

Lymphatics preservation during lipoedema surgery

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Introduction: Treatment of Lipoedema by liposuction is aimed to remove abnormal fat while preserving other structures like lymphatic channels.

Aims: The subcutaneous fat in Lipoedema is not homogenous; only the Deep Adipose Tissue (DAT) is the Lipoedema fat, not the Superficial Adipose Tissue (SAT) that contains the delicate lymphatic network. We hypothesize that the DAT should be aspirated while trying to preserve the SAT and thereby, improve surgical results and minimized complications.

Method:

1. In 75 consecutive patients (150 legs) we compared (A) the echogenicity of the superficial fat vs. the deeper fat (numerical value 1 to 10, ultrasound white/black scale) and (B) the thickness of superficial/deep fat. Examination were done 10cm above the medial malleoli; Terason t3000 US System, 2-12MHZ
2. Pain level (0 to 10) by pinching a superficial pinching (~2cm) vs. full thickness (superficial + deep) pinching at the medial calf; Visual Analog Scale (VAS)
3. Outcome of Liposuction: 95 patients, 255 procedures.

Liposuction technique: 1) Water-jet Assisted Liposuction (WAL), Body-jet EVO, Humanmed; 2) liposuction is limited to the deep fat layer, avoiding the superficial (~10-15mm) fat; 3) water jet is directed inward; 4) local anaesthesia; 5) 3.5-4.8mm cannula; 6) cannula moves in all directions; 7) no heat assistance; 8) no power assistance (PAL); 9) dissection is done by high volume irrigation (Super wet) and slow motion.

Results:

1. Echogenicity: SAT 2.93+1.26, DAT 6.05+1.36 (P<0.05); (Thickness: Superficial fat thickness 10.2+3.1mm, deep fat 24.3+6.1mm)
2. Pain level: Superficial fat 1-2/10, deep pain >8/10
3. Outcome: At >6 months:
 - a. Spontaneous pain: relieved in all
 - b. Tenderness to pressure: (>8/10 pre WAL, <2/10 post WAL)
 - c. Skin hypersensitivity: relieved in all
 - d. Lymphedema/leg swelling: improved or unchanged.

Conclusions: Correlating ultrasound findings, pain levels and the surgical outcome supported the surgical technique as described above. We believe that avoiding the superficial fat and applying a gentle technique like WAL results in excellent symptomatic relief while preserving lymphatic channels.