Anaplastology

Pinto et al., Anaplastology 2014, 3:3
http://dx.doi.org/10.4172/2161-1173.1000134

Short Communication Open Access

A Brief Overview of the Evolution of Liposuction

Hernan Pinto[1*], **Graciela Melamed**[2]

[1]*MD, Aesthetic Specialities & Aging Research Institute, Spain*

[2]*MD, Univerity Maimonides, Argentina*

***Corresponding author:** Hernán Pinto, MD, Aesthetic Specialties & Aging Research Institute, Spain, Tel: +34 636835848; E-mail: hpinto@i2e3.com

Received date: July 24, 2014, **Accepted date:** August 14, 2014, **Published date:** August 22, 2014

Abstract

Liposuction is the cosmetic surgical procedure most widely used in history. For the study of liposuction, I like to split its evolution into three periods: the period of the grandfathers of liposuction, the period of the fathers of liposuction, and the period of the children of liposuction. From liposuction "assisted" with a modest aspirator coupled to the tubing, to other much more sophisticated systems, the "type" of liposuction has changed over the years. However, after almost 30 years of experiences and results, liposuction has not lost its currency or its dominance. Moreover, we are going back to various aspects of the past which were simpler, without compromising effectiveness or safety. As long as it a) is performed by a qualified professional, b) is correctly indicated, and c) uses the best technology available, proven and compared, liposuction will invariably be a remarkable tool.

Keywords: Liposuction; Liposculpture; Assisted liposuction

Introduction

Liposuction is the cosmetic surgical procedure most widely used in history as well as one of the most appealing treatments for patients, and one of the most popular in general. However, at times the level of confusion surrounding liposuction creates an unsustainable situation. Specifically, there are two cardinal issues that determined the current circumstances of liposuction.

Firstly, there is no consistency in discussions regarding this procedure. Not even when it comes to naming it! The issue of inconsistent terminology pervades modern medicine and is associated with doctors' lack of time or unwillingness to get training on anything beyond the strict scope of their sub-specialty. Various terms such as liposuction, lipoaspiration, lipoplasty, lipectomy, and liposculpting are used interchangeably, which is incorrect. Some of the above terms are synonymous, but others are not.

Secondly, the lines between science and business have been completely blurred: useless devices have been designed; techniques which provide lesser results but higher economic gain have been developed; medicine has succumbed to marketing. All of the above has contributed to feed a legend over the past 40 years about a procedure which, when used by a duly trained professional, offers a full guarantee of results and safety, but may be a problem if placed in the hands of a charlatan.

For the study of liposuction, I like to split its evolution into three periods: the period of the grandfathers of liposuction, the period of the fathers of liposuction, and the period of the children of liposuction.

It all started almost a century ago, when invasive experiments and treatments for the removal of fatty tissue from the human body started to emerge. The procedures in those years were a far cry from current practices, in terms of results as well as in terms of risks and techniques. In fact, those "interventions" were not liposuction but actual fatty tissue ablations, i.e. lipectomies. This period started with Dujarrier's famous 1926 report [1] and ended with Schrudde's 1972 work on lipexeresis with uterine curettes [2]. The results were uncertain, to say the least, and complications frequently very serious were rampant. This was the time of the "grandfathers of liposuction", when pioneers moved forward based more on the misses of others than on their own hits.

The second period in the evolution of liposuction is shorter and can be more easily pinpointed, covering the second half of the 70's and all of the 80's. These fifteen years saw the implementation of the innovations and changes that shaped liposuction as we know and understand it today. It is the period of the "fathers" of liposuction, who are specifically four: Fischer, Illouz, Fournier, and Klein.

Giorgio Fischer introduced the aspiration pump in 1977 [3], literally inventing liposuction or lipoaspiration, although his method actually seemed like a hybrid and was still very different from the modern technique. Yves Gerard Illouz went a step further in 1980 when he performed liposuction using a blunt cannula in a way that more greatly resembles the current procedure [4]. At the time, the first major sub-classification for the study of liposuction [5] started taking shape: a) "dry" liposuction, where no solutions were injected prior to aspiration; b) evolved "wet" and "superwet" liposuction, depending on the ratio of injected liquid and the liquid expected to be extracted; and c) "tumescent" liposuction.

The content of the injected solution itself has also been the subject of discussion, improvements, and advances. The first solutions contained saline, distilled water, and hyaluronidase. Adrenaline and lidocaine were introduced subsequently [6]. It was only in 1987 that Jeffrey Klein introduced a solution which also contained bicarbonate [7], marking a definitive advance, which is maintained today. This innovation was especially significant because the evolution of the injected solution was also the evolution of hemodynamic complications. At the start of this period, it was not unusual for patients to undergo blood transfusions due to liposuction procedures. However, with the advent of Klein's solution and the tumescent technique, such complications have been dramatically reduced; transforming liposuction into what it is today: a safe and effective

technique, and the "gold standard" for the treatment of localized adiposities.

The last person whose work was decisive in this period was Pierre Fournier. In 1990, Fournier coined the term "liposculpting" [8] in reference to the ability to sculpt the human body using fatty tissue extracted from certain locations and implanted into others. "Liposculpting" is a wider term than "liposuction". Although its spirit is completely different, it is much more similar to the term "lipoplasty", whose use is very widespread nowadays. Together, Fischer, Illouz, Klein, and Fournier laid the groundwork for modern liposuction, definitively impacting the millions of procedures still performed globally 35 years later.

It all changed in 1990. Specialized journals and associations were created, and new scientific advances emerged. However, although some of those advances further improved the procedure, most of them drowned under the unstoppable ocean of marketing and economic gain. The pressure of the industry became unbearable, leading to the development of different types of vacuum pumps, new alloys for cannulas, and many other changes which did not bring any actual advantages. A great amount of information was recklessly published. This is the period of the "children" of liposuction. There was a belief that everything could be modified and improved. But at a certain point, the analysis of scientific data was set aside and it became very difficult to tell what had been proven from what had not, or what worked from what did not. Two of the items which underwent significant evolution during this period were "assistance" technology itself and cannulas. The surgical technique was also subject to countless changes, exceeding the scope of this brief review.

From liposuction "assisted" with a modest aspirator coupled to the tubing, to other much more sophisticated systems, the "type" of liposuction has changed over the years. Today, we have liposuction assisted with ultrasound [9], laser [10], mechanical aids [11,12], water [13], or radiofrequency [14]. Although all of the above have strengths and weaknesses, the overall trend is that traditional liposuction is recovering more and more followers and simple "assistances" are being more widely valued, while liposuction assisted with laser, ultrasound, or complex mechanisms is declining [15].

Cannulas, which have always been the key component in the equipment as they are the interface with adipose tissue, have also evolved astonishingly. Cannulas are small tubular instruments where adipose tissue, liposuction technology and the surgeon's skill all come together. There are currently hundreds of models to choose from, all of which allegedly offer significant advantages over the others. It is true that many features are absolutely subjective and their suitability will exclusively depend on the surgeon's preference. However, only a few characteristics have set a standard and are currently acknowledged as desirable in a cannula: a smaller diameter, less trauma, and specificity for certain anatomical locations.

Over the past few decades, we have witnessed how countless machines and drugs have unsuccessfully tried to replace liposuction as the treatment of choice for localized adiposities. However, after almost 30 years of experiences and results, liposuction has not lost its currency or its dominance. Moreover, we are going back to various aspects of the past which were simpler, without compromising effectiveness or safety.

Regardless of the type of procedure preferred by the surgeon or desired by the patient, there is no denying the key role of liposuction worldwide in the past and in the present. As long as it a) is performed by a qualified professional, b) is correctly indicated, and c) uses the best technology available, proven and compared, liposuction will invariably be a remarkable tool.

References

1. Glicenstein J (1989) Dujarier's case. Ann Chir Plast Esthet 34: 290-292.
2. Schrudde J (1977) Lipectomy and lipexhaeresia in the area of the lower extremities. Langenbecks Arch Chir 345: 127-131.
3. Fischer A, Fischer GM (1977) Revised technique for cellulitis fat reduction in riding breeches deformity. Bull Int Acad Cosmetic Surg 2: 40
4. Illouz YG (1980). Une nouvelle technique pour les lipodystrophies localisées. La Revue de Chirurgie Esthétique de Langue Française; 6:10-2
5. Illouz YG (2006) Complications of liposuction. Clin Plast Surg 33: 129-163.
6. Hetter GP (1984) The effect of low-dose epinephrine on the hematocrit drop following lipolysis. Aesthetic Plast Surg 8: 19-21.
7. Klein JA (1988) Anesthesia for liposuction in dermatologic surgery. J Dermatol Surg Oncol 14: 1124-1132.
8. Fournier P (1990) Liposculpture: ma technique. Ed: Arnette
9. Zocchi M (1992) Ultrasonic liposculpturing. Aesthetic Plast Surg 16: 287-298.
10. Apfelberg DB, Rosenthal S, Hunstad JP, Achauer B, Fodor PB (1994) Progress report on multicenter study of laser-assisted liposuction. Aesthetic Plast Surg 18: 259-264.
11. Fodor PB, Vogt PA (1999) Power-assisted lipoplasty (PAL): A clinical pilot study comparing PAL to traditional lipoplasty (TL). Aesthetic Plast Surg 23: 379-385.
12. Rebelo A (2006) Power-assisted liposuction. Clin Plast Surg 33: 91-105.
13. Man D, Meyer H (2007) Water jet-assisted lipoplasty. Aesthet Surg J 27: 342-346.
14. Paul M1, Mulholland RS (2009) A new approach for adipose tissue treatment and body contouring using radiofrequency-assisted liposuction. Aesthetic Plast Surg 33: 687-694.
15. Berry MG, Davies D (2011) Liposuction: a review of principles and techniques. J Plast Reconstr Aesthet Surg 64: 985-992.