Functional Applications of Suction-Assisted Lipectomy: A New Treatment for Old Disorders

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Abstract. Ever since the introduction of suction-assisted lipectomy in the United States in 1981, the technique has been applied to an increasing number of disorders of the subcutaneous tissues. Indeed, suction-assisted lipectomy has evolved into the method of choice in the treatment of certain pathological entities. While the extraction of lipomas is the most common functional application, suction-assisted lipectomy has also been used successfully to treat such conditions as gynecomastia, axillary hyperhidrosis, benign symmetric lipomatosis (Madelung's disease), congenital body asymmetry, congenital or acquired lymphedema, flap defatting, traumatic or postoperative hematomas, and fat necrosis. We have successfully treated patients presenting with the above disorders. No morbidities or mortalities were encountered in our series of 18 patients. The final results were considered favorable by the majority of patients. Acceptance by the patients of this treatment modality was extremely high because of the smaller incisions required, the exactness in contouring, the simple and minimal postoperative care needed, and the ease with which the procedure can be repeated to refine the results. A comprehensive review of the literature is presented along with our own patient management and long-term results.

Key words: Suction-assisted lipectomy—Lipectomy

History

Until the 1970s, attempts at removal of excess fatty tissue consisted mostly of dermolipectomies. In addition to its inherent morbidity, this procedure resulted in long prominent scars and recurrence of fat accumulation on both sides of the scar. In 1929, an attempt by Dujarrier to contour the leg of a famous ballerina by curettage resulted in leg amputation following injury to a major vessel [13]. Starting in 1964 and throughout the 1970s, Schrudde [24] developed the technique of sharp curettage of the subcutaneous fat through a small incision (2–3 cm) after undermining the skin with long scissors. This approach resulted in many severe postoperative complications such as persistent lymphorrhea, hematoma, skin necrosis, and sagging skin.

In the mid-1970s, the Fischers developed the suction curettage technique [7]. Similar techniques with minor modifications were later described by Kesselring [18] and Teimourian [13]. All these techniques utilized skin undermining and sharp curettes that produced cavities and destroyed the connecting septae containing blood and lymph vessels bridging skin and fascia. The result was unacceptably high complication rates often necessitating secondary surgery.

In 1972, Illouz developed the technique of blunt cannula suction-assisted lipectomy (SAL) [14]. The advantages of this technique over its predecessor are numerous, resulting in cosmetically superior results. It is applicable to all parts of the human body, can routinely be used in an outpatient setting, requires minimal postoperative care, and rarely causes complications. All these factors have helped the technique emerge as the method of choice in body contouring.

It is noteworthy that the SAL technique was initially applied by Illouz on patients with lipomas [15]. Today the functional applications of suction-assisted lipectomy have expanded to include the treatment of many other pathological entities.
Lipomas

Lipomas have been classified into three categories: (1) solitary lipomas and (2) familial multiple lipomatosis which are both encapsulated; (3) the lipomatous deposits of benign symmetric lipomatosis, otherwise known as Madelung’s disease, which have no distinct capsule [4].

The treatment of lipomas is probably the most common functional application of suction-assisted lipectomy [3]. A lipoma resembles a local adiposity and thus its removal with SAL is a natural extension of body sculpturing [3, 10, 13, 15, 23]. However, SAL does not completely remove the lipoma but recurrences have not been noted during a two-year followup [3, 10, 15, 23]. For good results, it is important to feather out the periphery to avoid a sharp step off. All specimens must be submitted for pathological examination.

The advantages of SAL in the removal of lipomas include (1) small scars (0.5–1.0 cm), (2) fewer scars for patients with multiple lesions since several lipomas may be aspirated through the same incision, (3) less postoperative pain, and (4) less chance for postoperative wound problems such as infection and healing [23].

We have treated six patients with lipomas using SAL (Fig. 1). One patient had multiple lipomatosis. The lesions varied in size from 4 × 5 cm to 12 × 12 cm. Typically, a number 4 or 6 blunt cannula was used. Postoperatively, a pressure dressing was applied over the suctioned area for 3–5 days. There were two failures in our series: One patient required surgical excision and another patient, who had his left cheek lipoma surgically excised twice, proved to be untreatable by suction because of the severe scarring and fear of injury to the facial nerve.

No recurrences were noted during three years of followup.

Madelung’s Disease

Also known as benign symmetric lipomatosis or Launois–Bensaude syndrome, Madelung’s disease is a rare condition of uncertain etiology. First described by a German physician in 1888, it is characterized by massive painless symmetric fat deposits in the neck, upper aspect of the trunk, and shoulders [1, 3]. The fatty deposits are unencapsulated, and histologically the cells have the typical appearance of adipose cells. It is believed that the disorder is the result of a defect in adrenergic-stimulated lipid mobilization [1]. Madelung’s disease is associated with a large number of medical conditions, most commonly alcoholism and diabetes mellitus.

The clinical course of Madelung’s disease is a slow progressive growth of the fatty deposits causing cosmetic deformities as well as functional impairment ranging from inability to sleep to laryngotracheal compromise, secondary to mediastinal compression [1]. These tumors do not disappear spontaneously [26].

Traditionally, the fatty deposits have been treated with surgical excision; however, complete excision is impractical because of their large volume and the lack of delineation from normal subcutaneous tissues. Additionally, these lipomatous deposits can recur following lipectomy since the underlying defect in fat metabolism is not corrected [25, 26, 30].