

Pedicled TRAM Flaps--Indications, Techniques, Outcomes

The Pedicled Transverse Rectus Abdominis Myocutaneous Flap: Indications, Techniques, and Outcomes.

Buck DW II, Fine NA:

Plast Reconstr Surg 2009; 124 (October): 1047-1054

In properly selected patients, pedicled transverse rectus abdominis myocutaneous flaps remain a popular method of breast reconstruction associated with low morbidity and high patient satisfaction.

Background: In the early 1980s, the pedicled transverse rectus abdominis myocutaneous (TRAM) flap was described and quickly became the autologous breast reconstruction method of choice. Although advancements in microsurgery have resulted in modifications of this flap and a rising popularity of the free TRAM and deep inferior epigastric perforator (DIEP) flaps, the pedicled TRAM remains a very popular method of reconstruction.

Objective: To describe the indications, techniques, and expected postoperative outcomes for pedicled TRAM flaps.

Design: This paper was based on the authors' extensive experience with pedicled TRAM flaps, as well as a literature review. **Indications:** Pedicled TRAMs can be performed for both immediate and delayed reconstruction. Women who will have postoperative radiation therapy may wish to consider delaying TRAM reconstruction until radiation therapy is complete. Patients considering this procedure should have an adequate excess of abdominal soft tissues, and limited comorbidities. Cigarette smoking and obesity also place patients at increased risk for postoperative complications. In certain high-risk patients, performing a vascular delay 1 to 2 weeks before the flap is raised or "supercharging" the flap to vessels in the axilla may improve the flap's survival rate. A prior abdominoplasty and procedures involving previous upper abdominal incisions may preclude use of the flap.

Methods: It is important to make the superior abdominal flap incision high enough to capture superior epigastric perforators. Although a matter of personal preference, these authors prefer to use ipsilateral pedicles for immediate reconstruction and contralateral pedicles for delayed reconstruction when more of the abdominal skin paddle will be used. When closing the abdomen, the authors use mesh in cases where a tension-free fascial closure cannot be obtained. In patients requiring a large amount of abdominal tissue, they may use a bipedicled flap, and for bilateral reconstructions, bilateral pedicled TRAMs may be used.

Results: The procedure is associated with a low morbidity rate. The most common flap-related complication is fat necrosis, with a reported incidence of 10% to 18%. Donor site complications include hernia and bulge formation. The rate of true hernia formation is approximately 1% to 3%.

Conclusions: The authors conclude that the pedicled TRAM flap remains an excellent, time-tested option for autologous tissue reconstruction in many patients, particularly nonobese, nonsmoking patients with sufficient abdominal tissue. The flap is usually associated with excellent patient satisfaction and limited morbidity.

Reviewer's Comments: This paper provides an excellent review of the pedicled TRAM flap, a technique still considered by many breast reconstruction surgeons to be the gold standard for autologous tissue reconstruction. I certainly agree with the authors that the technique has a long history of providing excellent aesthetic results with minimal morbidity and very high patient satisfaction. (Reviewer-Jeffrey A. Ascherman, MD).

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Keywords: Autologous Tissue, TRAM Flap

Print Tag: Refer to original journal article

Surgeon Reports on Use of Acellular Dermal Matrix

Expander/Implant Reconstruction With Alloderm: Recent Experience.

Namnoum JD:

Plast Reconstr Surg 2009; 124 (August): 387-394

Excellent results can be obtained in prosthetic breast reconstruction with the use of acellular dermal matrix.

Background: Results after prosthetic breast reconstruction can lack superiority to autologous tissue reconstruction due to poor soft tissue coverage around the implant devices. The literature is replete with various techniques for improvement, such as marionette sutures, pectoralis muscle rotation flaps, and suturing of the pectoralis to the lower breast flap. More recently, the use of alloderm in this setting has been described.

Objective: To describe the technique and demonstrate enhanced results of prosthetic breast reconstruction with the use of acellular dermal matrix.

Design: Retrospective review.

Methods: This is a single surgeon's case series of 20 consecutive patients wherein acellular dermal matrix was used in all patients that were selected for tissue expander breast reconstruction.

Results: Immediate tissue expander breast reconstruction with acellular dermal matrix placement from the inferior border of the pectoralis major muscle to the inframammary fold (IMF) providing total expander coverage was performed in 29 breasts, with an average follow-up period of 21 months. Infection requiring removal of the implant, marginal necrosis requiring minor operative revision, and seroma formation preventing incorporation of alloderm occurred in 1 patient each (total complication rate, 10%). Patients underwent an average of 6.25 expansions, and the second stage was completed in an average of 5.4 months. There were no complications after second-stage reconstruction.

Conclusions: The author concluded that use of acellular dermal matrix-assisted prosthetic breast reconstruction consistently improves the quality of results with precise control of implant pocket while minimizing device rippling and knuckling.

Reviewer's Comments: This paper describes a single surgeon's experience with a previously described well known technical advancement of the use of acellular dermal matrix to augment the pectoralis major muscle coverage of the expander/implant. I do not think there is anything particularly novel about the approach described here, but it does summarize what I would consider to be the "state of the art" as to the proper role and use of cadaveric dermal matrix products. As the porcine-derived products become more widely used, for the same indication, I would expect to see additional papers in our peer reviewed journals discussing the relative advantages/disadvantages of those products in breast reconstruction as we move forward. (Reviewer-Robert T. Grant, MD).

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Keywords: Breast Reconstruction, Acellular Dermal Allograft

Print Tag: Refer to original journal article



Breast Cancer in Bariatric Patients--Worthy of Further Study

Breast Cancer and Bariatric Surgery: Temporal Relationships of Diagnosis, Treatment, and Reconstruction.

Gusenoff JA, Koltz PF, et al:

Plast Reconstr Surg 2009; 124 (October): 1025-1032

Complications related to breast reconstruction are affected by timing of weight loss from bariatric surgery.

Background: Bariatric surgery for morbid obesity is becoming more and more common. Inevitably, some women will develop breast cancer before or after bariatric surgery. The impact of massive weight loss on risk of breast cancer or postmastectomy reconstructive options is not known.

Objective: To assess the demographics and outcomes of bariatric patients with breast cancer.

Design: Retrospective study.

Methods: Patients who had bariatric procedures performed at the University of Rochester from 1992 to 2007 and breast cancer patients from 1988 to 2007 were evaluated. Age, body mass index (BMI), bariatric procedure, cancer treatment, reconstructive surgery, comorbidities, and complications were assessed.

Results: Of the 112,085 women with breast cancer diagnoses and the 2878 women who underwent bariatric procedures, 36 women had breast cancer diagnosed before bariatric surgery, and 13 women had it diagnosed after. The age and pre-weight loss BMI were similar for the groups diagnosed before and after bariatric surgery. None of the women had radiation for cancer treatment. Only 1 woman had breast reconstruction before bariatric surgery, with a latissimus flap and implant. Three women underwent breast reconstruction for cancer diagnosed after bariatric surgery, all 3 with free flaps. The patient in the first group developed a double bubble deformity, and 1 patient in the second group required 2 revisions because of weight loss. A second patient developed an abdominal bulge after bilateral free TRAM flaps.

Conclusions: The timing of weight loss after bariatric surgery, as it relates to breast cancer reconstruction, may increase complications including the need for revisional surgeries. Delayed reconstruction after stabilization of weight is an option in bariatric patients.

Reviewer's Comments: This paper brings up an interesting area to study given the increasing numbers of bariatric patients, and the likelihood that some of them will develop breast cancer. Any operation for breast reconstruction in morbidly obese patients is more prone to complications, regardless of the method chosen. This study looks at only 1 hospital, and only 4 of 49 patients underwent postmastectomy breast reconstruction. That number is lower than average national reconstruction rates. The numbers are too small to draw any specific significant conclusions about breast reconstruction in bariatric patients. However, it is not surprising that these patients required revisions after their reconstructions. This study does argue for a larger scale, multicenter study to obtain higher numbers of patients in order to determine outcomes and best practices for massive weight loss patients with breast cancer. In my own practice, I have reconstructed 3 women in the past year who had recently undergone bariatric surgery, and each case presented its own unique challenges. Because plastic surgeons will probably see this more frequently, breast cancer in bariatric patients is a subject worthy of further study. (Reviewer-Christine Rohde, MD).

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Keywords: Bariatric Surgery, Massive Weight Loss, Breast Cancer

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Proper Technique Permits Nasal Reconstruction in Childhood

Preliminary Review of Pediatric Nasal Reconstruction With Detailed Report of One Case.

Burget GC:

Plast Reconstr Surg 2009; 124 (September): 907-917

At flap division, discard the pedicle, in preference to inseting it, for a better look.

Background: The child with a significant nasal deformity presents a dilemma for plastic surgeons. Is it better to delay reconstruction until growth is complete and relegate the patient to a childhood with deformity, or should one proceed with surgery with the potential for growth to compromise the long-term result?

Objective: To define and explain the key principles of nasal reconstruction that enables the plastic surgeon to reconstruct a functional, attractive child's nose that will grow with the patient to maturity.

Design: The paper is a topic review of pediatric nasal reconstruction. The detailed report of a single case of subtotal nasal reconstruction is used to illustrate and describe the essential principles and technical details.

Methods: The paper relates the nasal reconstruction of a 9-year old girl who had suffered loss of the lower one-half of the nose as the result of a congenital hemangioma. The author used a forehead flap accurately fitted to an optimal cartilage graft skeletal reconstruction in a 3-stage operative progression. Stage 1: Mobilization of nasal lining, creation of a costal cartilage framework for the lower nose, and transfer of a right paramedian forehead flap for cover. Stage 2: Partial elevation and thinning of the proximal flap with further sculpting of the flap bed for improved contour. Stage 3: Pedicle division and donor site revision.

Results: While not a study proper, the paper offers photographs of the excellent aesthetic and functional result achieved with the surgery. In addition, it illustrates (both photographically and diagrammatically) the crucial details of technique. Perhaps most important, the author summarizes the key principles that are the underpinnings of such an impressive effort.

Conclusions: The author offers the following important thoughts. Reconstruction may begin as early as age 3.5 years to enable completion by age 5 years. The reconstructed nose will grow with the patient except for tip projection. The scar at the forehead flap margin is best placed in the supratip region or the nasal radix rather than mid-dorsum. Defect/flap borders are best made with sharp 90 degree corners rather than curving arcs to minimize trap-door contraction. At flap division, the pedicle stalk is discarded not re-inset. And most important, cartilage graft skeletal reconstruction must provide adequate nasal form and airway that is then covered with a forehead flap of proper shape and dimension to tightly envelope the framework.

Reviewer's Comments: Although offered as the herald for the author's upcoming text on pediatric nasal reconstruction, this paper is an excellent summary of nasal reconstruction for patients of all ages. I recommend it without qualification. I read it 3 times and retained additional details with each reading. I will re-read it prior to my next reconstructive effort. (Reviewer-Norman V. Godfrey, MD).

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Keywords: Pediatric Nasal Reconstruction, Forehead Flap

Print Tag: Refer to original journal article

Shaw Scalpel Is Effective Tool for Decortication of Rhinophyma

Sculpting Resection of Rhinophyma Using the Shaw Scalpel.

Vural E, Royer MC, Kokoska MS:

Arch Facial Plast Surg 2009; 11 (July-August): 263-266

A temperature setting of 200 degrees C provides easier resection than lower settings.

Background: Rhinophyma is a disfiguring disease of nasal skin for which there is no medical treatment. Surgical partial-thickness decortication and full-thickness resection are the remaining options. Numerous techniques for decortication are described, but a single best choice remains unspecified. The Shaw Scalpel is a simple surgical instrument that employs an inexpensive electrical device to heat a blade to permit cutting with hemostasis.

Objective: The authors review the results they obtained with rhinophyma decortication performed with the Shaw Scalpel. They discuss the relative merits of this technique in contrast to others.

Design/Participants: The paper describes a retrospective review of a consecutive series of rhinophyma patients decorticated using the Shaw (heated) scalpel. No adjunctive treatment modalities were used.

Methods: 7 consecutive patients with rhinophyma judged to cause impairment of nasal aesthetics and quality of life were treated operatively. All underwent partial-thickness surgical decortication using the Shaw Scalpel. Scalpel temperatures varied from 160 degrees C to 200 degrees. No other knives, cauteries, dermabraders, lasers, or devices of any kind were used. Operative wounds were topically dressed and allowed to heal by secondary intention. Comparing pre- and postoperative photographs, the senior author rated the outcomes subjectively as excellent, good, fair, or poor. Pathologic specimens were examined to confirm diagnosis and rule out malignancy.

Results: 5 of the 7 patients achieved aesthetic results that were judged "excellent" at 6 to 8 weeks following surgery. The remaining 2 patients were judged "good." None of the procedures was complicated by significant blood loss or difficulty with visualization due to bleeding. Initial temperature setting of 160 degrees C was increased to 200 degrees C when that was found to yield superior tissue coagulation and ease of resection.

Conclusions: The authors concluded that decortication with the Shaw Scalpel alone was effective for surgical treatment of disfiguring rhinophyma. They noted numerous advantages of the Shaw Scalpel system in this setting. Hemostasis is excellent. The handpiece is light and flexible permitting accurate and fatigue-free sculpting of the nasal contours. The blade is superior to cautery tips for surface planning, while the heat offers equivalent hemostasis. The Shaw scalpel preserves the resected tissue permitting histologic examination, whereas dermabrasion and laser ablation destroy resected tissues. The Shaw scalpel carries little threat of transmission of blood-borne disease compared to the aerosolization associated with dermabrasion and the smoke plume of laser. The Shaw scalpel is faster than layered ablation by laser or dermabrasion. Finally, the Shaw system is inexpensive compared to many other devices.

Reviewer's Comments: This paper suggests yet another option for surgical planning of rhinophyma. While not a clearcut winner on all counts, the Shaw scalpel appears to be an appealing option that offers good results. (Reviewer-Norman V. Godfrey, MD).

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Keywords: Rhinophyma, Decortication, Surgical Planing

Print Tag: Refer to original journal article

Butterfly Graft vs Spreader Graft--Different, But No Clear Winner

Correction of Internal Nasal Valve Stenosis: A Single Surgeon Comparison of Butterfly Versus Traditional Spreader Grafts.

Stacey DH, Cook TA, Marcus BC:

Ann Plast Surg 2009; 63 (September): 280-284

Spreader grafts offer straightening and septal stability that is superior to butterfly grafts.

Background: Internal valve narrowing is a frequent cause of nasal obstruction. The optimal method for surgical reconstruction of this important structure remains unspecified.

Objective: To compare the results of internal valve reconstruction achieved with 2 widely accepted surgical techniques and discuss the relative merits of those methods.

Design/Participants: A retrospective review was performed of a consecutive case series of 78 patients operated on by the senior author for the indication of internal valve collapse. Results were judged on the basis of a questionnaire mailed to the patients postoperatively. The questionnaire included questions regarding airway symptoms, nasal aesthetics, and graft donor site issues. Student *t*-test statistical analysis of the findings is offered.

Methods: Patients were deemed to have internal valve collapse on the basis of a positive Cottle maneuver or a lateral nasal wall judged as "weak." Of the 78 patients deemed to have the problem, 48 were chosen for butterfly grafts on the basis of internal valve collapse judged to be very significant, while 30 were chosen for spreader grafts because of thin nasal skin, twisted nasal deformity, or when tip refinement was an important consideration.

Results: Unfortunately, only 24 of the 48 (50%) butterfly graft patients and 10 of the 30 (33%) spreader graft patients responded to the questionnaire. Both breathing and snoring were significantly improved in both groups, with no statistical difference between the two. There was a high percentage of satisfaction in both groups and no significant donor site problems.

Conclusions: The authors' stated hypothesis at the outset was that butterfly grafts offer anatomic reconstruction superior to that of spreader grafts. The results did nothing to alter their view. The authors also suggest that butterfly grafts offer a secure and effective reconstruction for mild to moderate saddle deformities affecting the middle nasal vault. In contrast, they observed that spreader grafts offer enhanced straightening and stability to a twisted nose and less risk of increasing width.

Reviewer's Comments: This study reviewed the results from 2 different methods of internal valve reconstruction. Unfortunately, it did little to clarify a solidly superior choice. The diagnosis and assessment of the severity of the collapse was largely subjective and nonquantitative. The patients were not randomized to a specific treatment option. Finally, the overall questionnaire response rate was <50%, leaving us to guess about the results for the majority of the treated patients. The paper does offer an informative review and discussion of the topic. In addition, important technical details of the senior author's surgical technique for butterfly grafts are presented with specifics of graft dimension and suture methods that will assist nasal surgeons unfamiliar with butterfly grafting. (Reviewer-Norman V. Godfrey, MD).

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Keywords: Butterfly Graft, Spreader Graft, Internal Nasal Valve, Rhinoplasty

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New Browlift Procedure Uses Endotine Ribbon Device

An Original Application of the Endotine Ribbon Device for Brow Lift.

Pascali M, Gualdi A, et al:

Plast Reconstr Surg 2009; 124 (November): 1652-1661

The Endotine Ribbon device can be adapted to perform an effective browlift.

Background: The authors describe a new technique for browlifting that incorporates many techniques. The unique aspect of this browlift is the use of the Endotine ribbon.

Objective: To evaluate the combined use of the Endotine Forehead device for medial browlifting with the use of the Endotine Ribbon device for lateral lifting.

Participants/Methods: 30 patients underwent browlifting using this hybrid technique; 16 of those patients underwent simultaneous blepharoplasty. Using photographs, the brow position was measured at the medial and lateral canthi as well as the mid-pupil. In addition, the patients and the surgeon supplied subjective evaluations of the results. Two medial scalp incisions were made and 2 lateral incisions were made. Upper blepharoplasty incisions were also made. The forehead and brows were elevated through these 6 incisions. Two different planes were used. The medial dissection was subperiosteal and the lateral dissection was to the deep temporal fascia. Orbicularis myotomies were performed and the corrugator and procerus were resected. The Endotine 3-mm device was used to lift the medial brow. The Endotine Ribbon device was cut in half and angled 45 degrees and attached to the deep temporal fascia with polydioxanone. The lateral brow was mechanically lifted and seated on the Endotine.

Results: The patients were evaluated at an average of 18 months. The lateral brow achieved an elevation of 8.2 mm on average. The midpupil was elevated 5.0 mm and the medial brow was elevated 3.8 mm. The only complications were transient frontal paresthesias, palpability of the implants in 4 patients, and persistent pain in 5 patients. Approximately 83% of surgeons and patients felt the results were excellent and 17% felt the results were good.

Conclusions: The authors believe these 2 Endotine techniques provided an excellent method for browlifting.

Reviewer's Comments: Here is my take on this. I have tried every browlift technique since the old bicoronal technique. This is a fairly complex technique that uses almost every trick of the last 2 decades. Four hair scalp incisions are combined with a transblepharoplasty approach. The brow is lifted and fixed with 2 different types of Endotine devices. The results reported were excellent. My personal experience with transblepharoplasty Endotine devices is not good. In my hands, these devices failed early and often. Reoperating on these patients revealed mobile tissue over the Endotines even months after the operation. I have combined the Endotine techniques with skills learned in the endoscopic lifts and have seen reliably good results from an aggressive transblepharoplasty technique using good old fashioned sutures between the brow and the periosteum. (Reviewer-Arthur W. Perry, MD).

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Keywords: Endotine Forehead Device, Endotine Ribbon Device

Print Tag: Refer to original journal article

Midline Hernia Repair--Acellular Cadaveric Dermis vs Soft Polypropylene Mesh

Soft Polypropylene Mesh, But Not Cadaveric Dermis, Significantly Improves Outcomes in Midline Hernia Repairs Using the Components Separation Technique.

Ko JH, Salvay DM, et al:

Plast Reconstr Surg 2009; 124 (September): 836-847

Soft polypropylene mesh provides acceptably low recurrence and complication rates.

Background: Midline hernia repair with the components separation technique can provide good results but is still associated with hernia recurrence. Recently, the use of synthetic and bioprosthetic materials have been used to reinforce these repairs.

Objective: This study serves to compare and examine outcomes between acellular cadaveric dermis and soft polypropylene mesh.

Design: Retrospective chart review.

Methods: Over a 3-year period, 54 patients had a components separation for hernia repair with acellular dermis (n=26) or soft polypropylene mesh (n=28) as an intraperitoneal underlay for midline reinforcement. In 36 cases, the mesh or dermis was placed at initial components separation, and in 18 cases, it was placed at recurrence after components separation.

Results: Hernia recurrence rates were 46% and 11% for the acellular dermis and mesh groups, respectively. The rate increased to 61% for the acellular dermis group after cases associated with contamination were removed from the analysis. These differences were statistically significant.

Conclusions: Hernia recurrence rates are significantly lower when a soft polypropylene mesh is added to reinforce the midline repair in a components separation procedure.

Reviewer's Comments: Midline incisional hernias can present a complex problem. The components separation originally described by Oscar Ramirez in 1990 does not entail the use of any foreign material in the hernia repair. With the advent of acellular cadaveric dermis and a variety of meshes, these materials have been added for further reinforcement of the hernia repair. All of these materials can be used as an onlay, interposition, or (as described in this article) an underlay. This study points out something that is becoming very common in our literature: acellular cadaveric dermis is not a perfect product. It can stretch and can be associated with recurrent hernias as well as abdominal wall bulges. However, it can be very useful in the contaminated cases mentioned in this study as mesh is not a viable alternative. (Reviewer-Robert T. Grant, MD).

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Keywords: Ventral Hernia Repair, Mesh, Acellular Cadaveric Dermis

Print Tag: Refer to original journal article



Smoking Cessation Before Skin Flap Surgery--How Long Is Long Enough?

Duration of Smoking Cessation and Its Impact on Skin Flap Survival.

Manchio JV, Litchfiend CR, et al:

Plast Reconstr Surg 2009; 124 (October): 1105-1117

Smoking leads to random skin flap necrosis, even after 8 weeks of smoking cessation.

Background: Plastic surgeons often create skin flaps as part of elective surgery. Smoking is known to have deleterious effects on skin flaps. However, it is not clear what duration of preoperative smoking cessation is ideal.

Objective: To test the effects on skin flap survival of various durations of smoking cessation.

Design: Prospective study of an experimental rat model.

Methods: 50 rats were divided into 5 groups: control with no smoke exposure, 0 days, 2 weeks, 4 weeks, and 8 weeks of smoking cessation after smoke exposure. Experimental rats were exposed to twice-daily smoking sessions using a smoking chamber for 1 month. Dorsal random pattern flaps were created on the rats, as were ventral bilateral axial flaps or unilateral axial flaps with a random component.

Results: Control group rats had significantly less random skin flap necrosis than any experimental group. None of the pure axial flaps had necrosis in any of the groups. Mean amount of random skin flap necrosis in the control group was 16.6%. The 0 days, 2 weeks, 4 weeks, and 8 weeks of smoking cessation groups had mean random skin flap necrosis of 30.3%, 27.6%, 27.1%, and 29.7%, respectively. There was no significant difference in random skin flap necrosis among the different smoking cessation groups. The control group had 11.1% skin flap necrosis in the axial flap with random component flaps. The other groups had 31.1%, 36.0%, 21.7%, and 19.1% skin flap necrosis, respectively. When grouped together, the recent cessation group (0 or 2 weeks) had significantly more skin flap necrosis than did the prolonged cessation group (4 or 8 weeks).

Conclusions: Smoking increases the risk for random skin flap necrosis even 8 weeks after cessation.

However, smoking does not lead to necrosis in pure axial flaps. Skin flap necrosis also occurs in axial flaps with a random component, with no significant decrease until 4 weeks of preoperative smoking cessation.

Reviewer's Comments: This is a well-done experimental study on the effect of smoke exposure in a rat model. It suggests that even 8 weeks of smoking cessation still results in random skin flap necrosis, but that axial flaps are not affected by smoking. In flaps with axial and random components, 4 weeks of cessation had significantly less necrosis but still more than the control group. Although it is not known how comparable the rat model is to humans in terms of smoke exposure or skin flap physiology, this study provides further evidence of the deleterious effects of smoking on skin flaps and gives some indication of the amount of time needed for smoking cessation. This study suggests that the common practice of requiring smoking patients to quit 2 to 4 weeks before elective plastic surgery may not be enough. (Reviewer-Christine H. Rohde, MD).

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Keywords: Skin Flap, Necrosis, Smoking

Print Tag: Refer to original journal article

Undiagnosed Hypercoagulability--Important Cause of Microvascular Free Flap Failure

Microvascular Free Flap Failure Caused by Unrecognized Hypercoagulability.

Davison SP, Kessler CM, Al-Attar A:

Plast Reconstr Surg 2009; 124 (August): 490-495

Careful patient selection and ruling out occult hypercoagulability state are crucial to avoiding microvascular free flap failure.

Background: Over the past decade, despite tremendous improvement in technology and development of anastomotic devices, the microvascular free flap failure rate remains above zero. One of the causes for this is unrecognized coagulopathy of the patient.

Objective: To describe the rare but most problematic scenario of patients with undiagnosed hypercoagulability undergoing free flap surgery and to discuss management options.

Design: Retrospective review.

Methods: The authors describe 4 patients who had flap failures (30% of all flap failures) out of their experience with 325 free flaps.

Results: These 4 patients had major free flap microvascular complications and were postoperatively found to have previously unrecognized hypercoagulable states including mutations of coagulation factors V and II, mutations of the *MTHFR* gene, and the plasminogen activator inhibitor gene. In aggregate, these 4 patients had 5 total free flap losses, 2 partial flap losses, and 1 salvaged thrombus.

Conclusions: Undiagnosed hypercoagulability is an important risk factor and a source of microvascular free flap failure that is independent of patient selection or technical factors. Emphasis was made on thorough history taking, patient counseling, and diagnostic and prophylactic measures.

Reviewer's Comments: This is an excellent clinicopathologic conference article that alludes to the most problematic but, fortunately, rare problem of undiagnosed coagulopathy causing microvascular free flap failure. The authors have described their 4 cases in this category including the various operating room flap salvage algorithms that were followed, along with postoperative diagnostic workup and the importance of hematology consultations. They also describe in detail the "final common pathway to failure" seen intraoperatively early on in these cases. This should alert the surgeon to a potential problem with coagulopathy and the possibility of abandoning microvascular repair at that stage pending a hematological workup. They point out the importance of a thorough and detailed preoperative family medical history and directed diagnostic workup. Also valuable is their step-wise algorithmic presentation of the postoperative management. Articles like these once again remind us of going back to the roots and the importance of history taking, an art that is on the verge of extinction! (Reviewer-Robert T. Grant, MD).

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Keywords: Microvascular Reconstruction, Hypercoagulability

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Objective Guidelines for Aesthetic Brow Position

Changes in Eyebrow Position and Shape With Aging.

Matros E, Garcia JA, Yaremchuk MJ:

Plast Reconstr Surg 2009; 124 (October): 1296-1301

Because of the dynamic nature of the brow and forehead musculature, the brow itself may not descend with age in the same way as other parts of the face.

Background: A general lack of objective data makes it difficult to plan the most appropriate procedure(s) for rejuvenation of the aging brow.

Objective: To compare several standardized brow measurements between old and young patient populations in an effort to produce an objective data set that may assist in preoperative planning of brow rejuvenation surgery.

Design: Prospective cohort study.

Participants: 36 women aged 20 to 30 years, and 34 women aged 50 to 60 years.

Methods: The brow and periorbital regions of each cohort were photographed, and 3 standardized vertical measurements of brow position from a reference horizontal line passing between the medial canthi were taken. Vertical distances of the brow directly over the medial canthus (medial brow), pupil (mid brow), and lateral canthus (lateral brow) were recorded in each cohort and subsequently compared.

Results: The average brow height was greater in the older cohort at all 3 points (statistically significant at the mid brow and lateral brow). In the younger cohort, the brow margin measured 15.7 mm, 19.8 mm, and 21.3 mm (medial to lateral), while the older cohort had a brow margin that measured 19.1 mm, 22.4 mm, and 22.4 mm (medial to lateral).

Conclusions: Paradoxical elevation of the brow with aging may explain the unnatural appearance that commonly results from brow elevation procedures used for brow rejuvenation.

Reviewer's Comments: Although the sample size in this article is much too small to make valid scientific conclusions on the utility of objective measurements of brow position, the authors indirectly validated the importance of understanding the dynamic nature of brow position. The absolute values of the brow measurements presented have no clinical significance. It is misleading for the authors to conclude that the brow "paradoxically elevates" with age since this is simply a matter of frontalis muscle tone compensating for relaxation of the periorbital tissues. The useful piece of information is that the authors observed that the lateral brow segment does not elevate along with the mid and medial brow with age. This not only underscores the fact that the frontalis muscle is the primary reason for elevation of the medial and mid brow (because it only inserts on these 2 segments), but also suggests that isolated elevation of the lateral brow segment may lead to more natural brow rejuvenation. (Reviewer-Robert T. Grant, MD).

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Keywords: Eyebrow Position, Aging, Browlift, Browplasty

Print Tag: Refer to original journal article

Use Excess Upper Abdominal Tissue to Autoenhance Breast Size, Shape, and Volume

Augmentation Mammoplasty by Reverse Abdominoplasty (AMBRA).

Zienowicz R, Karacaoglu E:

Plast Reconstr Surg 2009; 124 (November): 1662-1672

Reverse abdominoplasty helps preserve the peri-umbilical perforators compared with conventional abdominoplasty.

Background: While most abdominal contour patients present with infraumbilical tissue excess, a minority present with a true upper pannus and a more normal lower abdominal contour.

Objective: This article presents a technique for autologous tissue breast augmentation and abdominal rejuvenation.

Design: Retrospective review.

Methods: 37 patients underwent the procedure over a 9-year period. For most patients, upper abdominal subcutaneous tissues were harvested in continuity with the inframammary fold and folded under the glandular tissue. The remaining abdominal pannus was then raised superiorly after removal of excess skin and fat to provide a more aesthetically pleasing abdominal contour. For patients in whom the superiorly based pedicle was not possible, the upper abdominal tissues were harvested with the lower portion of the abdominal wall as their pedicle and were transposed into the breast area. The periumbilical blood supply to the abdominal wall was left undisturbed. Many patients underwent simultaneous panniculectomy or mastopexy.

Results: Patients in the superior pedicle group had few complications and good results. The inferiorly based pedicle allowed for more difficult abdominal wall resuspension, and patients in this group had more comorbidities. This led to an increased complication rate in the latter group.

Conclusions: Augmentation mammoplasty by reverse abdominoplasty allows for autologous tissue breast enhancement coupled with abdominal rejuvenation. This technique avoids many of the potential complications of foreign body placement and can also be a good adjunct to other breast reconstruction techniques.

Reviewer's Comments: While the underlying plastic surgery principles of this technique are well known, this article represents a novel approach to simultaneous rejuvenation of the breasts and abdomen. The authors do a good job of describing their technique. They explain that patients should be stratified according to those who can have a superior versus an inferior pedicle. They also effectively report that the technique can be useful to address significant breast asymmetries, for which nonidentical breast implant placement can yield unfavorable aesthetic results. While patient satisfaction outcomes are not objectively measured, as noted by the authors, it would have been useful to compare subjective results in implant patients who underwent conventional abdominoplasty surgery. Also, the authors do not delineate the acceptable pedicle length that would allow maximal tissue transfer from a large superior pannus to the breast without vascular compromise to the flap. Finally, it would be important to note the number of patients who undergo this procedure and still require mini-abdominoplasty to contour their lower abdomens. What percentage of patients can get away with one inframammary incision for both procedures? What are the drawbacks of the continuous inframammary incision? How much flattening does the inframammary fold suffer with the inferiorly based pedicle? Overall, this is an interesting approach, and the published results are cosmetically acceptable. (Reviewer-Robert T. Grant, MD).

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Keywords: Breast Auto-Augmentation, Autologous, Reverse Abdominoplasty

Print Tag: Refer to original journal article

RT Is Low-Risk Carcinogen When Used for Keloid Treatment

Is Radiation Therapy for Keloids Acceptable? The Risk of Radiation-Induced Carcinogenesis.

Ogawa R, Yoshitatsu S, et al:

Plast Reconstr Surg 2009; 124 (October): 1196-1201

Radiation therapy is not approved for post-burn keloids.

Background: Radiation therapy is a longstanding modality for the treatment of keloids. However, many surgeons hesitate to implement this therapy for fear of radiation-induced carcinogenesis.

Objective: To establish the evidence-based risks of radiation therapy for keloids.

Design: Literature review.

Methods: A search was performed to establish the published data relevant to radiation-induced carcinogenesis in patients being treated for keloids. A questionnaire was also presented to international radiation oncologists to determine their opinion on the safety of this treatment modality.

Results: 5 cases of carcinogenesis associated with radiation therapy for keloids were reported from 1953 to 1999. Questionnaire results revealed that 80% of radiation oncologists worldwide believe that radiation therapy is safe for the treatment of keloids.

Conclusions: Radiation therapy, when properly performed, is a safe method of treating keloids.

Reviewer's Comments: This paper was a weak review article and failed to address the question in any meaningful way. Several problems were associated with this review. (1) The assessed safety of the procedure was based entirely on the presence of individual case reports. There were no controlled data. (2) All of the case reports cited were from different eras, times when radiation therapy was very different than it is now. (3) As the authors state, the exact circumstances of the radiation therapy performed in these cases (intensity, duration, and patient protection) are unclear. (4) There is no description of the number of patients who underwent radiation therapy for keloid treatment; therefore, it is impossible to deduce the complication rate (is this 1% or 10% of patients?). With regard to the questionnaire, the authors asked radiation oncologists their opinion of radiation for keloid therapy. Not surprisingly, physicians from Eastern Europe were far less likely to endorse radiation therapy in these cases. There was no mention of the social and political factors that influence such opinions; therefore, the stated 80% number of radiation oncologists approving the treatment is severely biased. (Reviewer-Robert T. Grant, MD).

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Keywords: Radiation Therapy, Keloids

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Useful Technique for Lower Eyelid Reconstruction

A Horizontal V-Y Advancement Lower Eyelid Flap.

Marchac D, de Lange A, Bine-bine H:

Plast Reconstr Surg 2009; 124 (October): 1133-1141

Lower eyelid reconstruction is best performed with adjacent eyelid tissue.

Background: Lower eyelid reconstruction can be performed through a variety of techniques including skin flaps and grafts. No approach provides as good an aesthetic result as using adjacent eyelid tissue.

Objective: The authors describe their experience with a lower eyelid horizontal V-Y advancement flap.

Design: Retrospective review.

Methods: The authors operated on 21 patients who had a diagnosis of skin cancers. Defects ranged in size from 10 to 30 mm with a mean of 20 mm. After lesion excision and confirmation of negative margins, markings for the advancement flap were made. Flaps were designed sufficiently wide so they were the same height as the defect for the entire length of the flap. Flaps were long enough so the lateral aspect of the closure was out of the eyelid, possibly into the crow's feet in younger patients. There is no undermining of the flap itself or the adjacent skin. If resection required the eyelid margin, the edges were closed in layers, and then a flap was designed.

Results: Patients commonly experienced bruising and edema throughout the first week postoperatively. There were no reported cases of flap demise. Of 21 patients, 17 had "excellent" aesthetic results. There was 1 reported case of postoperative ectropion in a patient who had previously undergone lower eyelid blepharoplasty.

Conclusions: Lower eyelid reconstruction can best be accomplished with adjacent lower eyelid tissue. The V-Y advancement flap is a relatively straightforward procedure that can provide excellent results.

Reviewer's Comments: The authors do a nice job of presenting their experience with this local advancement flap. The material is presented clearly with excellent photographs depicting their procedure. Key points are that no flap should be undertaken without confirmation of negative pathologic margins. These flaps may also be exceptionally longer than they are wide, owing to the need to close the tail of the flap in a V-Y fashion. In older patients with significant skin laxity, this is easier than in younger patients. Patients young and old should be counseled about the lateral extent of these flaps and the resultant scars. Finally, one should note that V-Y flaps are never undermined as the blood supply comes from the underlying muscular perforators. (Reviewer-Robert T. Grant, MD).

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Keywords: Lower Eyelid Reconstruction, Skin Cancer

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Assessment Tool Can Determine Risk in Breast Reduction Surgery

Risk Factors and Complications in Reduction Mammoplasty: Novel Associations and Preoperative Assessment.

Henry SL, Crawford JL, Puckett CL:

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Hypertension, fibromyalgia, history of prior breast surgery, and fibroproliferative tissue pathology are predictive of increased breast reduction complications.

Background: Reduction mammoplasty is a commonly performed plastic surgery procedure with a near-50% complication rate. It is challenging to assess risk among these patients who have multiple factors or varying gradations of a single factor.

Objective: To identify associations between patient characteristics and specific complications to quantify the risk attributable to these factors. This information can then be used to assess a prospective patient's individualized risk.

Design: Retrospective review.

Methods: A chart review was performed to identify patient demographic information and complications. Results of a consecutive series of patients seen over a 10-year period by a single surgeon were studied. All women underwent Wise-pattern, inferior-pedicle reduction mammoplasty. Chi-square, *t*-test, logistic regression, and decision-tree analyses were used to identify complications attributable to specific risk factors. When possible, the risk imparted by these factors was quantified.

Results: 485 patients were identified. Factors predictive of any complications included hypertension, fibromyalgia, previous breast surgery, and fibroproliferative breast histology. Specific risk factors directly correlated with specific complications included body mass index (BMI) with wound-healing complications, mass of resection with wound-healing complications and decreased nipple sensitivity, and intraoperative hypotension with hematoma. Mass of resection was inversely related to hypertrophic scarring.

Conclusions: Based on this review, numerous specific and quantifiable patient characteristics were linked to specific and quantifiable complications. New associations were identified, such as increased risk of hematoma with intraoperative hypotension and decreased risk of hypertrophic scarring with mass of resection. A risk assessment table was constructed, which allows the clinician to estimate a prospective patient's individualized risk based on preoperatively identifiable characteristics. This is beneficial in facilitating patient selection and improving informed preoperative counseling.

Reviewer's Comments: In this well-researched and well-written paper, numerous specific and quantifiable patient characteristics were linked to specific and quantifiable complications. Specific associations were made for BMI with wound healing issues, mass of resection with wound healing problems and decreased nipple sensitivity, intraoperative hypotension with hematoma, and African-American skin with hypertrophic scarring. Interestingly, increased mass of resection was associated with a decreased incidence of hypertrophic scarring. Two characteristics that could be predicted preoperatively were used to create a risk assessment table (BMI and predicted resection volume). The risk assessment table allows the clinician to estimate a prospective patient's individualized risk. It is a useful tool in the preoperative discussion of reduction mammoplasty with potential patients. The patient and her physician can now estimate the risk of major complications requiring operative revision or minor complications. This can be used to encourage patients to lose weight before reduction surgery by objectively demonstrating that the likelihood of a successful outcome is statistically higher with a lower BMI. (Reviewer-Robert T. Grant, MD).

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Keywords: Reduction Mammoplasty, Preoperative Assessment, Complications, Risk Factors

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Care Concepts for Cleft Palate Surgery Patients Reviewed

Current Surgical Practices in Cleft Care: Cleft Palate Repair Techniques and Postoperative Care.

Katzel EB, Basile P, et al:

Plast Reconstr Surg 2009; 124 (September): 899-906

Single-stage cleft palate repairs are predominately used in the United States.

Background: There have been changing trends in how American surgeons operate on cleft palate deformities over time.

Objective: To describe the practices commonly used during cleft repair in the United States by examining surgical techniques, postoperative care, and complication rates.

Methods: Online or follow-up paper surveys were sent to all members of the American Cleft Palate-Craniofacial Association asking about their preferences; 38% of surveys were received, representing 100% of the American Cleft Palate-Craniofacial Association registered cleft teams.

Results: The survey data generated can be divided into 3 categories: procedure, postoperative care, and complications. *Procedure:* 96% of surgeons perform a single-stage procedure over a 2-stage procedure. Preference for the Bardach style (2 flaps) with intravelar veloplasty and the Furlow palatoplasty was noted. Most surgeons perform 11 to 20 palate surgeries per year and prefer to operate on children between 6 and 12 months of age. A single-stage repair performed on a 6- to 12-month old baby should prevent maxillary growth retardation without jeopardizing phonetic development. *Postoperative Care:* Children are discharged after observation for 24 to 48 hours. Most surgeons will allow immediate breastfeeding. Differences exist on when bottle feeding should commence, the type of bottle used, or if a syringe or cup should be used instead. Ninety-eight percent of surgeons use additional food restrictions, which limit hard food like pretzels, crackers, or chips for 1 to 3 weeks. Some form of arm restraints are used for the first 2 weeks. *Complications:* Surgeons reported a low occurrence rate of secondary speech surgery and fistula formation.

Conclusions: This study demonstrates a shift in the paradigm of cleft palate surgery from a 2-stage procedure to a 1-stage technique combined with a shorter hospital stay, while maintaining low complication rates.

Reviewer's Comments: The authors review an algorithm to decrease fistula formation during palatal surgery. It includes (1) relaxing incisions, (2) complete intravelar veloplasty, (3) total release of the tensor tendon, (4) dissection of the neurovascular bundle with optional osteotomy of the foramen, and (5) incorporation of acellular dermal matrix to achieve complete nasal lining reconstruction. Here is just one example of the changes seen in cleft palate management mentioned in the article: In 1981, plastic surgical residents were taught to repair a cleft palate with no mention of reapproximation of the muscles in the soft palate. Now, the most popular technique repairs the soft palate with procedures such as intravelar veloplasty and double-opposing Z-plasty. Also, cleft surgeons are keeping patients in house for shorter periods of time. The pitfalls of the study are inherent in all survey-generated data studies: surgeons are self-reporting complication rates and relying on their memories for responses. It would be informative to compare these American trends with those seen in other countries. (Reviewer-Robert T. Grant, MD).

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Keywords: Cleft Palate, Postoperative Care, Current Trends

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