

Fasciocutaneous Free Flaps For Hypopharyngeal Reconstruction

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Introduction

- Carcinoma of the hypopharynx is a devastating disease.
- Surgical resection (TLP+ND) remains the mainstay of treatment.
- Total esophagectomy for oncologic needs
- Reconstruction of surgical defects represents a major challenge for head and neck oncologic surgeons.

Goals of Reconstruction

- Re-establishment of the continuity of alimentary tract
- The ideal technique is controversial:
 - One stage
 - High success rate
 - Low mortality and morbidity
 - Less complications
 - Short hospitalization
 - Provide the greatest potential for neo-pharyngeal speech

Options for Reconstruction of Pharyngo-esophageal Segment

- Early procedures: Multiple stages
- Regional cutaneous flaps e.g. deltopectoral
- Regional myocutaneous F as trapezius
- Pedicled myocutaneous F as PMMC
- Colon bypass & Gastric pull up
- Microvascular FTT:
 - Visceral: free jejunum & gastro-omental flaps
 - Fasciocutaneous: RF, Scapular, LA, PLT, and ALT

Gastric Pull Up? Why not??

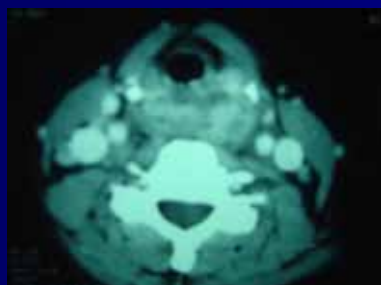
- Non anatomical
- Non physiological: Denervated stomach
- Significant mortality (8-13%) and morbidities (Gilbert 2004)
- Prolonged ileus
- Hyperalimentation: More likely
- Not suitable for cardiac and pulmonary diseases
- Indicated: Total esoph for oncologic clearance

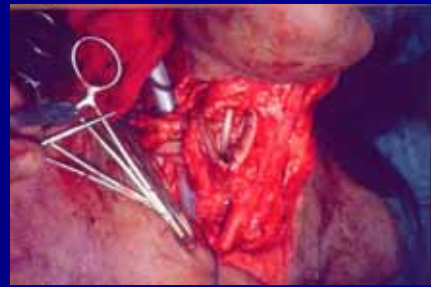
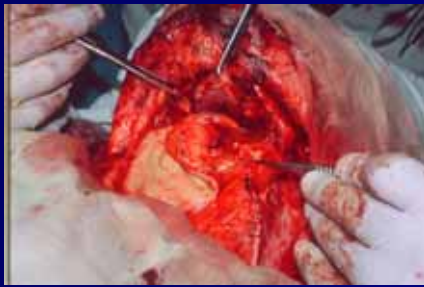
Patients & Methods

- Over 3 yrs period at NCI
- A total of 23 patients
- All underwent TLP & reconstruction using FFF
- FFF included RF (9), PLT (7), ALT (5) & LA (2)
- External monitor in all
- Frozen section of distal stump

Radial Forearm Flap (Chinese Flap)

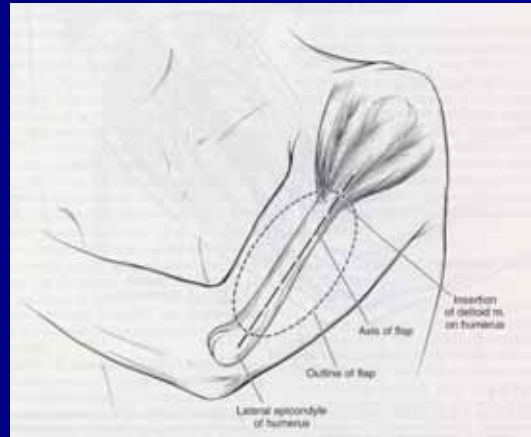
- Developed in China by Yang in 1987
- Initially described for burn contracture of cervical skin
- Soutar et al for H & N reconstruction
- Radial A, cephalic V, Venae comitantes
- Lat intermuscular septum bet BR & FCR
- Urken: Neurofacut F (med or lat antecubital N)



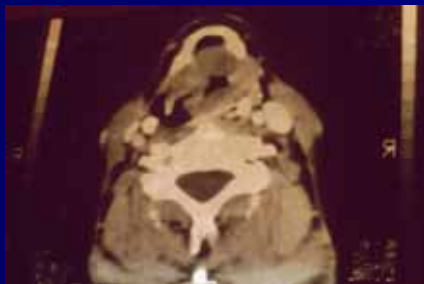


Lateral Arm Flap

- Song et al in 1982
- Lower lat aspect of the arm
- Axis: Deltoid insertion to lat epicondyle
- PRCA & Venae comit \pm Cephalic V
- Lat intermuscular sept bet BR & triceps
- Radial N in spiral groove
- Sensory flap by PCN of forearm



Lateral Arm Flap



Flap Design



Microanastomosis

Lateral Arm Flap



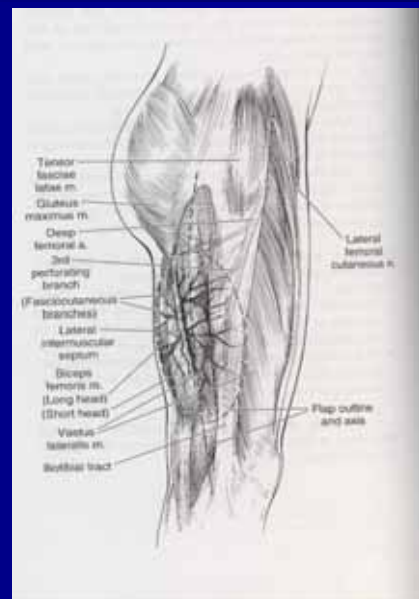
Early POST op



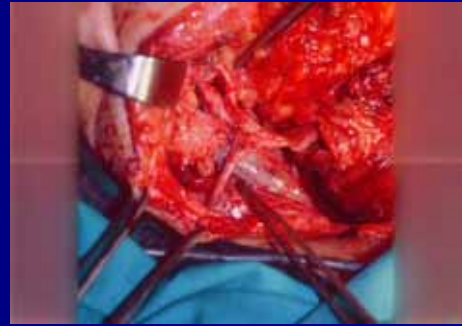
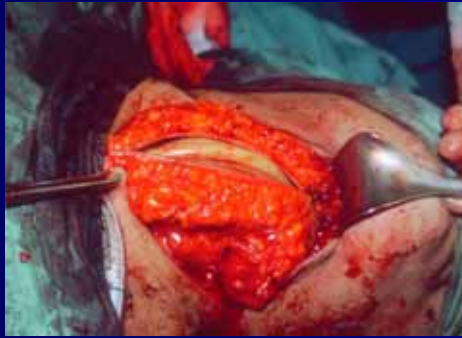
Ba Swallow

Posterolateral Thigh Flap

- Baek in 1983
- Axis: G trochanter & lateral femoral condyle
- Third perforator of PFA & V comit
- Second & 4th perforators might share
- Intermuscular sept bet VL & BF



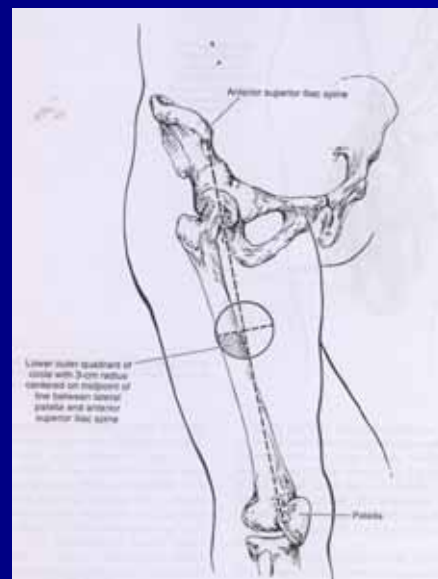
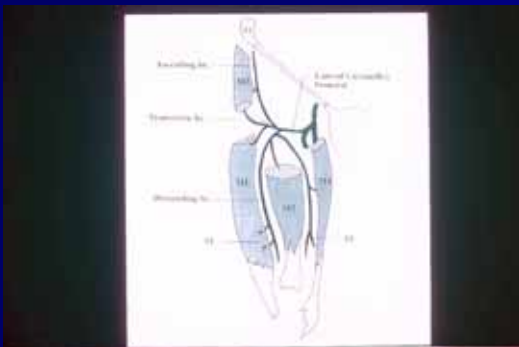
Posterolateral Thigh Flap



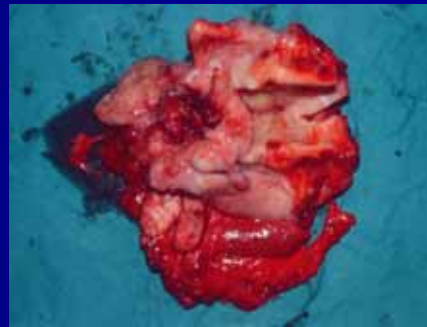
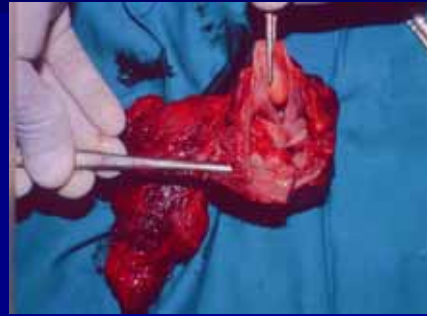
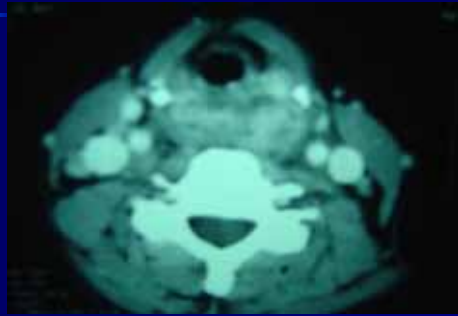
Antero-Lateral Thigh Flap

- ALTF first described by Song et al 1984.
- Descending Br. of LCFA & V comit
- Intermuscular septum between RF & VL ms
- Ant & lat femoral cut N
- Axis: ASIS and superolat. border of patella
- Skin island centered at the midpoint

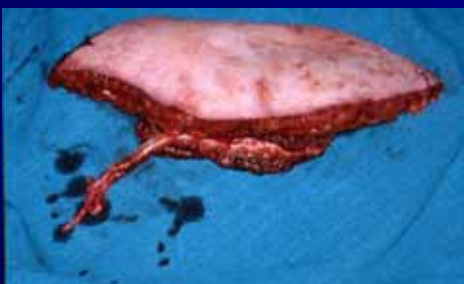
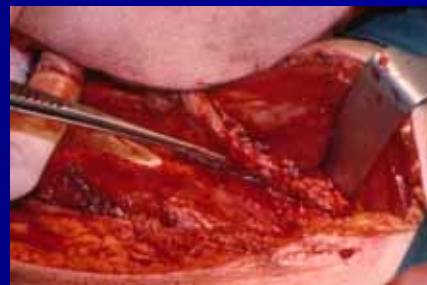
Anatomy



Antero-Lateral Thigh Flap



Antero-Lateral Thigh Flap



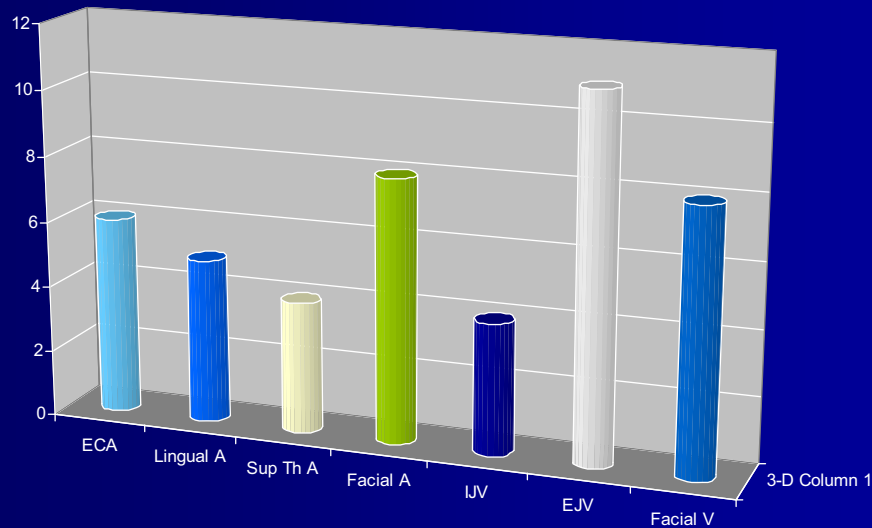
Postoperative



Results

- 13 males & 10 females
- Age range 36-77
- All SCC
- Successful flaps in 22 patients
- One free flap failure: Managed with deltopect F
- Salvage surgery in one flap with revision of venous anastomosis

Recipient Vessels



Results (Contu)

- Tube feeding immediately (1st post op d)
- Pharyngocutaneous fistulae (5)
- Resume oral intake 2-3 weeks
- Average hospital stay 13 days
- Late stricture in 11 patients
- Most after XRT
- Donor site morbidity: Significant in RFF

Donor site Morbidity



ALT



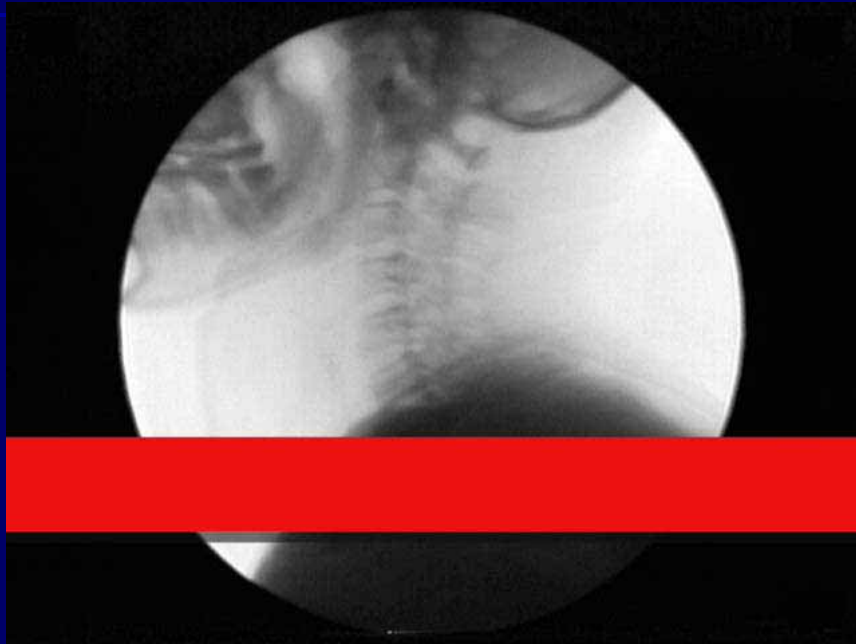
PLT

Late Stricture

- Common sequelae
- After 3 months
- XRT is a common factor
- Passes liquid
- Responded to dilatation
- Advised: Salivary tube



Late Stricture (Video-fluoroscopy)



Conclusion

- FFF is a valid option for hypopharyngeal reconstruction
 - A relatively safe procedure
 - Avoids laparotomy required for jejunum
 - Avoids blunt mediastinal dissection with GPU
 - Enhances patient recover after surgery
- Thigh is an ideal donor site for FFF in thin patients:
 - Provides large skin island with low morbidity
 - Allows simultaneous two teams approach
 - ALT: RND
 - PLT: SND & MRND
- RFF is ideal for markedly obese patient

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Fasciocutaneous Free Flaps for Hypopharyngeal Reconstruction

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ABSTRACT

Considerable controversy persists regarding the optimal technique for hypopharyngeal reconstruction. The ideal procedure should provide low mortality and morbidity, short hospitalization, a high success rate, few complications, and the greatest potential for neopharyngeal speech and deglutition. In this study, a variety of fasciocutaneous free flaps were used for reconstruction of the hypopharynx. Over a two-year period, fasciocutaneous flaps were used for reconstruction of pharyngo-oesophageal segments following total laryngopharyngectomies in 16 patients at The National Cancer Institute, Cairo University, Cairo, Egypt. Flap survival, recipient vessels used, and complications were examined. The ultimate functional and cosmetic outcomes of free flaps were compared. Of the 16 patients included in this study, nine were males, and seven were females. Free flaps used for reconstruction included the radial forearm (8), lateral arm (2), anterolateral thigh (3), and posterolateral thigh (3) flaps. Free flaps were successful in 15 patients. One patient had total flap loss. Salvage surgery was successful for one flap that developed venous congestion. Eleven patients received adjuvant radiation therapy. The commonly used recipient vessels were the small arteries of the neck and the external jugular vein. Five patients developed minor pharyngo-cutaneous fistulas that healed spontaneously. Six patients developed anastomotic line stricture. Donor-site morbidity was more significant with the radial forearm flap, compared to other flaps.

Fasciocutaneous free flaps have a definite place in pharyngo-oesophageal reconstruction. The flap should be selected with reference to the type of the defect and patient obesity; however, donor-site morbidity should also be considered.

KEYWORDS: Free flaps, fasciocutaneous, hypopharynx reconstruction

Total reconstruction of the hypopharynx and cervical esophagus has undergone rapid evolution in the last two decades. In particular, free tissue transfer (FTT) has improved the results of reconstruction by providing healthy, well-vascularized tissue, with better healing and more resistance to local infection. There is a potential oncologic benefit as well, allowing for more

extensive resections, without compromise due to reconstructive concerns. Free jejunum graft has been used for hypopharyngeal reconstruction. The leading disadvantage of the jejunum is the violation of the abdomen, which carries a significant incidence of abdominal complication; in addition, the mucosa has a limited ischemia time.¹

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Thank you