

## **MESOTHERAPY**

DATE: January 2005

---

### **EMERGING TECHNOLOGY REPORT**

*The ASDS Emerging Technology Report is a new member service designed to inform dermasurgeons of the latest technologies or procedures entering the marketplace. The series represents a distillation of available published scientific data and anecdotal information on a specific technology or procedure and should not be misconstrued as an endorsement by the ASDS. The Society encourages its members to use their independent judgment in applying any new technology or procedure in the care and treatment of their patients.*

#### **Definition:**

Mesotherapy is a general term describing a technique that utilizes a series of injections to perfuse liquid preparations inclusive of medications and other substances into the subcutaneous tissue (the “mesoderm”) to treat local medical and aesthetic conditions. It does not denote treatment of a specific medical or cosmetic condition, although it has widely been publicized as a method for anti-aging and as a means of “melting fat” for body contouring.

#### **History:**

Mesotherapy was originally pioneered by the French physician, Dr. Michel Pistor in 1945 for the treatment of tinnitus and later for pain, vascular and lymphatic disorders. His first paper was published in 1952. Since its introduction, it has gained widespread attention outside of the United States for the treatment of medical conditions and, more recently, for cosmetic purposes and weight loss.

#### **Indications:**

The various uses for mesotherapy reported in the literature have included pain management for musculoskeletal disorders (arthritis, tendonitis, and neuralgia) and the treatment of vascular disease (venous stasis and lymphedema). However, the most notable indication seems to be for the reduction of adipose tissue including cellulite, lipomas and weight loss, for which it has been promoted as a “non-surgical alternative to liposuction.”

#### **Synonyms:**

“ThinJection”, “Lipodissolve”, “Lipotherapy”, “Mesoplasty”

#### **Ingredients:**

There is no standardized formulation for mesotherapy and ingredients vary depending on indications. Solutions have included prescription medications (vasodilators, antibiotics, the caffeine, aminophylline, hormones like calcitonin and thyroxin and the beta agonist, isoproterenol, enzymes (collagenase and hyaluronidase), herbal extracts, vitamins and minerals). One of the ingredients most consistently used for fat loss is a soybean lecithin extract phosphatidylcholine or “Lipostabil®” (Aventis, Sanofi-Aventis Group; Strasbourg, France). Initially it was thought that this was the responsible agent for the nonspecific lysis of cell membranes-- emulsification of fat cells (lipolysis)-- and the cause for fat reduction. However, recent data suggests that the cell lysis may in fact be due to the action of deoxycholate, a natural detergent used in these formulations to keep the phosphatidylcholine soluble in water.

#### **Injection Technique:**

Treatment sessions consist of a series of local subcutaneous injections of a fluid formula with a syringe or hand-held device (mechanical gun) attached to a 27-30 gauge needle directly into the area(s) of concern. There is no precise protocol, and the depth, amount of medication delivered per injection and treatment interval is determined by the condition being addressed.

**Complications:**

Localized adverse events have included edema, erythema, ecchymosis, irregular contours, and tender subcutaneous nodules. Urticarial and lichenoid reactions to the injected medications as well as mycobacterial infections have been reported in the literature. Systemic side effects of phosphatidylcholine include mild transient elevations in LFT's and rare cases of nausea and vomiting after injections of high volumes.

**Conclusions:**

1. There are no standard mesotherapy formulations. No pharmaceutical preparation is licensed or FDA approved for mesotherapy for anti-aging purposes or for the reduction of adipose tissue.
2. The primary ingredient, phosphatidylcholine (Lipostabil®), was prohibited by the Brazilian National Agency of Health in 2003 due to lack of scientific data supporting its use for the reduction of localized deposits of fat.
3. Despite the growing popularity of mesotherapy there is a paucity of available data and presently there are no randomized, double-blinded controlled studies in the literature that unequivocally establish the safety and efficacy of this procedure for medical or aesthetic conditions. Until adequate safety information is available physicians who wish to perform this therapy for anti-aging or adipose reduction may be at some degree of risk and should ascertain the FDA status and the standard of care within their community, appreciate the medical liability, and communicate with their insurance carrier.
4. Localized fat deposits that are resistant to exercise and diet, excess skin and other facial signs of aging can be distressing to patients and these are often their presenting concerns when seeking consultation with a dermasurgeon. Localized dietary and exercise resistant fat deposits can be safely improved by surgical body contouring procedures such as tumescent liposuction. There are many causes of aging inclusive of photodamage and chronologic changes and currently there are many FDA approved alternatives to address the stigmata of the aging face. Mesotherapy may ultimately prove to be a viable adjunct or option for these concerns but further study is warranted before this technique can be endorsed.
5. Controlled research to determine the optimal formulation and treatment regimens as well as the safety, efficacy and further insight into the mechanism of action of this procedure is strongly encouraged. The ASDS and its members look forward to further developments and continue to support scientific documentation.

**References:**

1. Ablon G, Rotunda AM. Treatment of lower eyelid fat pads using phosphatidylcholine: Clinical trial and review. *Dermatol Surg* 2004 30: 422-427.
2. Rotunda AM, Suzuki H, Moy RL, Kolodney MS. Detergent effects of sodium deoxycholate are a major feature of an injectable phosphatidylcholine formulation used for localized fat dissolution. *Dermatol Surg* 2004 30: 1001-1009.
3. Rittes, P.G. The use of phsphatidylcholine for correction of lower lid bulging due to prominent fat pads. *Dermatol Surg* 2001 27: 391-392.

4. Hexsel D, Serra M, Mazzuco R, Dal'Forno T, Zechmeister D. Phosphatidylcholine in the treatment of localized fat. *J Drugs Dermatol.* 2003 2:511-8.
5. Nagore E, Ramos P, Botella-Estrada R, Ramos-Nigues JA, et al. Cutaneous infection with *Mycobacterium fortuitum* after localized microlipoinjections (mesotherapy) treated successfully with a triple drug regimen. *Acta Dermato-Venereologica* 2001 81: 29.
6. Marco-Bonnet J, Beylot-Barry M, Texier-Maugein J, Barucg J.P., Supply P, et al. *Mycobacterium bovis* BCG cutaneous infections following mesotherapy: Two cases. *Annals of Dermatology and Venereology* 2002 129: 728.

COMMITTEE REFERENCE:

New Technologies Subcommittee on Fat Transfer and Liposuction  
Seth Matarasso, MD, Chair  
Kimberly Butterwick, MD  
David Goldberg, MD  
Naomi Lawrence, MD  
Stephen Mandy, MD  
Neil Sadick, MD  
Patricia Wexler, MD  
Adam Rotunda, MD, Invited Guest

CONTACT:

Katherine J. Svedman, Executive Director  
ASDS  
847-956-9125  
[ksvedman@asds.net](mailto:ksvedman@asds.net)