The subsequent operation was meant as a debridement of the flap, but it was observed that the pedicle with that small cuff of vastus

was viable. Herein lies the unique nature of this case. Using the principles of flap prefabrication, the donor-site morbidity was minimized by taking advantage of the viable pedicle on the thigh. Attempting to prefabricate a simple skin graft would have resulted in failure on secondary elevation of the skin graft. However, Integra, a synthetic skin substitute, being much thicker, may be more receptive to the revascularization process seen in prefabrication. The thigh donor site needed to be skin grafted in any event for closure of this wound, so that use of the underlying pedicle to create a new flap would keep our donor sites to a minimum.

The other principles of flap prefabrication have already been described in the literature, but there is another point that should be stressed about the technique that was used.[4,5] The use of Gore-Tex is also described in the literature, but I will clarify some aspects. The Gore-Tex is used to surround the proximal aspect of the pedicle only. It is meant to protect the pedicle at the next operation where the flap will be harvested. Scarring can distort planes and result in inadvertent injury to the pedicle. In the case presented in the article, the Gore-Tex was not on top of the muscle at all. It was around the pedicle that was sandwiched between the vastus lateralis and the rectus femoris muscles. The Integra was simply placed on the pedicle that was brought out onto the outer surface of the muscle, as depicted in the figures of the article. The muscle fascia had been previously elevated with the lost anterolateral thigh flap. Once matured, the prefabricated Integra flap was elevated at a plane of the interface between the Integra and the muscle. No attempt was made to keep any of the underlying muscle. Although anecdotal, this synthetic skin substitute was prefabricated and transferred successfully as a free flap on its new pedicle. It would also appear that the revascularization process does not cross over to the surrounding tissues beyond the Integra.

The article was merely meant to illustrate a novel means of prefabrication. It may have implications for our reconstructive repertoire. I apologize for any confusion about the presentation, but thank Burd et al. for taking a serious interest.

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New Continuous Negative-Pressure and Irrigation Treatment for Infected Wounds and Intractable Ulcers

Sir:

We read with great interest the article by Kiyokawa et al. entitled "New Continuous Negative-Pressure and Irrigation Treatment for Infected Wounds and Intractable Ulcers."[1] We found this idea to be very innovative and used it in a couple of our patients with sternal wound infection.

We would like to suggest one minor modification. The first problem that we encountered was that sometimes the fluid for irrigation was elevated accidentally above the required level. This resulted in pooling of the irrigation fluid inside the wound and leakage of the vacuum-assisted closure dressing, as the vacuum-assisted closure system cannot drain it in time. The second problem was that if one used the vacuum-assisted closure vacuum pump (Kinetic Concepts, Inc., San Antonio, Texas), with the increased irrigation fluid, there is increased drainage through the vacuum-assisted closure system, resulting in an increased demand for the canister used in the pump, leading to increased costs, as the canister had to be replaced more often. We solved both problems by adding an underwater chest drain to the wound. This assisted with drainage and also decreased the demand on the need to change the vacuum-assisted closure canister.

Again, we congratulate the authors on such an interesting idea.

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Reply

Sir:

I am extremely pleased that Chien et al. recognized the new continuous negative-pressure and irrigation treatment my colleagues and I developed as being innovative, and that they have applied it in several cases. The following are the replies to the two questions put forward by Chien et al.

The first reply concerns the problem of irrigation fluid pooling inside the wound. As mentioned in the report, the bottle of saline solution used for irrigating the wound should not be placed higher than the wound surface. In other words, it is important not to apply positive pressure. The Mera Sucuume (Senko Medical Instrument Manufacturing Co., Ltd.) we used for continuous aspiration provides a maximum aspiration pressure of 50 cmH_2O, so if the bottle of saline solution for irrigation is placed at a height of 50 cm or more above the height of the wound surface, the inside of the wound will be subjected to positive pressure, resulting in pooling and leakage.

The second reply concerns the problem of increased costs resulting from replacement of the vacuum-assisted closure canister. Irrigation fluid that has accumulated in the canister of the Mera Sucuume can be discarded and the canister can be reused, so there are absolutely no additional costs. My colleagues and I intend to continue with the development of a simpler, safer system based on this method.

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Does Continuous Negative-Pressure and Irrigation Treatment Really Rinse the Whole Closed Wound?

Sir:

In October of 2007, Dr. Kiyokawa and colleagues[1] presented an interesting device that combines the concepts of continuous irrigation and a vacuum-assisted closure system to treat infected wounds and intractable ulcers. They placed the irrigation tube and vacuum tube in a closed wound or in a sponge covered with Opsite (Smith & Nephew, London, United Kingdom) film to treat the open wounds.

In our institute, we have used the vacuum-assisted closure system or a topical negative-pressure dressing since 1998, and some clinical studies have been reported.[2–5] We once combined the irrigation and wall-suction systems with the hope of improving the infection status in several patients. However, we found that once the irrigating solution left the irrigation tube, it went directly to the suction drain. The solution only went through a small subcutaneous tunnel, where there was less resistance. We had had one diabetes mellitus patient with extensive back fasciitis and pus accumulation. Necrotizing fasciitis with sepsis status was observed. In 2001, endoscope-assisted debridement was performed to remove the necrotic tissue without creating a huge open wound. Under endoscopy, we removed all the visible yellowish necrotic tissue. Approximately 60 percent of the back was dissected by means of two endoscopically assisted incision wounds. Continuous irrigation and wall-suction systems were used postoperatively for 1 week in an attempt to clean the wound. However, when we rechecked this patient 1 week after the first debridement, only one small "underground stream" was noted. The irrigating solution automatically went through the subcutaneous space by means of the shortest and least resistant tunnel. Once the "circulation" was formed, the surrounding tissue was sealed with fibrin

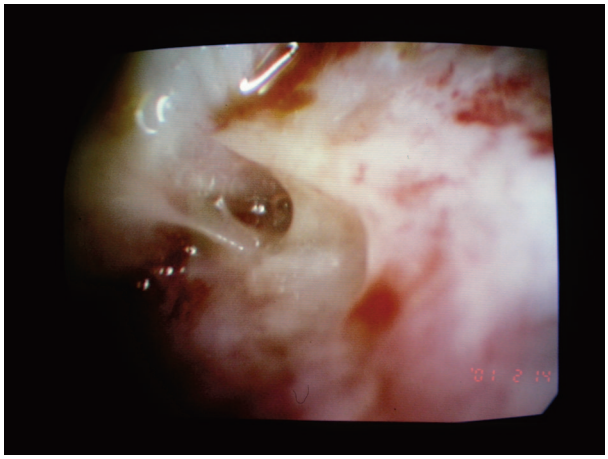

Fig. 1. Newly formed fibrin coating was noted just next to the irrigating tract.

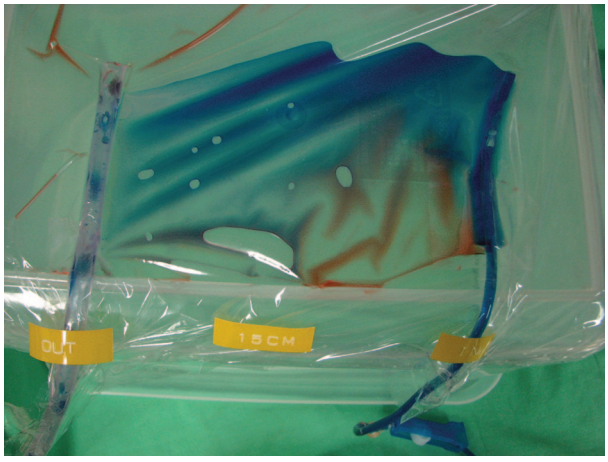

Fig. 2. Some areas showed a persistent red color, demonstrating the area of nonrinsing (irrigating speed, 200 ml/hour; suction pressure, –150 mmHg; distance of these two tubes, 15 cm).

coating (Fig. 1), so additional incisions and repeated debridement were performed to save the patient's life. This patient was discharged uneventfully 3 weeks later.

For better demonstration of our concept, one in vitro study was performed. We placed the irrigating and suction tubes over a hard transparent plate. The distances between the tubes were 5, 10, and 15 cm. One plastic membrane was used to cover these two tubes and the edge was sealed by plastic adhesive tape. This model mimicked the closed wound. The suction pressure was set at –150 mmHg. In the very beginning, red fluid filled the cavity fully. Then, the blue irrigating solution began flowing and demonstrated the rinsing tract (Fig. 2). Some red fluid was not washed away when the irrigation speed was less than 240 ml/hour. This experiment showed that the efficiency of irrigation is related to the irrigation speed and the distance between the irrigating and suction tubes. The higher irrigating speed (>240 ml/hour) and longer distance (>10 cm) between these two tubes may have a better irrigation-rinsing result. Furthermore, in an actual patient, the subcutaneous spaces are easily sealed by the fibrin coating. Delayed or intermittent irrigation by means of this method can only rinse a limited area of subcutaneous space.

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DISCLOSURE

The authors have declared no conflict of interest with the products mentioned in this article.

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Reply

Sir:

With regard to conditions and procedures for continuous negative-pressure and irrigation treatment of a closed wound, the report by my colleagues and me did not contain details of the procedure when using this method for closed wounds. As remarked by Dr. Su-Shin Lee, there are certainly cases where irrigation of an entire closed wound is not possible. When using this method to treat a closed wound, there are procedures that must be performed to meet various conditions, as follows:

1. Complete debridement inside the wound. In other words, for cases in which there is residual necrosis, as in the case of necrotizing fasciitis cited by Lee et al., this method is not suitable.
2. Eliminate dead space inside the wound. This method is not suitable when there is dead space inside the wound, because that part of the wound will almost certainly become infected. It is important to use a flap, as with case 2 in the report, or other means to ensure that no dead space exists before performing the procedure. However, in cases such as case 1 in the report, in which cerebrospinal fluid fills the intradural portion, this is not considered to be dead space.
3. For the first 2 or 3 days, ensure that irrigation of the wound takes precedence over the application of negative pressure. The bottle of saline solution should be placed just slightly higher than the wound to apply light positive pressure to force the solution to flow through the wound.
4. Assess the wound surface adhesion caused by negative pressure. When saline solution flows with difficulty from the tube applying the negative pressure, this indicates that tissues on the wound surface have started to adhere. Thereafter, negative pressure with both tubes should be applied.

When using this method for a closed wound, the above conditions and procedures must be met

and performed. In any case, for closed wounds, this method is used for a short period, and if by any chance infection recurs, the wound must be opened.

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Synthetic Latex Conduits as an Aid for Microsurgical Training

Sir:

We read with interest the article on a novel technique to aid microsurgical training.[1] We would like to compliment the authors on the method they describe.

The cornerstone of microsurgical training involves anastomoses in live models in a laboratory or clinical setting. Stringent ethical issues and increasing expenses in running animal laboratories make access difficult for regular and sustained training.[2] The development of alternative models that allow for realistic and effective practice is of increasing importance. We propose a simple innovation that has negligible cost, is readily accessible, and has been used successfully in our unit to enable the instruction of trainees in anastomotic techniques using the microscope.

To obtain as realistic a "vessel" as possible, we cut the rolled rim/sleeve of nonsterile latex gloves. Transecting these at different levels reveals a hollow conduit of variable diameter and wall thickness (Fig. 1). The pliable nature and thin wall of the latex in such gloves allows for the accurate simulation of authentic vessels with the realistic passage of suture material ranging from 8-0 to 11-0 nylon (Fig. 2). After completion of the anastomosis, the ends can be opened perpendicular to the suture line and the sutures inspected individually for accuracy of placement.

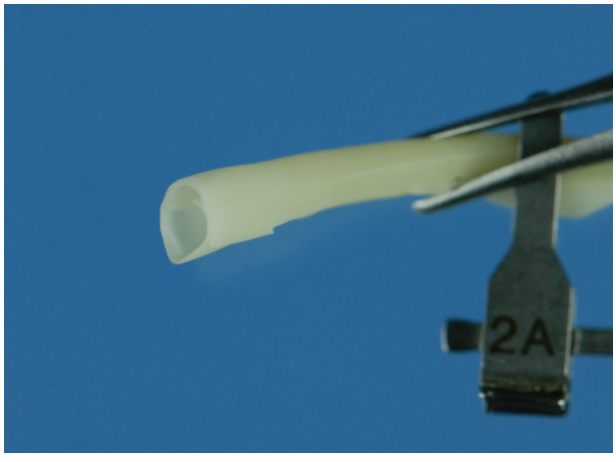

Fig. 1. Hollow conduit of variable diameter and wall thickness.

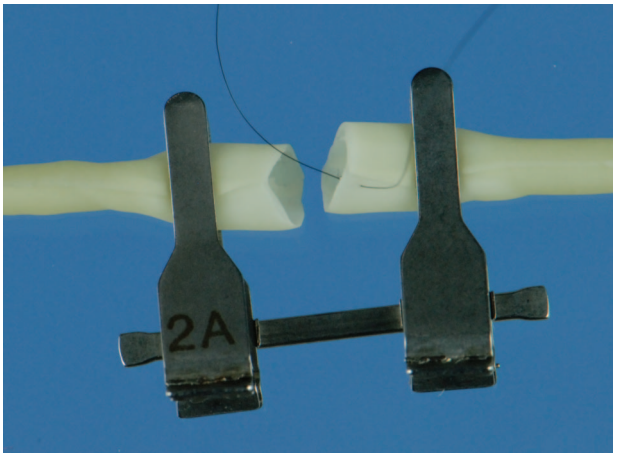

Fig. 2. Accurate simulation of authentic vessels with realistic passage of sutures ranging from 8-0 to 11-0 nylon.

The use of latex glove material in microsurgical training has previously been described.[3] The technique that we propose has the advantage of increased authenticity and accessibility in that an intact "tube" is readily available without the need for further fabrication as described in the article by Kamath and Kamath.[1]

Gloves with rolled sleeve ends are used in most hospitals, do not require any further special preparation, and are of low cost. We hope that our idea proves useful to both trainees and trainers in practicing or teaching anastomotic technique on a regular basis.

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Intravenous Regional Anesthesia Administered by the Operating Plastic Surgeon: Is It Safe and Efficient? Experience of a Medical Center

Sir:

I read with great interest the communication entitled "Intravenous Regional Anesthesia Administered by the Operating Plastic Surgeon: Is It Safe and Efficient? Experience of a Medical Center."[1] Because the authors did not mention it, I thought it would be worthwhile to remind readers and colleagues that the currently familiar technique of intravenous regional anesthesia popularized by Holmes in 1963 is different from the original method introduced by August Bier in 1908.[2–4] However, important lessons were learned from Bier's technique, which evolved into currently used safe intravenous regional anesthesia.

Bier used Esmarch bandages to exsanguinate the limb and to form two tourniquets: one above and one below the elbow or knee. He used this technique of local anesthesia to facilitate palliative surgery on the elbow or knee using procaine, the first safe injectable local anesthetic (synthesized by Einhorn in 1904). He used to anesthetize the segment of the limb between the tourniquets. His principle was to infiltrate directly the core of the major nerves in the region of the elbow or knee through the vasa nervorum. Bier did not have technical resources to cannulate a peripheral vein; therefore, he used a technique of venous cutdown to administer local anesthetic by means of a large vein (antebrachial vein in the elbow) so it would reach the vasa nervorum. Before performing a cutdown, he infiltrated the area with local anesthetic. One of his interesting observations was that the vessels contracted when he used cold local anesthetic solution. The other observation was that although rapid anesthesia developed in the area between the tourniquets where tissues were in direct contact with local anesthetic, the extremity below the distal tourniquet also became anesthetic after several minutes' delay, with the reason being that the nerve trunks were blocked by the local anesthetic to which they were exposed in the intertourniquet zone. He referred to the zone of anesthesia between the tourniquets as direct anesthesia and that occurring more distally as indirect anesthesia. He realized that surgery could be performed in the extremity under this indirect anesthesia. Bier emphasized that the distal tourniquet was important because it facilitated the flushing of the unfixed procaine from the treated segment of the limb before it was restored to the circulation. His safety precautions were, first, using large volumes of warm saline to flush out the intertourniquet area; and second, releasing the proximal tourniquet briefly to allow the ingress of arterial blood to flush out the veins. He made the interesting point that the method offered an opportunity for the surgeon to identify bleeding points before final closure of the wound. One of the hazards of his technique was that the local anesthetic was given in close proximity of the proximal cuff and any increase in blood pressure would deflate the cuff and increase the leakage into the circulation.

Hannington-Kief, who uses "intercuff block" (a modern version and the one closest to the original Bier block), thinks that the distal cuff ensured a drier operating field in the zone of indirect anesthesia by interrupting the intramedullary seepage of blood through the bone.[4,5] Moreover, there was no swelling at the operation site or venous ooze of the local anesthetic solution into the wound.[4]

In conclusion, the original Bier block technique has changed. It is different from the current method of intravenous regional anesthesia popularized by Holmes, which is similar to intravenous regional anesthesia used by Bou-Merhi et al. in their communication.[1–4] Furthermore, the introduction of lignocaine allowed intravenous regional anesthesia techniques to become safer.

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Reply

Sir:

We thank Dr. Ewa Majdak-Paredes for her great discussion and comments and her valuable contribution to our article, "Intravenous Regional Anesthesia Administered by the Operating Plastic Surgeon: Is It Safe and Efficient? Experience of a Medical Center."[1] We appreciate her clarifications and her detailed description of the original method of the Bier block,[2] because it was not clearly mentioned in our article. We believe that it is always important to be aware of the origin and the evolution over time of the currently used anesthetic techniques.

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The Nondisclosure Disclosure

Sir:

Commendably, this *Journal* has a financial disclosure policy. Every author and coauthor must include a signed "conflict of interest disclosure statement" when submitting any manuscript. Occasionally, authors go above and beyond the call of duty in revealing any potential conflicts of interest. For example, despite the fact that the panel discussion on the future of academic plastic surgery in November of 2007 mentioned no products, devices, or drugs, the panelists stated that "[n]one of the authors has a financial interest in any of the products, devices, or drugs mentioned in this article."[1]

One of the panelists went a step further. Despite the panel being unrelated to consulting to for-profit corporations, he "declare[d] that he [was] a paid consultant to Ethicon, Inamed, and LifeCell."[1]

I applaud this level of disclosure. Unfortunately, it is not uniform. An article in the same issue contained what I call a "nondisclosure disclosure." Reporting on the Brava system, Schlenz and Kaider stated that "[t]he authors disclose any financial and personal relationships with other people or organizations that could inappropriately influence their work."[2]

I searched the entire article and was unable to find disclosure of "any financial and personal relationships with other people or organizations that could inappropriately influence their work." I found no disclosure of any financial or personal relationship with any person or organization whatsoever.

Curiously, a 2000 article on the same subject coauthored by Schlenz stated that "Ingrid Schlenz, M.D., . . . received partial salary support from Biomecanica, Inc., during the study period."[3] Perhaps the authors made their financial disclosure to the editor but it was omitted by a clerical error in the editorial process. The authors concluded that "[t]he Brava system is a good solution for a woman looking for a one-cup enlargement."[2]

In light of the fact that Schlenz previously disclosed a prior financial relationship with Biomecanica, the company that owned the Brava patents, I believe that the readers are entitled to a less ambiguous financial disclosure. Moreover, the editorial process should be strengthened to include uniform standards of financial disclosure so that the *Journal's* integrity is maintained and we readers are not left guessing, "Does she or doesn't she? Only her accountant knows for sure."

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Reply

We are delighted to see Dr. Freshwater reading the *Journal* so carefully! His research on the history of disclosure of Dr. Schlenz is impressive, and raises a good point regarding the challenging nature of ensuring uniformity in financial disclosures in biomedical publication.

In 2000, there was a less keen interest in financial disclosure policies than there is currently. Although *Plastic and Reconstructive Surgery* did have a policy in place at that time, the policy was not nearly so emphasized, uniform, or enforced as it is today.

Dr. Freshwater states that "perhaps the authors made their financial disclosure to the editor but it was omitted by a clerical error in the editorial process." This speculation is not accurate. *Plastic and Reconstructive Surgery* requires multiple, redundant financial disclosure statements, made as part of the article text in addition to a separate financial disclosure statement form. A manuscript does not leave the editorial office for the publisher unless we have both the form and the statement on the manuscript itself.

In another statement, Dr. Freshwater says "the editorial process should be strengthened to include uni-

form standards of financial disclosure so that the *Journal's* integrity is maintained and we readers are not left guessing, 'Does she or doesn't she? Only her accountant knows for sure.'"

What Dr. Freshwater is encouraging is what many well-intentioned but ill-informed journalists and other officials have stated recently in the media: that journal editors and reviewer panel members in effect become investigators, not only of scientific data but also of financial involvement with companies. As discussed previously, this is simply not a possibility, nor is it the appropriate role of the peer review or editorial process.[1,2] Journal editorial offices unfortunately do not have the resources to research an author's changing financial disclosure statements over time.

We concur with Dr. Freshwater's desire to provide uniform standards of financial disclosure. To that end, we have multiple layers of disclosure and transparency, for articles in the regular *Journal* and especially for supplement articles. *Plastic and Reconstructive Surgery* leads the way in its efforts to promote transparency and financial disclosure. However, more could be done. We would certainly welcome Dr. Freshwater to assist us in this effort and to help devise a workable mechanism to ensure more comprehensive financial disclosure from article authors.

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Informed Consent and Its Central Role in Plastic and Cosmetic Surgery

Sir:

Crockett et al. wrote an article,[1] we should say both surgical and sociological, about the influence of plastic surgery "reality television" on cosmetic surgery patients' expectations and decision making. The authors underline the fact that with these programs "come a host of potential concerns, ranging from the misrepresentation of surgical risks to increased unhealthy competition among surgeons to produce the best outcome," and the level of deception can seriously preclude even the informed consent.

We find all of the authors' remarks very interesting. We would furthermore emphasize the tremendous importance of the informed consent in plastic and cosmetic surgery procedures.

In Italy, the surgeon's obligation toward patients, especially in cosmetic surgery, is of *means*; in fact, the surgeon is not responsible for the missed achievement of the result expected by the patient and is not obliged to ensure the result, in the absence of negligence or inexperience, as it is understood that the surgeon must *realistically represent* the chance to obtain the pursued result to the patient.[2]

It is the explanation of the subject of the procedure,[3] at the moment of the consultation (it must be done also with a written report/model), that firms up both the information about the surgical procedure and the surgeon's limit of responsibilities.

The cosmetic surgery peculiarity is related mainly to the purpose of the procedure, not merely necessary to the health status but aimed at an aesthetic improvement. Although the definition of health by the World Health Organization embraces psychological satisfaction deriving from the acceptance of personal appearance, an almost unanimous chorus was raised[4] affirming that informed consent should be, in the case of cosmetic procedures, more scrupulous, or at least "different."[5]

Fortunately, since 1995, jurisprudence objected against this differentiation that does not find deontologic reasons to be sustained: in fact, does a patient who needs an open heart procedure have fewer rights to be carefully informed compared with the patient who asks for a breast augmentation?[6]

We believe that to avoid patient and surgeon misunderstandings and also medicolegal issues, a correct and complete informed consent should be delivered. This should be submitted well in advance of the operation to let the patient know correctly what he or she should expect by the procedure and what the possible risks and complications are. The above and the reasoned consideration of the informed consent to the surgical procedure are the two matters that define the surgeon's work and the responsibility to the patient.

If it is true that plastic surgery reality television plays a role in patient perceptions and decision making, only diligent information giving can avoid "unhealthy, unrealistic expectations" as, for example, in the simplest case, that a surgical procedure always leaves a scar.

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More Canadian Brain Drainage

Sir:

The article entitled "The Canadian Plastic Surgery Workforce Survey: Interpretation and Implications" (*Plast. Reconstr. Surg.* 119: 2299, 2007) showed a perceived shortage of Canadian plastic surgeons because 8 percent of respondents were within 5 years of retirement, 3.2 percent were planning to emigrate by 2010, and 21 percent of residents who graduated over the past 10 years now practice outside of the country.[1] Based on these findings, an estimated 14 percent attrition rate will lead to a projected significant shortage of Canadian plastic surgeons in the next 5 years.

The article did not mention several factors that will likely further increase the flow of Canadian-trained plastic surgeons to the United States. First, the recent agreement with the American Board of Plastic Surgery now makes all Canadian-trained plastic surgical residents eligible for American Board of Plastic Surgery certification.[2] Second, over 40 percent of surveyed Canadian plastic surgeons have completed fellowship training (33 percent in hand/wrist/upper extremity surgery and 24 percent in cosmetic surgery).[1] There is a preference to complete these fellowships in the United States because (1) Canadian hand fellowships are not accredited by the Accreditation Council for Graduate Medical Education and, thus, a Certificate of Added Qualifications in Hand Surgery is not possible[3]; and (2) there are limited aesthetic fellowship opportunities in Canada.[4] Third, the high quality of Canadian plastic surgical training, which emphasizes early operative independence and requires oral and written board examinations that must be passed during the chief resident year, likely enables graduates to match to excellent American fellowships. Having completed a U.S. fellowship, all these factors contribute to the increased likelihood that Canadian-trained and now American Board of Plastic Surgery–eligible plastic surgical residents will be invited to practice south of the 49th Parallel after completion of their fellowship training.

"The Canadian Plastic Surgery Workforce Survey" suggested several incentives to keep graduates in Canada and to practice in underserviced rural areas (e.g., retention bonuses, support for practice overhead, retirement plans, and spousal support).[1] Nonetheless, research has shown that these incentives are not wholly effective in retaining Canadian physicians to practice in rural areas.[5] In addition to the aforementioned strategies, the Canadian health care system might offer more aesthetic fellowships and make necessary moves so that Canadian hand fellowships are recognized by the Accreditation Council for Graduate Medical Education, which would allow their graduates to obtain a Certificate of Added Qualifications in Hand Surgery.

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Reply

Sir:

Dr. Wong makes several good points in her letter. It is true that over the past 40 years, more Canadian plastic surgeons have moved to the United States than vice versa. However, in recent years, there has been a definite increase in the number of U.S.-trained plastic surgeons who have moved to Canada. This Canadian/American brain exchange has been facilitated by the increase in equalization of revenue in both countries and by recent mutual recognition of training between the American Board of Surgery and the Royal College of Physicians and Surgeons of Canada.

I agree with Dr. Wong that more Canadian fellowships would be a good thing. I also agree that American recognition of excellent hand fellowship training in Canada would benefit both countries. It is also true that residents trained in Canada have a high volume of clinical experience, and that having to sit for their Royal College of Physicians and Surgeons of Canada examinations in their last year of training has provided value-added clinical knowledge to the practical experience. This combination has indeed made them attractive to competitive American fellowships. As a result, many Canadians have benefited from excellent American fellowships. In return, American surgeons have benefited from outstanding Canadian fellowships. In addition, McGill University has trained a large number of American residents over the years. Plastic surgery trainees of both countries have benefited greatly from exposure to cross-border fellowship and residency training.

Plastic surgeons of both countries have benefited tremendously from a rich exchange of ideas, training, and practice since plastic surgery became a specialty less than 100 years ago. Dr. Fulton Risdon of Toronto was one of the founding members of the American Association of Plastic Surgeons in 1921.[1] Excellent plastic surgery teachers continue to cross the border as visiting professors and speakers at meetings on a regular basis.

I prefer the term "Canadian/American brain exchange," as it describes in a truer fashion what is actually happening. Some of the most important learning in my practice comes from exposure to the knowledge of others. I say, "Bring it on." It is good for both countries and it is good for plastic surgery.

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Erratum

In the article entitled The Intercartilaginous Graft for Actual and Potential Alar Retraction, by Gruber et al. (*Plast. Reconstr. Surg.* 121: 288e, 2008), reference 5 should read: Guyuron, B., Ghavami, A., and Wishnek, S. Components of the short nostril. *Plast. Reconstr. Surg.* 116: 1517, 2005. (The second author of reference 5 was not listed correctly.)