

# Lobes

We refer to tissue segments with a defined vascular supply as **lobes** (unlike transplant). It is either a preserved natural supply (rotary flaps) or a supply connected at the point of use (free flaps) using microvascular technology. The flaps serve to cover the soft tissue defect. Preoperative planning of the size, shape, traction and direction of the vascular pedicle is necessary during flap dissection.

## Local lobes

These are flaps stemmed from surrounding area.

We distinguish:

1. **axial flap** - nutrition by anatomically defined vessels
2. **random pattern flap** - capillary supply of the dermal + subdermal plexus; length:width max. 2:1

Basic types and uses of local lobes:

- **transposition flap** - moved into the defect from its surroundings; dimensions given by the size of the defect, limited by the angle of rotation
- **rhomboid flap (Limberg's)** - covering of rhomboid defects
- **sliding flap** - extended to the site of the defect, the accumulated tissue at its distance (so-called "dog ears") is excised in a wedge-shaped fashion on both sides
- **insular flap** - we push it into the defect with VY plastic, nourished only from the deep vessels of the substratum
- **rotary flap** - created around the defect by an arc-shaped cut from its edge twice the size of the defect, ending with a cut towards the defect; to cover  $\Delta$  and other defects
- **Z-plasty** - symmetrical transposition of tissue into the defect; displaced wedges of tissue elevated at an angle of 30-60°



Full-thickness local forehead flap ( nasal reconstruction)

## Distant flaps

### Direct distant flaps

Direct distant flaps are connected to the destination directly.

- **Cross-finger flap** - flap from 1 finger to adjacent finger with defect of the fingertip, secondary defect of the donor area is covered by skin flap;
- **cross-leg flap**;
- **tubulated flap in the lower abdomen** - wrist + hand defect coverage.

### Indirect distant flaps

Indirect distant flaps are connected to the destination with the help of temporary host destination (usually on the wrist).

- **Filatov flap** - oblique strip of skin with subcutaneous tissue in the hypogastrium, length to width ratio 3:1 → tubulated flap → can be disconnected after 3-4 weeks at either end → after sewing + attaching to the wrist disconnect the remaining stem → transfer to the place of the defect;
- **axial groin flap** - used as both direct and indirect, nutrition from a. circumflexa ilium superficialis → ratio can be > 3:1.

## Division according to the composition of the flap

### Fasciocutaneous flaps

- Local flaps containing deep fascia on the lower limbs in a length to width ratio of 3:1;
- supplied by fascial vessels and perforators;
- safely cover e.g. bare bone or tendons;
- secondary defect is covered by skin flap.

### Muscle and musculocutaneous flaps

Defined vascular supply, we rate:

- closeness to defect;
  - necessity, resp. replaceability of the function (we try to keep a part of the muscle for its function);
  - dominant vascular pedicle;
- defect in place of collection is usually covered by skin flap;
  - most often we use thoracodorsal flap, gastrocnemius flap and flap of the rectus femoris muscle.

## Loose flaps

**Loose/Free flaps** are the domain of microsurgery.

- axial flaps: cutaneous, fasciocutaneous, muscular, musculocutaneous
- loose flap transfer : completely separated from the donor site and sewn with a vascular pedicle to the vessels around the defect → sewn to the destination
- vascular bundle of the flap: artery + 1 / 2 vein

## Freely transferred skin flaps

- *inguinal flap* – aa. et vv. circumflexae ilium superficial.
- *flap from the dorsum of the leg* – aa. et vv. dors. pedis
- *scapular flap* – aa. et vv. circumflexae scapulae
- *flap from the radial side of the forearm* – aa. et vv. radiales + n. cutaneus antebrachii (preservation of sensitivity)

## Freely transferred muscle and musculocutaneous flaps

- *flap of the latissimi dorsi muscle + serratus anterior muscle* – aa. et vv. thoracodorsales
- *flap of the recti abdominis muscle* – aa. et vv. epigastricae inferiores prof.
- *flap of the gracilis muscle* – aa. et vv. circumflexae femoris med.
- *flap of the tensor fasciae latae muscle* – aa. et vv. circumflexae femoris lat. + n. cutaneus femoris lat.

## Freely transferred vascularized bone grafts

- *vascularized fibula* – aa. et vv. peroneae
- *vascularized bone graft from the iliac blade* – aa. et vv. circumflexae ilium prof.

## Links

### Related articles

- Facial reconstruction
- Nasal reconstruction
- Facial soft tissue injuries
- Reconstruction of the upper lip
- Reconstruction of the lower lip
- Skin transplantation

### References

- MĚŠŤÁK, Jan. *Introduction to plastic surgery*. 1. edition. Prague : Charles University in Prague - Karolinum Publishing House, 2005. 125 pp. ISBN 80-246-1150-3.
- DUŠKOVÁ, Markéta. *Plastic surgery : Textbooks for students of the Third Faculty of Medicine* [online] . 1. edition. Charles University in Prague, Third Faculty of Medicine, Department of plastic surgery 3FM CU and UHKV, 2010. Available from <<https://www.lf3.cuni.cz/3LF-806.html>>. ISBN 978-80-254-8780-8.