Staged superficialization of deep arm autogenous brachio-cephalic arterio-venous fistula via duplex guided liposuction: feasibility and outcome

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Disclosure

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I have no conflict of interest.
Introduction
NKF-DOQI: rule of 6.
Obesity is↑ in the community.
CRF obese patients will also ↑.
Obesity & autogenous vascular Access?
Basilic vs cephalic vein.
Introduction

Options for superficialization of the cephalic vein:
- elevation (FEP)
- lipectomy
- transposition (translocation)
- Venous window insertion needle guide (vWING)
- liposuction
- duplex guided cannulation.
Aim of the work

The aim of this study is to evaluate our experience in duplex guided liposuction as a method for superficialization of deep seated cephalic vein in the upper arm of a well-functioning and mature proximal brachio-cephalic AVF.

Setting: 3ry referral university center.
Patients and methods:

**Patients’ inclusion criteria were:**

- Well functioning mature upper limb brachio-cephalic AVF. (diameter ≥ 6mm, flow ≥ 600ml/sec).
- Deep seated cephalic vein (depth ≥ 6mm).
- Adult patients.

**The exclusion criteria were:**

- Patients with: bleeding disorders, hypotension, steal syndrome.
- Fistula with: low flow, failed maturation, venous hypertension
Technique

21 cases (16 from our institute & 6 referred after difficult or failed cannulation).

After 6 weeks of fistula creation or resolution of hematomas.

Stab incision (1 or 2).

Injection of tumescence.

Duplex guided liposuction till vein is ≤4mm from the skin.

Closure of stab & application of iced saline bag.
Results

- 7(M) & 14(F), age (28-62 with range of: 47± 9.7 y).
- BMI (28-42) with mean BMI of (35.8 ± 4.4).
- DM: 6, HTN: 8, IHD: 3. FUP: 6-48 months.
- Vein depth: (14-25 mm) with a mean of (17.9 ± 2.7 mm) which ↓ to a depth of 2-4 mm with a mean of 3.2 ± 0.8 mm.
- Time of liposuction: 6-8 weeks (mean 6.5 ± 0.6 ws).
- Vein diameter: ↑ from 6.4 ± 0.2 mm to 7.4 ± 0.4 mm.
- Time till 1st cannulation (42-60 days).
- Amount of fat removed: (250-390 ml)
Results

- complications:
  1 case: infection, 1 case: significant hematoma, 5 cases of thrombosis during the follow up period.
  - 2 cases lost follow up & 2 died during follow up.
  - The 1ry patency was: 95.3% at 12 months, 80.5% at 24 months, 69.9% at 36 months, and 64.1% at 42 months. While 2ry patency was: 97.4% at 12 months, 90.34% at 24 months, 85.1% at 36 months, and 79.8% at 42 months. The mean SE for 1ry patency is 2.4 and 2.08 for the 2ry patency.
Similar trials

Ladenheim :2014
Miller :2014
McMillan :2013
Conclusion:
Staged liposuction of deep cephalic vein of a well mature functioning deep arm brachio-cephalic fistula is safe and effective procedure yet multicenter randomized trials should be conducted to further attain solid data regarding its durability and compare it to other superficialisation modalities.
Thank you
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