ASTRACT BOOK

2ND ITALIAN MEETING ON PERFORATOR FLAPS AND AESTHETICAL REFINEMENTS

President: R. Cipriani

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Complications in free autologous breast reconstruction - how often is surgical intervention warranted and to what degree?

Seidenstücker K, Munder B, Mahajan AL, Andree C
Dusseldorf - Germany

Introduction:
In the words of Robert M. Goldwyn: “Breast reconstruction begins as reconstructive procedure but ends as aesthetic procedure.” In order to achieve this goal we need to ensure that patient satisfaction rides high and the end result is not compromised.

Methods:
Over the last six years, we have retrospectively looked at the complications encountered in our patients who had undergone free autologous breast reconstruction. We have noted the operative intervention undertaken to deal with the complication and analysed the end result of the reconstruction in relation to the complication experienced.

Results:
800 patients (908 flaps – 108 bilateral) were identified in the study period. Total flap loss occurred in 6 flaps (0.7%), partial flap loss of 30-50% of the flap occurred in 13 flaps (1.4%) and marginal necrosis of <30% of the flap was seen in 25 flaps (2.6%). Microsurgical revision of the anastomosis had to be carried out in 7 flaps (0,7%), of which two flaps were totally lost and 2 flaps sustained partial tissue loss. Haematoma complicated 25 of the cases (3,1%), but did not result in flap failure after the operative evacuation. Of note, repeated revisions had to be carried out in patients with partial flap failure which adversely affected patient satisfaction in terms of repeated operative procedures, prolonged recovery time and compromised end result.

Conclusion:
Every revision has a conflicting priority between flap survival and the aesthetic outcome of the breast reconstruction. In early revision surgery where the flap may only survive partially on salvage, it might be best to denounce the partially failing flap and perform a new reconstructive procedure rather than compromising on patient satisfaction in the long run.

Refinements during and after DIEP flap modelling.

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Nowadays DIEP flap is considered part of the cultural background of every plastic surgeons who deals with breast reconstruction.
For this reason, a good knowledge of the surgical technique, together with a particular attention to aesthetical refinements is fundamental.
To reach this goal, two surgical times are indispensable: the intra and post operatory modelling.
During the intra operatory modelling some crucial points are: inframammary fold position, projection, volume, and ptosis, and also contra lateral symmetry.
The postoperative modelling includes: lateral and medial new breast refinements (it is often necessary to reduce the volume laterally, using liposuction or v-y local flaps), nipple reconstruction, scar revision or lipofilling.

Re-evolution of recipient vessels selection for breast reconstruction with DIEP flap

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Introduction
The benefits of microvascular autologous breast reconstruction with DIEP flap are nowadays widely accepted. One of the key elements of microvascular reconstruction success is the selection of adequate recipient vessels. Over the years, our preferred recipient vessels for microvascular autologous breast reconstruction have changed from the internal mammary to thoracodorsal and to circumflex scapular vessels.

Materials and Methods
From May 2004 to May 2009, 170 consecutive breast reconstructions with free DIEP flaps including I-III perfusion zones (according to Holm) were retrospectively analyzed to assess evolution of recipient vessels selection. Patients were divided in two groups based on the anastomized recipient vessels: axillary group and internal mammary group. Statistical analysis was performed to evaluate complications rate and recipient vessels.

Results
Over the years, the increasing use of the axillary vessels (from 10.2% in 2004 to 84.5% in 2009) was associated to the growing number of immediate breast reconstructions with axillary lymph node dissection performed (from 60% in 2004 to 95% in 2009) with readily exposition of subscapular vessels.
Among subscapular vessels (thoracodorsal versus circumflex scapular), no significant differences were observed regarding the incidence of overall complications (p= 0.548) and flap-related complications (p= 0.534)

Conclusions
In our experience, the use of axillary vessels for microvascular breast reconstruction is easier and feasible. The dissection of internal mammary vessels can be rather precarious because of the removal of a small segment of the rib cartilage for better vessels exposure with an increasing operative time and the risk of pleura injure. Moreover internal mammary vessels have only 2 recipient veins compared to axillary region where more options for veins anastomoses are available. Among the subscapular vessels, the circumflex scapular pedicle has the followings advantages: 1) its caliber is lightly larger than thoracodorsal vessels (2-3 mm); 2) it saves the thoracodorsal pedicle in case of salvage procedure with Latissimus Dorsi; 3) the extra-lengthening of the pedicle allows for a correct insetting of the flap; 4) it is always preserved by radiotherapy.

Different strategies to obtain a good result in DIEAP flap breast reconstruction.

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Bologna – Italy

Background
The use of DIEAP flaps allows to achieve aesthetically pleasing autologous mammary reconstructions with minimal donor site morbidity. The same aesthetically pleasing result, using the same flap can however be achieved with different strategies.

Materials and Methods
The technical aspects of the procedures in primary and secondary autologous breast reconstruction with the DIEAP flap performed at Gent University Hospital was compared to the procedure performed at Bologna University Hospital.
The following aspects were compared: pre-operative assessment, flap planning and drawings on the abdomen, drawings on the mammary region, most frequent mastectomy pattern in immediate reconstruction, patient positioning, recipient vessels selection, role of the assistants, differences in donor site closure, flap modelling technique, flap closure, preferred site for eventual additional anastomoses, average operative time, post operative dressings, post operative flap follow-up, post operative medications, post operative patient management, patient's hospitalization, planned secondary procedures.

Results
These were the most significant differences noted: 1.The use of internal mammary vessels makes it possible not to change patient position during operation reducing operative time and leaves a major freedom in flap positioning and shaping; 2. the 3 steps principle makes flap modelling an easier and reproducible procedure; 3. the use of CT scan and of devices as fibrin glue and absorbable skin stapler help reducing operative time. 4. Spending additional time during the initial operation to mold and shape the umbilicus, dog-ears and contralateral breast provides an immediate nice result and avoids later corrections. 5. Lower flap outline leaves a lower scar on the abdomen, easy to hide also with low waist outfits. A high position of the dominant perforator may not allow a low positioning.

Conclusion
Different procedures can obtain comparable aesthetically pleasing results, but some options help reducing operative times or make the results more reproducible and aesthetically pleasing.

Evaluation of patient satisfaction in breast reconstruction after mastcetomy: breast implants versus autologous tissue

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Patient's perception of the result by the patient is gaining a growing interest in reconstructive surgery. We administered a self-assessment questionnaire developed specifically for patients undergoing breast reconstruction with the aim of analyze quality of life and satisfaction.
The questionnaire was administered to 63 patients undergoing post-mastectomy breast reconstruction between 2004 and 2009: 33 was reconstructed with autologous tissue (DIEP flap) and 30 by expander / implant procedure.
The patients who underwent reconstruction with autologous tissue have shown higher scores in all subscales, with statistical significance in regard to satisfaction about the reconstructed breast, the overall result and for the areola nipple reconstruction.
Our study allows us to provide future patients more information obtained from those who have already gone through reconstruction. In particular, patients reconstructed with DIEP flap expressed greater satisfaction about the outcome of the intervention, while there are no differences about the quality of life.

Thoracodorsal artery perforator (TDAP) flap for breast reconstruction

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In the last years the indications for treatment of breast cancer have changed significantly. Mastectomies are being more and more replaced by breast conserving surgery (BCS) since breast carcinoma is being identified earlier by screening and improved diagnostic procedures. Radiotherapy is used more and more often not only in treatment of large (T3 and T4) tumors but also for “sterilization of the tumor site” after surgery for T1 and T2 tumors and postmastectomy radiotherapy (PMRT).
Radiotherapy causes pigmentation, dryness and atrophy of skin and fibrosis and poor vascularity of all tissues within the irradiated field. From this reason PMRT after primary reconstruction with implants as well as with autologous tissues results in augmented complication rate and poor aesthetic results.
Complications after BCS and PMRT resulting in asymmetry and volume discrepancy should be treated by transposition of well vascularized tissues since remodeling of breast gland tissue after PMRT can lead to further complications, tissue expansion is painful and can be complicated by infection or extrusion and fat injection, now a widely used method for correction of contour and volume defects, has not yet proven to be oncologically safe.
From these reasons autologous tissue transposition, in particular TDAP flap seems to be a good solution for treatment of secondary asymmetries after BCS and PMRT in terms of volume and contour reshaping with no residual functional deficit.

Use of Free-Style Perforator Flaps after Breast Conservative Treatment

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Introduction:
Breast conservative treatment represents whenever possible the ideal choice of breast cancer treatment. This treatment is indicated in case of small and single cancer in medium and large breast. In case of bigger and multiple tumors or in case of smaller breast it is often indicated to perform a mastectomy to avoid poor aesthetical results or to fill the defect with a flap. Most of the flaps described to reach this aim are based on the lateral thoracic angiosomes. It is possible to harvest perforator flap to reconstruct the breast, filling up the defect with or with out an associated monolateral or bilateral mammoplasty.

Matherials and Method:
We report our experience using TAP, LICAP and External Mammary flaps in reconstruction after breast conservative treatment.
Preoperative doppler examination is useful to localize perforator on chest surface but intraoperative evaluation is mandatory to obtain a reliable flap. Once the better perforator is found, it is possible to mark and harvest a free-style perforator based on it.
The flap can be used to cover a skin and volume defect or only volume defect. In the last case it should be completely dehepithelized. Monolateral or bilateral mastopexy can be performed at the same time. It is possible to perform an immediate or delayed reconstruction.

Results:
Advantages of this approach consist in the possibility to perform a quadrantectomy also in case of bigger tumor, otherwise mastectomy or bilateral breast reduction is needed, sparing muscular structures. Disadvantages consist in possibility of breast distorsion due to scar retraction and unsatisfactory results in difficult cases such as in case of unfavourable arc of rotation.

Conclusion:
Laterothoracic perforator flap can be useful in case of repairing breast after breast cancer conservative treatment. Preoperative doppler examination and intraoperative localization are the key point in planning free-style flaps in order to obtain good cosmetical results

Algorithm of partial breast reconstruction with pedicled perforator flaps

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Introduction
The authors present an algorithm of partial breast reconstruction following quadrantectomy that allows to restore the breast volume defect with the use of pedicled perforator flaps.

Material and methods
Between March 2009 and May 2010, at the Plastic and Reconstructive Institute of University of Palermo, pedicled perforator flaps were used to integrate volume and/or breast skin in 12 patients after benign and malignant breast tumors. The flaps used were based on perforators of the thoraco-dorsal artery (TDAP) and of the intercostal arteries (ICAP). TDAP flaps were used to reconstruct defects in any breast quadrant, while ICAP perforator were used to reconstruct lateral and central inferior pole defects.

Results
All flaps survived completely. Breast size, shape and volume were satisfactorily restored. Contralateral breast procedure to adjust symmetry were not necessary. Donor sites scars were well hidden in the inframammary fold or under the brassiere.

Conclusions

Partial breast reconstruction can be performed, in selected patients, with pedicled perforator flaps to restore both volume, shape and skin envelope. Donor site scars are negligible and better with the anterior ICAP because the scar is hidden in the submammary sulcus.

Treatment of recurring sternal exposure with Superior Epigastric Artery Perforator Flap (SEAP)

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Introduction
We report the clinical case of a 68-year female patient, hospitalized to our Division for a thoracic soft tissue loss of substance and sternal exposure. Relevant clinical history included bilateral mastectomy and subsequent RT 30 years ago. In January 2009, an osteomielitic process at the level of the left 5^{th} rib and sternum required an extensive debridement and coverage with a Bogossian flap. The flap did not survive at the distal most portion. Treatment with VAC and full thickness split graft could not resolve the sternal exposure.

Materials and methods
On October 2010, previous preoperative assessment (with the use of MRDCT) of the presence and suitability of perforators, having as source vessel the Superior Epigastric Artery (SEA), we performed sternal debridement and coverage of the loss of substance with a Superior Epigastric Artery Perforator flap (SEAP). No intraoperative complications has been reported. Intraoperative time has been of 4 hours.

Results
The postoperative period has been uneventful except for a transient mild venous congestion resolved 48 hours after the surgery. The flap survived completely and after 15 days the patient has been dismissed from our Division. Follow-up at 1 year confirms the resolution of the clinical case.

Conclusions
The use of perforator flaps is nowadays worldwide spread. The donor site minimal functional comorbidity, the possibility of coverage of wide areas of the body and their use also as locoregional pedicled flaps, should make this type of surgery as the priority first surgical option when approaching to difficult cases of resurfacing.

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Free style pedicled perforator flaps for reconstruction of trunk defects

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Introduction
Continuously growing needs in soft tissue reconstruction have encouraged the use of perforator flaps not just as free flaps, but also as local pedicled flaps. The free style approach, introduced by Mardini and Wei in 2004, has been extended to the planning and the actual harvesting of local perforator flaps. We present our experience with “free style” local perforator flaps in the trunk.

Patients and Methods
15 patients underwent reconstruction with 18 local free style perforator flaps for defects involving the trunk. We can divide flap strategy in Planning and Surgery. Our approach consisted of:

a) *Planning*:
1) Determine the expected defect
2) Doppler perforator vessels around defect
3) Choose one or more suitable perforators
4) Design a potential flap and decide potential movement

b) *Surgery*:
1) Exploratory incision and visualization of perforators’ position and caliber
2) Choice of perforator/s
3) Preservation and inclusion in the flap of the perforator/s
4) “A la demand” skeletonize perforator/s
5) Move the flap to the defect

Results
100 % flap survival was obtained; donor sites were closed primarily in 17/18 flaps. In 4 flaps we experienced early hypervascularity phenomena which completely recovered in 4 to 5 days postoperatively. Mean follow-up was 3.4 years.

Discussion
The free style approach has the advantage of providing tissue available for reconstruction close to defect, with great arterial input. Type and range of movement of the flap appeared to be key points of the technique. Increased flap mobility was achieved through aggressive perforator dissection.
Flaps based on one perforator offered the best range of movement both as propeller or as V-Y advancement flaps

International definition and classification of propeller flaps: The "Tokyo" Consensus

Pignatti M (Modena- Italy); Ogawa R (Tokyo – Japan); Hallock GG(Allentown – USA); Mateev M (Bishkek – Kyrgyzstan); Georgescu AV (Cluj-Napoca – Romania); Balakrishnan G (Chennai – India); Ono S (Tokyo – Japan); Cubison TCS (East Grinstead –UK); D'Arpa S (Palermo – Italy); Koshima I (Tokyo – Japan); Hyakusoku H (Tokyo – Japan).

Introduction
In the last few years the use of the propeller flap, a pedicled flap of a relatively new design, has become more and more popular.Since no widespread consensus has been reached on the definition of the propeller flap, some different uses of the term can be found in the literature.
Methods
This consensus reached by the authors that gathered at the "First Tokyo Meeting on Perforator and Propeller Flaps" in June 2009, aims to define and classify propeller flaps.
Results
A propeller flap, can be defined as an "island flap that reaches the recipient site through an axial rotation". Its classification is done by the type of nourishing pedicle (subcutaneous, based on a perforator, supercharged), by the degrees of rotation of the skin island (from 90 to 180 degrees) and, when possible, by the artery of origin of the perforator.
Conclusion
The propeller flap is a useful reconstructive tool that can achieve good cosmetic and functional results. A flap should be called propeller only if it fulfils the definition above. For each flap the surgeon should specify the kind of nourishing pedicle, the source vessel when known, and the degree of skin island rotation.

Bipedicled DIEP flaps for reconstruction of limb soft-tissue deficiencies in male patients.

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Gent – Belgium

Background
Extensive soft tissue deficiencies involving the limbs can be difficult to reconstruct and may require more than one microsurgical flap transfer to address the defect. This can be particularly challenging in the male patient, when sacrifice of a donor muscle can be an issue. This study looks at our successful use of the bipedicled DIEP flap to address this problem.

Methods
Using preoperative CT Angiography, the dominant perforators of the abdominal wall were mapped and the bipedicled DIEP flap was used for a one-stage reconstruction of extensive tissue loss in 11 patients. In five of these flaps, intra flap anastomosis between the two pedicles was carried out. Anatomy of the flaps, outcome of the reconstructions and any associated complications were evaluated.

Results
Successful large tissue reconstructions were carried out by utilizing all four zones of the DIEP flap, with dimensions of flaps ranging from 20 x 8 cm to 50 x 17 cm. Venous congestion was seen to develop in two flaps, one of which was salvaged by performing an additional venous anastomosis, but the other flap failed to survive. Apart from this, complications were minimal.

Conclusions
Soft tissue cover of extensive wounds in male patients without sacrificing muscle flaps can be challenging. This extended utilization of the entire DIEP flap has helped us address this issue.

Lower leg reconstruction by perforator flaps

Novati F; Ramella V; Panizzo N; Renzi N; Papa G; ArneŽ Z. M.
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From January 2007 to September 2010 23 free flaps were performed for lower limb reconstruction following trauma at UCO Plastic reconstructive and aesthetic surgery in Trieste.
The principal indications were open fractures/exposed bones (Gustillo IIIB) and degloving injuries (types 3 and 4 in Arnez and Tyler classification) with increased risk of infection. We used the following free flaps: 12 times ALT, (4 times chimeric with a portion of vastus lateralis muscle), 4 times latissimus dorsi , 5 times scapular, once gracilis and radial forearm. 6 flaps were performed as emergency or during the first 72 hours, 6 were delayed and 11 were late (outcomes of trauma with no adequate soft tissue cover, debilitating scars or osteomyelitis).
ALT is our favourite flap for lower leg reconstruction since it is suited for coverage of large skin/soft tissue defects as well as obliteration of dead space. Other flaps are used when appropriate.
We tend to reconstruct all operable patients within 72 hours after injury and when possible in the first 24 hours (emergency free flaps) at the time of the first debridement.

Anatomical cadaveric study on clinical application of loco-regional pedicled flaps in knee reconstruction, the perforators age.

Faini G.P., Parodi P.C., Calabrese S, Manna F.
Udine, Trieste - Italy

Introduction

Soft-tissue reconstruction in the patellar and peripatellar region is a challenging reconstructive problem of not-so-often easy resolution. Restoring the original thin, pliable, and tough skin properties is a necessary demand, if appearance and knee functions are not to be compromised. Altough the range of reconstructive options is wide, from skin graft and dermal substitutes to free flaps, local tissues provides the closest match to the original.

Materials and methods

On October 2010 we performed dissections on 4 fresh lower limbs specimens, dissecting 5 different locoregional flaps for each limb on the purpose to assess surgical performance difficulties, vascular perforators presence and reliability and donor site morbidities. The dissected flaps were the following:

- Proximally based sural artery flap
- Anterior tibialis perforator flap (ATAP)
- Medial sural artery perforator flap (MSAP-gnc)
- Upper lateral genicular artery perforator flap (UPLGAP-vl)
- Medial upper and lower genicular artery perforator flaps V-Y advancement flaps

Results

On 5 different types of flap dissected (total 20 flaps) we assessed extreme vascular reliability (vascular axis and perforator detection on all the 4 limbs) with proximal sural artery flap, medial sural artery perforator flap and upper lateral genicular artery perforator flap. Regarding anterior tibialis perforator flap and medial upper and lower genicular artery perforator flap, we did not found the same anatomical reliability (presence of perforator in a extreme distally position, perforator of less than 1 mm caliber).

Conclusions

Even if this study has been conducted on 4 specimens, and further dissections and clinical results has to be assessed, we think that the best options in patellar region reconstruction, regarding loco-regional pedicled flaps, reside in the application of perforator flaps.

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Propeller flap in the reconstruction of the lower leg

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Introduction
Advances in understanding of the arterial basis of flap have led to more refined reconstruction in lower leg. Propeller flaps are based on perforators from the tibial and peroneal vessels. When a local perforator flap is designed as a 180-degree propeller flap, an excellent esthetic result and direct closure of the donor site can be achieved, with minimal morbidity.
Methods
A handheld Doppler ultrasound is used to locate perforator artery to use. The perforator that is finally chosen for the flap may not be the one located pre-operatively on Doppler ultrasound. Six consecutive patients, having post-traumatic soft tissue defects of the leg, with bone or tendon exposure, were treated with propeller flaps.
Results
One woman and five men were operated in two years. Mean operative time was 2 h and mean hospital stay after surgery was 12 days. Partial superficial epidermolysis was encountered in 1 case and healed without further interventions.
Conclusion
The propeller flap is an elegant and versatile method to achieve soft tissue coverage with local tissue in defects of the lower leg. The planning, operative technique and the results with case presentations will be described.

Reconstruction of a Series of Complex Foot and Ankle Defects using the Free Posterior Interosseous Artery Flap

Ovens L, Bharania P, Floyd D.
London - UK.

Introduction
Defects of the foot and ankle are challenging to reconstruct. Local tissue is often unavailable and free tissue transfer may be the only option. Most flaps are bulky and patients are not satisfied with the appearance. The majority have difficulty with footwear and gait. As our microsurgical techniques improve, we strive to find a method of reconstruction that not only fills a defect and restores function, but also is cosmetically acceptable. We aim to present the anatomy and planning of the first series of free posterior interosseous artery flaps to the foot and ankle.

Method
Our series consisted of three patients who underwent posterior interosseous artery free flap reconstruction to the non-weight bearing areas of the foot or ankle. These flaps were used to reconstruct small complex traumatic defects. We describe the detailed anatomy and surgical planning in this series. The outcomes that were measured included postoperative flap and donor site complications, length of hospital stay, time to ambulation, gait, sensation, patient satisfaction (contour, texture, sensation, colour match, donor site, footwear).

Results
One patient developed a neuropraxia of the posterior interosseous nerve, which resolved fully in six weeks. There were no wound infections, haematomas, dehiscence or abnormal scarring. There were no flap failures. All three patients were discharged a week postoperatively. All patients reported some return of sensation in the flap. There were no difficulties with footwear or gait. Patients were satisfied with the appearance of the flap and donor sites.
Conclusion
The free posterior interosseous artery flap is a valuable alternative in reconstruction of the non-weight bearing area of the foot and ankle. It is soft, thin and pliable, such that it conforms to the natural contours of this area. This leads to an aesthetically pleasing, durable reconstruction, with an acceptable donor site and high patient satisfaction.

Our experience in lower limb reconstruction with perforator pedicled flaps and surgical refinements for safer use of this technique in the "problematic" leg

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Bergamo – Italy.

Introduction

We present our experience in lower limb reconstruction using pedicled "perforator" flaps to treat small-to-large sized soft tissue defects of the leg after skin tumor excision or post-traumatic lesions.

Material and methods

Between 2006 and October 2010 , 77 patients with small-to-large sized soft tissue defects of the leg underwent lower limb reconstruction at our Dept. of Plastic Surgery with pedicled perforator flaps, often employing the "propeller" technique, as described and refined by TC Teo.

Results

Results were uniformly successful except for 6 partial flap necroses, 3 peripheral disepithelizations and 1 complete flap necrosis.

Discussion

We currently commonly use pedicled perforator flaps in lower limb reconstruction on specific sites where periosteum or paratenon are exposed, as well as when a skin graft is best avoided for functional and aesthetic reasons .

When primary suture is unduly tight or impossible, the remaining options are a skin graft or a local flap. Skin grafting, though quick and simple, is especially poorly suited for the pretibial region. Using a graft is impossibile when no periosteum is left, and unadvisable even when periosteum remains, because of hyperkeratosis, peripheral ulceration, and long-term instability in a region often exposed to accidental trauma.

We also present some surgical refinements of the use of such perforator flaps versus skin grafts in elderly patients, diabetics , heavy smokers or patients with peripheral vascular disease .

Conclusions

Perforator pedicled flaps are usually safe and expedite. Good contour is provided with excellent color, texture, and thickness match, with long-term stability of the reconstruction at the expense of minimal donor-site morbidity , replacing lost tissue with an ideal " like to like " substitute.

Leg Perforators and Leg Length: An Anatomic Study Focusing on Topography and Angiogenesis

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Bristol –UK; Bologna – Italy.

Introduction
The highly variable anatomic distribution of lower leg perforators is explored, with a standardization based on leg length. The possibility of a correlation between leg length and number of perforators is investigated.

Materials and methods
Twenty-two lower limbs of cadavers were utilized for an anatomic study on the leg perforators branching from the three major vascular axes, anterior tibial, posterior tibial, and fibular. The parameters considered were the number of vascular pedicles per each major axis, the caliber, the distance of the fascial hole from the bony landmark (knee joint line), and the route of the vessels (muscular, septal).

Results
Arteries taken into account had a caliber of 0.5 mm or greater, with a maximum of 1.7 and a mean of 0.78. The perforators of the anterior tibial artery distribute along the entire length of the leg, but the peak of concentration is between second and third tenth and around the middle tenth. The fibular system provides perforators between the fourth and seventh tenth. The posterior tibial perforators concentrate to the middle third and to the supramalleolar region. A correlation exists between leg length and number of perforating vessels for the tibial vascular systems, possibly due to neoangiogenesis during growth, at the level of the metaphyseal plates. On the contrary no relationship was noticed for the fibular artery, whose perforators concentrate far from the growth cartilages.

Conclusion
Some tenths where perforators concentrate are identifiable. Tibial systems have a perforator incidence depending on leg length, which, on the contrary, does not influence the number of fibular perforators.

Perforator flaps: application on different part of the body

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Ancona - Italy

Free style perforator flaps, or rather perforator flaps based on perforator arteries found by ultrasound-doppler in the interested areas, are allowed to restore losses of tissue in different part of the body.
The anatomical areas, or rather the areas where was decided to harvest the perforator flaps are these:
- lower leg estremity (PTAP propeller flap) N°2 Pz
-toraco-dorsal territory (TDAP propeller flap) N°1 Pz
-posterior thigh region (AAP propeller flap) N°1 Pz
-dorsal region (LICAP propeller flap) N°1 Pz
-ulnar territory upper estremity (UAP propeller flap) N°1 Pz
-abdominal district (SEAP propeller flap) N°1 Pz
-scrotal inguinal area (GAP propeller flap) N°1 Pz
In a total of 8 perforator propeller flaps there wasn't anything case of partial or total necrosis ; there was a soft distal suffering just in 2 cases (PTAP e GAP) but it resolved spontaneously after a few days.
The flap's donor site was closed primary for the most part of the cases (6/8), it needed a skin graft just in two cases.
These flaps are an excellent option instead of the common reconstructive procedures:
-They aren't microsurgical flaps but microvascular, in fact they don't need microsurgical anastomosis and have a very low trombotic risk
-They preserve the major vascular vessels
-They preserve muscular tissues, no post-op functional deficit
-They are allowed to use local tissue near the loss of substance.
- Very nice cosmetic result.

Use of the Anterolateral Thigh Flap in complex perineal and abdominal wall reconstructions

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Lousanne - Switzerland

The extirpation of colorectal, gynecological or urological tumors can lead to massive perineal defects. Direct skin closure can be impossible after a large resection and/or localized radiotherapy. A defect of the muscular perineal floor or abdominal wall may be associated and will require reconstruction. Urethral and vaginal defects might need additional reconstruction. The anterolateral thigh flap can be used to address all of these reconstructive issues. It will provide a large skin paddle that can easily reach the entire perineal region. The flap can be reinnervated to be sensate and extended to include the vastus lateralis for improved security harvest and bulk. Further extension of the flap allows harvesting of the fascia lata to widen the fascial layer with a very resistant tissue.
We here present our experience with the use of the pedicled anterolateral thigh flap in perineal and abdominal wall reconstruction over the past 12 years. This flap has permitted the reconstruction of extensive and complex perineal and abdominal wall defects with great reliability in a single stage procedure. Harvesting of the pedicled flap can be done in a two teams approach. The donor site morbidity is minimal.
In our opinion the anterolateral thigh flap is the best option to reconstruct extensive and complex perineal and abdominal wall defects. It is a safe and effective procedure that should be considered when reconstructing perineal defects.

Reconstruction of the pelvic floor with VDIEP flap following rectal and gynaecologic amputation for a giant eccrine porocarcinoma

Laporta R, Paolini G, Renzi LF, Longo B, Santanelli F
Roma - Italy

We describe a case of a 54-year old woman affected by porocarcinoma arising in perineum and involving whole soft tissues of vulva and anus.
Because of the tumour extension, resection was carried out by two different surgical teams: the general surgery team performed a Miles abdominoperineal resection plus an “en bloc” total hystero-salpingo-oophorectomy and perineal tumor excision including anus, vulva and vagina with the distal urethra and external meatus; the plastic surgery team simultaneously reconstructed the defect by mean of a pedicled VDIEP flap transferred extraperitoneally to reconstruct the pelvic floor and the soft tissue defect. Proximal urethra was dissected and anastomosed to the umbilicus by mean of multiple “z” plasty to prevent stenosis. Healing was uneventful and postoperative urofluximetry test showed normal values.

Extramammary VDIEP flap indication

Paolini G**,** Renzi L, Longo B, Cotroneo G, Santanelli F

Roma - Italy

The free deep inferior epigastric perforator flap (DIEP) is considered the gold standard technique for breast replacement, due to its particular features and limited donor area morbidity, when vertically oriented according to Santanelli (VDIEP) it can be very useful also in extramammary reconstructions. We here report our experience with VDIEP flap transplantation in different anatomical regions.

We have performed 8 VDIEP flap transplantations in extramammary districts, in 5 cases for tongue reconstruction, in one case for thigh reconstruction, one case for vulvar and one case for perineal reconstruction. Ethiopatogenesis was cancer in 7 cases (5 adenocarcinomas, 1 melanoma, 1 porocarcinoma) and scleratrophic lichen of the vulva in one case. Patients were 6 males and 2 females. Mean age of patients was 66 years old (ranging from 34 to 76 years). In all cases a vertically oriented DIEP flap has been used, in 5 cases free and 3 cases pedicled. No major complications have been observed. In all cases a successful reconstruction of the defect has been obtained, with minimal donor area morbidity and retained abdominal wall function.

The pedicled vertical design of DIEP flap (VDIEP) allows highly vascularized extra tissue from the upper abdomen to easily reach the thigh, groin, or genito-perineal region, through a laparotomic access with minor dissection, quick and easy abdominal wall closure; while the constant and reliable vascular anatomy of the pedicle, makes it a reliable free flap for distant reconstruction. Its bulk makes it ideal to reconstruct a sensate tongue and rehabilitate bolus progression. Furthermore perforator flaps seem to promote healing of irradiated or infected fields just as free muscle flaps do.

Anatomoradiological study of the gluteal vascularization: clinical relevance in reconstructive surgery

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Padova - Italy

Introduction
Perforator flaps of the gluteal region based on superior (SGA) and inferior gluteal arteries (IGA) became the preferred surgical reconstructive option in the care of sacral and ischiatic pressure sores. Their mobilization allows to treat with appropriate subcutaneous tissues the sacral and ischial region without the sacrifice of the muscular plane thus permitting future reconstructive possibilities.

Material and Methods
Aim of this study is to investigate the origin, course, calibre and distal branches of the SGA and IGA through a comparison between anatomical dissection, radiological TC angiography and clinical experience.

Results
Our results confirm the well known topographical division of the vascularization of the gluteal region in two distinct territories supplied by the SGA and IGA. The mean calibre of SGA and IGA are 5,4 ± 1mm and 3,6 ± 1mm respectively.The mean number of perforators is 23 (range 19-29) , 44% of them originated from SGA (24-77%) and 35% from IGA (0-52%). The mean calibre of perforator vassels of SGA and IGA are 2,21 mm and 2.0 mm respectively.
Although in 25% of the cases perforator vessels of SGA are visible below a line drawn from the posterior superior iliac spine to the greater trochanter.

Conclusion
Knowing the vascular variability of the gluteal region is necessary to the reconstructive surgeon in order to plan and raise a safe flap without damaging the dominant perforator vessels.

Local perforator flaps in limb reconstruction: different approach between upper and lower limb

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Torino,Pietra Ligure - Italy

We present our case series of perforator local flaps of upper and lower limb reconstruction. The strategy employed is different because of the anatomical differences between upper and lower limbs.
In upper limb reconstructions the majority of cases are solved with a fascial pedicle without dissecting the perforator for hand reconstruction; for the elbow and forearm it's not necessary to dissect a real perforator flaps because of the anatomical structure of the artery of the arm.
In lower limb reconstruction the propeller flap with a dissection of a perforator is mostly used.
These anatomical consideration are discussed in relationship with our case series.

Distal forearm reconstruction with propeller perforator flaps

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Palermo - Italy

Introduction
Cutaneous defects in the distal forearm are often due to radial forearm flap harvest or skin cancer resection. Repair of these lesion may be accomplished by skin grafting, local flaps or perforator flaps. The authors present their experience on reconstruction of the distal forearm with perforator propeller flaps.

Materials and methods
From June 2009 to June 2010, 5 patients have undergone distal forearm cutaneous defects reconstruction by means of a perforator propeller flap. The defects resulted from cutaneous squamous cell carcinoma resection in 2 cases and radial forearm flap harvesting in 3 cases. Each flap was based on one perforator (from the radial artery in 2 cases, from the ulnar artery in 3 cases) and rotations were between 90° and 180°.

Results
There were two cases of venous congestion in this series. Both were re-explored and venous turbo-charging was performed. Of these, one flap survived completely, while the other had a 90% necrosis. All other flaps healed uneventfully. Donor site scar were closed primarily in 4 cases. In the remaining one case a "Z" plasty was necessary.

Conclusions
Perforator propeller flaps provide an alternative mean of reconstruction cutaneous defects of the distal forearm, that allows to achieve good results at the expense of little additional scars in an already operated forearm. Venous congestion seems a problem particularly with the radial artery perforators, with a 100% venous insufficiency in this series. For this reason, routine venous supercharging might be considered to overcome this problem.

Foot & ankle reconstruction with v-y perforator flaps

Cigna E, Scuderi N
Roma - Italy

The evolving concept of perforator flaps with one or more perforators able to lend support has been shown to have several advantages in the context of reconstructive surgery, also in relation to the foot and ankle region. Among the advantages, the skeletonisation of the pedicle allows an increased advancement of the flap.
Foot and ankle reconstruction, in virtue of the fact that adjacent tissues are scarce and vascularization is an issue, has always constituted a problem, which has not been easy to solve by the surgeon. Three patients with chronic wounds have been reconstructed with V-Y perforator flap. The dissection for these flaps was carried out on a suprafascial plane. Further surgery has not been required.
The V-Y perforator flaps allow to cover defects with tissues similar to the pre-existing ones, a reduced morbidity of the donor site and less time spent in theatre if compared to free flap. However only partial defects may be reconstructed with this approach. The application of the perforator flap concept to V-Y flaps gives satisfactory results, from both a functional and an aesthetic point of view.

Propeller flaps in soft tissue reconstruction

Baldrighi C, Delcroix M, Innocenti M

Firenze – Italy

As the popularity of perforator flaps evolves, soft-tissue reconstruction options around the knee continue to expand.

A series of 9 cases of soft tissue reconstruction around the knee with local perforator flaps following oncologic resection or post-surgery complications is presented. In all cases the perforators were preoperatively identified and marked over the skin by mean of Doppler investigation.

In our experiences local perforator flaps provide an excellent and reliable alternative to muscle and musculocutaneous flaps for soft tissue reconstruction around the knee with less morbidity.

The only limiting factors are the length and diameter of the source vessels and the location of the pivot point perforator relative to the defect for pedicle perforator flaps.

Necrosis of the distal portion of the flap occurred in only one case. This could be imputable to a still not perfect understanding of the vascular territory of a single perforasome

In fact in the era of perforator flaps the knowledge of single perforator vascular anatomy has greatly improved, improving consequently the flap design. Nonetheless the dynamic vascularity is yet to be defined.

Propeller flap in free functiony muscle transfer: a case report

Baldrighi C, Delcroix M, Innocenti M

Firenze – Italy

A case of microsurgical reconstruction of the posterior compartment of the right leg in 40 yo male, following traumatic complex tissue loss, is presented. To cover the defect a muscolocutaneous latissimus dorsi flap was harvested. The extension of the defect did not permit complete coverage with a single free flap. The skin island overlying the latissimus dorsi muscle was then elevated, dissecting a previously identified perforator cutaneous vessel. The combination of the thoracodorsal artery perforator (TAP) and the latissimus dorsi (LD) muscle flap is very versatile. It allows independent positioning of the skin island in relation to the muscle, expanding the surface of the flap without increasing donor morbidity.

The cutaneous component of the flap (TAP flap) was harvested anteriorily where it is thinner and the scar is better hidden.

One stage nose reconstruction with the suprathroclear artery propeller perforator (STAPP) flap

Cordova A
Palermo – Italy

Introduction
The paramedian forehead flap is the technique choice for nose reconstruction. However, at least two operations are needed for flap transfer: the first one to cover the defect and the second to divide the pedicle. A third operation would normally be needed to achieve an optimal cosmetic result. The authors' experience with the single stage suprathroclear artery propeller perforator flap for reconstruction is retrospectively reviewed.

Materials and methods
Between May 2007 and September 2008 13 patients were operated. Patient with less than one year follow up were excluded from the study. One stage nose reconstruction with the suprathroclear artery 180° propeller perforator was performed. Defects were partial thickness in 8 cases and full thickness in 5 casers. Mean age was 78, 88% were smokers 60% had type II diabetes, 72% patients had hypertension.

Results
Complete flap survival was observed in 12 cases (92.3%). Partial necrosis was observed in one (7.7%). The need for flap thinning was dramatically reduced: a touch up operation was needed in only one case to optimize the cosmetic result. Average follow-up was 19.5 months. The donor sites were partially closed with the second blade of the flap.

Conclusions
In a selected population, one stage nose reconstruction can be satisfactorily performed with a suprathroclear artery propeller perforator flap that allows to avoid the pedicle division stage and has less need for thinning, when compared to a standard forehead flap, probably due to preservation of the lymphatics that drain the flap.

Local perforator flaps in facial reconstruction

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Naples, Italy

Introduction
Cadaveric studies on facial arteries have shown the existence of various small perforating branches. Clinical applications of facial perforator flaps have not yet been extensively investigated. We present our clinical experience with these flaps, focusing on their indications, surgical technique and complications.

Patients and methods
Twelve facial post oncological defects were reconstructed with free style local perforator flaps. Doppler identification of perforator vessels was always the first step. 6 flaps were based on facial artery perforators at the naso-labial region, one flap was harvested in the post-auricular region, one in the sub-mental area, three flaps from the zigomatic area. One flap was harvested on the supra-trochlear artery and vein as a perforator flap. In terms of flap shape, 8 were propeller, 3 were V-Y type and one was a perforator based bilobed flap. In 6 cases perforators were identified and preserved without attempting pedicle skeletonization, while in the other 6 cases the pedicle was more aggressively prepared.

Results
Seven clinical cases had no complications. Two 180° propeller flaps had venous congestion that resolved spontaneously; one propeller experienced superficial necrosis in its distal 1/3; one propeller showed superficial necrosis of the all flap and a small area of full thickness necrosis; another 180° propeller fla p suffered pedicle compression by an haematoma and the distal 1/2 was lost.

Conclusions
The concept of free style was applied to perforator flaps to gain more freedom in flap planning and harvesting allowing one-stage procedures and low donor site morbidity. Difficult venous outflow was the main disadvantage of these facial perforator flaps, especially in the 180° propeller turn. Considering the complication rate observed in our series, clinical indications for local perforator flaps should be restricted to selected cases. A better understanding of the facial perforator anatomy could also improve postoperative results.

Update on facial artery freestyle pedicled perforator flaps

D'Arpa S, Cordova A, Moschella F.
Palermo – Italy.

Background
4 years ago, during the first Italian meeting on Perforator Flaps, the freestyle pedicled facial artery perforator flaps for face reconstruction have been presented. After four years, the authors have revised the outcomes of the technique based on long term follow-up. Tricks and tips to prevent and treat complications are presented.

Materials and Methods
For the purposes of outcome evaluation, the 7 cases initially presented have been revised based on the 49 months average follow-up available. The 22 cases performed after the first meeting have been prospectively evaluated for sensitivity using a two-point discrimination test, and incidence of complications based on the experience acquired on their prevention and management. The two populations obtained in this way have been compared. In all cases reconstruction of the nasal ala or perioral region has been performed after skin cancer resection.

Results
The long term results have shown constant improvements of the aesthetic result over time both at the recipient and donor site. No tumor recurrence has been observed. Sensitivity testings have shown preserved two-point discrimination all over the flap when a nerve was included in the flap's pedicle. When a nerve was not included, two-point discrimination was absent. However, this advantage was lost after one year, because even non-innervated flap regained normal two-point discrimination. The incidence of complication has proved lower for the second group of patients (27% vs 5% - 10% overall). Initial pincushioning resolves within 3 months.

Conclusions
Freestyle pedicled facial artery perforator flaps seem to be a valuable option for the indications of nasal ala and perioral reconstruction. They provide a stable result over time with acceptable donor site morbidity. With appropriate technique the complication rate can be very low. Two-point discrimination returns to normal in one year even when a sensory nerve is not included in the flap.

Bilateral facial contour deformities and facial asymmetries: the evolution of management with free flaps.

Pizzigallo A, Bianchi A, Marchetti C.
Bologna – Italy

Background

Many etiologies, both congenital and acquired, may determine facial contour deformities with hemifacial or bilateral tissue atrophy.
Microsurgical recontruction has become the gold standard to intergrate facial soft tissues, allowing to obtain a satisfactory and long-lasting contour restoration.

Methods

We report our experience with 20 patients affected by facial contour deformity, treated from 1990 to now with the transfer of 22 microsurgical flaps.
In our experience we had an evolution in the flap choice: we used first scapolar flap (in 4 patients), later we preferred perforator flaps (ALT, DIEP, SGAP a total of 14 perforator flaps performed in 13 patients), and now our standard for these pathologies is adiposal DIEP (4 adiposal DIEP performed in 3 patients).

Results

There were no flap losses in this series, 2 patients experienced a postoperative hematoma, flap revisions were performed in 8 patients (liposuction, fat graft, scar revision).
Perforator flaps, in comparison to scapolar flap, allowed to reduce donor site morbility, and to obtain a better contour restoration, as these flaps are easely modelled.
The recent use of adiposal DIEP further reduced donor site morbility, leaving a very short scar in the sovrapubic region, and produced a softer and more natural reconstruction, thanks to the lack of derma.

Conclusions

Based on our experience we feel that adiposal DIEP at the present time should be considered the gold standard in treating facial contour deformities.

AngioTC preoperative assessment of vascular anatomy in the planning of free and pedicled ALT flaps.

Antonini A, Succio G, Rossello C, Salomone C, Burastero G.
Petra Ligure, genova - Italy

Introduction
Multislice angio-CT with 3D reconstruction today is considered to be the gold standard in the imaging of flap vessels and thin perforating vessels.
This technique allows a detailed 3D spatial reconstruction of the vascular anatomy in the flap donor area, giving the surgeon the opportunity to estimate more precisely operating time, flap design, and operative technique.
Absolute contraindications to this exam are patient's renal failure, sensitivity to the parenteral contrast or claustrophobia. It is therefore important to define in which cases such an exam is of extreme importance, and when, instead, doppler or duplex studies may be sufficient.

Materials and Methods
In this work, the authors are presenting their experience in 8 selected cases where important details on vascular anatomy, pedicle length and distal anastomoses were needed, discussing the indications and the relevance of the information obtained for a correct planning of the reconstructive procedure.

Results
The multisclice Angio-TC exam was extremely accurate in the precise definition of vascular anatomy and in most cases helped us take important decisions on the reconstructive procedure.

ALT flap perforators and their surgical anatomy. A brief review of literature and case report of a single perforator arising from the Rectus Femoris midline.

Rossello C, Antonini A, Salomone C, Bormioli M.

Petra Ligure, Genova – Italy

Introduction

Anterolateral Thigh perforators are subject to high anatomical variability. For this reason, this flap is often left as a second choice when planning microsurgical reconstructions, and most authors advise a thorough preoperative planning of vascular anatomy and perforator localization.

Materials and Methods

In our practice in a Bone Infection department, the ALT flap is often a first choice because of the possibility to harvest a large amount of pliable fasciocutaneous tissue with the patient in supine position, with very low donor site morbidity. Our preoperative planning consists in a Color Doppler perforator localization on the day before surgery, to trace on the cutaneous surface the exact corresponding points where the vessels perforate the muscular fascia to reach the subcutaneous tissue and overlaying skin before every single procedure.

In selected cases, we have performed a preoperative Multislice AngioTC scan with 3D reconstruction to obtain additional information about pedicle anatomy, length, and distal anastomoses with the genicular network.

Results

In this presentation, we want to describe a peculiar anatomy of the Anterolateral Thigh area found in one patient, where the only perforator in the entire middle third of the line from the ASIS to the superolateral corner of the patella came from the belly of the Rectus Femoris muscle with a 7 cm intramuscular route from the LCFA, while no other descending branch could be found in the septum between the Rectus Femoris and the Vastus Lateralis muscles.

Conclusions

In contrast to what we found to be reported in literature, the flap based on this perforator was feasible and lead to a good outcome.

ALT Free Perforator flap for soft tissue head and neck reconstruction: our clinical experience

M. Fraccalvieri, S. Bruschi
Torino - Italy

Introduction
In this paper the authors report their experience with the use of antero-lateral microsurgical perforator flap for soft tissue defects following cancer ablation in the cervical region.

Material and Methods
In the last 10 years we have performed 145 free flaps for head and neck and extremities defects, due to oncology demolition or trauma. Since march 2003 we have started using different types of perforator flaps for soft tissue coverage: in a *pedicled fashion* we used TPPF, TAPF, SGAP, TFLPF. Concerning *perforator free flaps*, we used ALTF and TFLPF for extremities reconstruction and in all cases ALTF for head and neck defects following tumor resection.

Results
All but one ALTF healed uneventfully without any vascular complications. The 7 years post-operative follow up revealed no marked donor-site morbidity in all patients.

Conclusions
Use of perforator flaps for reconstruction has many advantages over other conventional free flaps: their moderate thickness and large cutaneous area allow aesthetic and functional refinements. Then they have provided a versatile soft-tissue coverage with minimal long-term donor-site complications.

TFL flap as an alternative to the alt when there are not appropriate perforators

Contedini F, Negosanti L, Tassone D, Tavaniello B, Cipriani R.
Bologna – Italy.

The anterolateral thigh (ALT) is a versatile flap indicated in many situations, especially in head and neck reconstruction as free flap or for abdominal wall reconstruction as pedicled flap.
The main disadvantage of this flap is the anatomical variability of its pedicle and of perforator's location, as shown by Kimata.
When there were not founded adequately sized perforators it can be converted in Tensor Fascia Lata (TFL) flap trough the same incision, using the transverse branch of lateral circumflex femoral pedicle.
The TFL can be thinned by removing the muscle with the exception of a small part around the muscolocutaneous perforator.
We report our experience in 6 cases: 5 for head and neck reconstruction as free flap and one case of abdominal wall reconstruction as pedicle flap.

ALT flap for oral cavity reconstruction.

D. Tassone, R. Sgarzani, S.Palo, L. Negosanti, D.Cricca, F. Contedini, R. Cipriani
Bologna – Italy

Introduction
The architectural integration of the different structures that make up the upper airway-digestive district, causes extremely complex three-dimensional anatomy that responds to complex functional requirements. Reconstruction after extensive and radical demolition of oral cancer is particularly difficult because it requires an accurate anatomical restoration of the original structures in order to allow rapid recovery of speech, chewing and swallowing functions. Malignant tumors of the oral cavity most frequently affect the oral pelvis and the mobile portion of the tongue (39.5-68%), less frequently the hard palate (1-5%).

Materials and methods
From June 1997 to June 2010, in the Unit of Plastic Surgery of S. Orsola-Malpighi Hospital in Bologna, in collaboration with colleagues of the ENT's OU and of the Maxillofacial Surgery's U.O., 149 reconstructions were performed in the oral cavity through the ALT flap. In details, according to tumor site, they are differentiated as follow: 58 reconstructions of the tongue, 32 of oral pelvis, 7 of the jaw district, 6 of tonsillar lodge, 10 of the cheek, 23 of palate/upper jaw, 13 of oropharynx. We have adopted the pre-surgical set-up of a template (pattern cut on an autoclavable x-Ray film) that faithful repeats the design the skin island must have, in order to allow the pre-model or the optimal three-dimensional model at the time of insetting of the flap. Often a particular shape of skin island with a multilobulated contour is required; some other times it is required a careful de-epithelialisation to reach the dermis, which is still preserved in order to obtain stable folding of the flap on itself thus creating ruts and plication similar to original anatomy.

Results
A three-dimensional reconstruction as close as possible to the original anatomical reality appears to be justified when the saving of a portion of the resected organ still functionally active is possible and oncologically correct, in order to allow the residue tissue to move, even if passively, that portion of the body meticulously reconstructed with a free flap.

Conclusion
The ALT flap, due to its thinness and plicability, strongly responds to the requirements of the oral cavity reconstruction. Further important advantages of the flap that increase its effectiveness reconstruction are: good size and great length of the vascular pedicle, availability of a large graft, possibility of creating on the same pedicle the so called "chimera" flaps, low morbidity of the donor site, possibility of a contemporary approach by two surgical teams.

A flap in the night: a case report.

Negosanti L, Sgarzani R, Pinto V, Piccin O, Contedini F, Caliceti U, Cipriani R.
Bologna – Italy.

A 39 years old female affected by papillifer carcinoma of the thyroid extended to the esophageal wall was treated in a first intervention with total thyroidectomy, bilateral neck dissection esophageal resection with esophagoplasty and tracheal resection with termino-terminal anstomoses.
After 9 days she presented dyspnea and a tear of trachea, so, in emergency, we decided for a total laryngectomy and a reconstruction of both esophagus and sovrasternal tracheosotmy, avoiding a mediastinic tracheostomy, with an ALT flap shaped basing on our past experience in the use of that flap for tracheostomy reconstruction.

Optimizing the use of sentinel skin paddle in monitoring buried fasciocutaneous free flaps

Faenza M, Farace F, Fara G, Balzano A, Dessena L, Rubino C.

Sassari – Italy.

Introduction
Several techniques have been described in literature about free flaps postoperative monitoring with free-floating sentinel flaps in pharyngoesophageal reconstruction.
Our proposal is to suggest a reliable technique in monitoring buried fasciocutaneous free flap in pharyngoesophageal reconstruction with ALT flap.

Materials and methods
ALT Flap is our first choice in pharyngoesophageal reconstruction.
The technique we propose in this study consists on harvesting al ALT Flap as a chimeric flap with 2 paddles based on different perforators of the same pedicle. The first skin paddle is used to repair the pharyngoesophageal defect and the second one is used as a sentinel skin flap and placed along the suture line at the neck base in a position dictated from the length of the perforator vessel, in order to avoid stretching of the pedicle itself and venous congestion due to kinking of the veins.
The skin paddle is sutured during the main surgical procedure to the surrounding skin in the same context of the transverse incision made for neck dissection.

Results
In our series two pharyngoesophageal reconstruction with ALT flap and sentinel skin paddle have been performed. There were no thromboses or flap loss in these patients.

Conclusion
This procedure allows a good surveillance of buried flaps with classic monitoring procedures.
Furthermore, stitching the paddle provides an easier management of the wound, reducing the risk of infection, torsion of the pedicle, hemorrhage, edema and psychological impact on the patient.
The skin paddle is removed under local anesthesia without any extra scar and it is well tolerated by patients.