Pudendal Thigh Flap in Vaginal Agenesis

Objective:

To evaluate vaginal reconstruction using pudendal-thigh flaps.

Methods:

The pudendal-thigh flaps lateral to labia majora were elevated and brought to the midline through tunnels formed under labia majora. The two flaps were then sutured together to create a new vagina, then invaginated into a created rectovesical space.

Results:

In eight cases aged 16 to 23 years with congenital absence of vagina a new vagina was constructed with neurovascular pudendal-thigh flaps. One patient developed partial necrosis of a unilateral flap and was repaired by small split thickness skin graft. In other patients all flaps survived and the neovagina was spacious and quite deep.

Conclusion:

Vaginal reconstruction using pudendal thigh flaps is one of the best methods of vaginoplasty. The technique is simple, the flap is sensate and reliable, and the donor site is hidden with little secondary deformity.
Inferior Gluteus Maximus Myocutaneous Flap for Reconstruction of Ischial Bed Sores

Background: The skin overlying the ischium is the most common location for pressure sores and is one of the most difficult areas to treat. There are various alternatives for the closure of ischial pressure sores. The inferior portion of the gluteus maximus muscle along with an island of overlying skin seems to be the best choice for initial coverage of an ischial pressure sore.

Methods: Debridement including bursectomy and radical excision of all nonviable, fibrous and infected tissues was done. The ischial tuberosity was reduced and rasped to a smooth contour. The inferior gluteus maximus myocutaneous flap was elevated and transected at a point where a mass adequate to fill the deep portions of the wound had been included. The flap was rotated so that the tip was drawn into the defect. Suction drain was inserted and the wound was closed in layers. The flap donor site was closed without a skin graft.

Results: Twenty patients (17 males and 3 females) underwent inferior gluteus maximus myocutaneous flap reconstruction for grade 4 ischial pressure sores. Partial dehiscence of the wound occurred in 2 cases. One of them healed spontaneously; while secondary revision of the wound was done for the other. Two cases showed recurrence, after 5 and 6 months. Both cases were reoperated
successfully with the same technique then followed up again for 6 months with no recurrence.

**Conclusion:** The inferior gluteus maximus myocutaneous flap should be considered as one of the first choices in the treatment of ischial pressure sores. It is easily elevated vascularized bulky flap with low recurrence rates. Rerotation and advancement in case of recurrence can be done successfully. It also spares the vascular pedicles of adjacent flaps for future use.
**Fixation of Penile Prosthesis in Phalloplasty**

**Background:** Proximal fixation of penile prosthesis in phalloplasty cases is challenging due to lack of normal corporeal bodies and its tough tunical covering, proximal and distal migration may occur and patients may suffer from lack of rigidity.

**Patients and Methods** This study included 14 cases in which 16 penile prostheses (12 semirigid and 4 inflatable) were inserted and fixed in totally reconstructed phallus during the period between 2002 and 2013 in Plastic Surgery Unit, Tanta University.

Twelve cases suffered from disorder of sex development or differentiation (46 XY) and four cases were presented by post traumatic penile amputation. Anterolateral thigh flap and tubed abdominal flap were used each in a single case, groin flaps were used in two cases that were reoperated again due to fracture of the prosthesis, while free radial forearm flaps were used in the remaining ten cases. Time of prosthesis insertion was not less than one year after phalloplasty and follow up included regular physical examination and interviews over at least three years.
Plates and screws were used for fixation of prostheses to the pubic bone in four cases (all of them were semirigid). Construction of a polypropylene mesh jacket over the prostheses and its fixation by polypropylene sutures to the periosteum of the pubic bone was used in the remaining twelve cases, ten of them were new and two of them were redo cases. The prosthesis was semirigid in eight of them and inflatable in four.

**Results:** In plates and screws technique, early infection of the prosthesis occurred in one case, the plate was broken in the second case, while the metallic core of the prosthesis was broken in the remaining two cases within one year. In polypropylene mesh and sutures technique, tip necrosis with extrusion occurred only in one case due to insertion of over lengthened semirigid prosthesis, while all other cases were successful throughout the whole period of follow up.

**Conclusion:** Adequate fixation of penile prosthesis in phalloplasty is an essential step to provide support and better performance. Fashioning a polypropylene mesh over the prosthesis with its fixation by polypropylene sutures to the periosteum of the pubic bone is one of the best options to achieve this goal.
Reversed Radial Perforator Adipofascial Forearm Flap for Soft Tissue Defects of the Hand

Background: Soft tissue defects of the hand and wrist can result from trauma, burn, infection, ischemia, or neoplasm. In recent years, the radial forearm fasciocutaneous flap has been used extensively to cover large areas of hand and wrist defects. This flap was criticized due to sacrifice of a main arterial axis in the hand and the ugly scar left after its harvest. This led to many innovative techniques and flaps from the forearm aiming to minimize its donor site morbidity.

We describe the distal radial perforator adipofascial forearm flap that can cover effectively both dorsal and palmar defects, keeping the major vascular axes in the hand and keeping the forearm skin intact.

Patients and Methods: This study included twenty four patients who were operated by distal radial perforator forearm fasciosubcutaneous flaps and skin grafts either immediately or at a second stage, in Plastic and Reconstructive Surgery Unit, Tanta University Hospitals, from January 2006 to January 2011, to cover soft tissue defects in the hand as distal as the interphalangeal joints that could not be closed primarily, spontaneously or by split thickness skin graft.

Results: It was found that the average number of radial artery perforators was 18 perforators, most of them (50%) arise between brachioradialis and flexor carpiradialis in the distal forearm, within 6cm proximal to the styloid process.
Twenty Two flaps (91%) were successful. Total flap loss occurred in one case, which needed surgical debridement and groin flap reconstruction, another case was complicated by marginal flap necrosis that needed only dressing and split thickness skin graft. Ischemia at the edges of skin incisions and wound dehiscence occurred at the donor site in 2 cases.

Skin graft was applied immediately over the flap in 18 cases (75%) while it was delayed for one week in the remaining 6 cases (25%). Three of the immediately grafted cases (16%) showed partial graft loss and revision of the graft were indicated in two of them, while all the delayed grafted cases showed complete graft take.

**Conclusion:** Reversed radial perforator adipofascial flap of the forearm can be harvested for coverage of nearby defects mainly in the hand. This flap can reach distally as far as the web spaces of the hand provided that the pivot point is not less than 3 cm from the radial styloid process. Skin graft is better applied one week later after the resolution of oedema.

This flap has many advantages as easy technique learning, a significant size, it preserves the radial artery and keeps the skin of the forearm intact.
The Role of Adipose Tissue Derived Stem Cells in Enhancement of Peripheral Nerve Injuries Repair

**Background:** Injuries of the peripheral nerves are common and debilitating. Despite intensive efforts in their repair and regeneration, it remains difficult to achieve full functional recovery (1, 2).

Adipose tissue derived adult stem cells had been used and differentiated into functional Schwann cells by many researchers. A number of experimental studies on their use in nerve repair have been reported with encouraging results (3-5), but their use in human and their role in enhancement of nerve regeneration is still under extensive studies (6).

**Patients and Methods:** This study included 18 consecutive patients with recent isolated peripheral nerve injuries at the wrist joint including either ulnar or median nerves. Patients were divided into two groups; the 1st group (group A) was treated by traditional method with end to end repair. The 2nd group (group B) was treated by end to end repair followed after three weeks by injection of homo-adipose tissue derived stem cells added to platelet rich plasma to the nerve sheath and adjacent tissues. Periodic clinical assessment and nerve conduction studies were done at 3, 6, 9, and 12 months for each patient.
**Results**: Lipoaspirate (150 - 250 ml) from each patient of the stem cell group were processed and the number of collected stem cells after 3 weeks culture varied from 1×10^6 to 3×10^6 with a mean of 2×10^6.

Periodic clinical assessment of motor function and sensory recovery of both groups showed early enhancement of nerve repair in the group treated by adipose derived stem cells added to platelet rich plasma more than the traditional group. The electrophysiological studies showed this improvement significantly.

**Conclusion**: Adipose derived stem cells can be harvested easily with a minimally invasive procedure, they can be obtained in adequate numbers for clinical applications. Together with platelet rich plasma, they have a role in early enhancement of regeneration of the peripheral nerve injuries without hazards or reactions to the patient. These promising results need larger number of patients and to expand the study to use the adipose tissue derived stem cells for repair of gaped nerves.
**Fractional Ablative CO\textsubscript{2} Laser Treatment versus Scar Subcision and Autologous Fat Transfer in The Treatment of Atrophic Acne Scars**

**Background:** There are different modalities for management of atrophic acne scars including lasers. Ablative fractional CO\textsubscript{2} laser was developed to address the shortcomings of traditional ablative lasers with superior results to non-ablative fractional lasers. Autologous fat transfer has been utilized for nearly a decade for tissue augmentation and reconstruction.

**Objective:** To compare ablative fractional CO\textsubscript{2} laser treatment with scar subcision and autologous fat transfer in the treatment of atrophic acne scars.

**Methods:** Twenty patients with atrophic acne scars were included, 10 patients were treated by 3 sessions of ablative fractional CO\textsubscript{2} laser therapy, and 10 patients treated by subcision and autologous fat transfer. All patients were followed up for 3 months, and were assessed by digital photographs, before and after treatment through the application of Goodman and Baron quantitative and qualitative grading systems in addition to 3 physicians Committee and reports of patients satisfaction.

**Results:** In both groups, there was significant improvement in all types of atrophic acne scars. The mean percentage of total quantitative improvement was more significant in case of autologous fat transfer regarding icepick and total number of scars.
Conclusions: Scar subcision with autologous fat transfer proved to be as effective as or even more effective ablative fractional CO\textsubscript{2} laser the treatment of atrophic acne scars regarding the total number of scars as well as icepik type.
**Effect of Immune-Enhancing Diets on the Outcomes of Patients After Major Burns.**

**Background:** The use of immune-enhancing diets (IEDs) has been shown to be beneficial in some categories of critically ill patients. This study aimed to evaluate the effect of early enteral feeding supplemented with glutamine and omega-3 fatty acids as immune-enhancing diets on the outcomes of patients after major burns.

**Methods:** Forty thermally injured adult patients with total body surface burns ranged between 30% and 50%, and the deep areas ranged between 5 and 20% were randomized into a prospective, double-blind, controlled clinical trial into two equal groups: group A (group IED), in which patients received early enteral feeding supplemented with glutamine and omega-3 fatty acids as immune-enhancing diets and group B (group control), in which patients received early enteral feeding not supplemented with immune-enhancing diets. Laboratory assessment including serum albumin, serum C-reactive protein, total lymphocytic count and serum immunoglobulins (IgA, IgG and IgM) were performed at admission, 4th PAD, 7th PAD and 14th PAD. Finally, assessment of outcome by monitoring of the survival rate, the length of hospital stay and the incidence of infection.

**Results:** There were no significant differences between group IED and group control as regard to age (28.7±5.32 versus 29.85±5.94), sex, weight,
%BSA(37.75±4.4 versus 38.3±4.84) and %deep burns (11.7±2.36 versus 10.7±2.036). The incidence of infection (2 versus 8) and the length of hospital stay (16.3±0.92 days versus 17.95±2.96 days) were decreased significantly in group IED versus group control, while there was no significant difference between the survival rates in both groups as there was only one death in the group control.

**Conclusion:** There was improvement in the patient outcome, reduction in the infectious morbidity and the length of hospital stay, but no effect on the survival rates after major burns.