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Correction of sequelae of rhinoplasty by lipofilling

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Summary *Background:* Rhinoplasty sequelae can be difficult to treat, especially in patients with thin skin. Autologous fat grafting is already used in numerous applications in plastic surgery. However, its use in the nasal region remains relatively uncommon. Given its volumetric qualities and its action on cutaneous trophicity, adipose tissue can be considered the reference product for filling.
Methods: From 2006 to 2012, 20 patients were treated by autologous fat injections according to the Coleman technique in order to correct rhinoplasty sequelae. The procedures were performed under local or general anaesthesia. The quantity of adipose tissue injected ranged from 1 to 6 cc depending on the size of the deformation and the zone being injected: dorsum irregularities, inverted V deformations, visible lateral osteotomies and saddle nose deformity.
Results: Of the 20 patients followed up for 18—24 months, 18 had satisfactory aesthetic results after one procedure and two required a second session. Our experience gradually led us to design micro-cannulae for greater injection precision and enabled us to perform these procedures under local anaesthesia. The reduction in ecchymoses and postoperative oedema through the use of these cannulae has significantly reduced convalescence time.
Conclusion: In patients who undergo multiple procedures, lipofilling can be a simple and reliable alternative to correct imperfections following rhinoplasty.

The long-term results of rhinoplasty can sometimes reveal imperfections that frequently prompt consultations. Patients express dissatisfaction with the results, correction of asymmetry or irregularities.[1] Secondary rhinoplasty can be proposed in certain cases but it can be difficult to perform, in particular if the skin is thin.[2] Moreover, many patients refuse to undergo a new procedure.

Non-surgical treatment of rhinoplasty sequelae is not a new concept. Beginning in 1904, A. Stein corrected saddle nose deformity with injections of paraffin.[3] Today, filling

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products are widely used in aesthetic medicine and their use in the nasal pyramid is increasingly popular. Nevertheless, none of these products presents the qualities of adipose tissue, which, through its volumetric qualities and trophic action on the skin, can be considered as the reference filler.[4–6] The use of an autologous fat graft in the nasal pyramid remains relatively uncommon, but it presents a particularly interesting alternative in terms of rhinoplasty sequelae.[7–9]

We present our experience in the correction of rhinoplasty sequelae by injection of autologous fat in patients who refused secondary rhinoplasty. During the development of our practice, we designed micro-cannulae which provided greater precision in the injection of fat and enabled us to perform these procedures under local anaesthesia.

Materials and methods

From 2006 to 2012, we treated 20 patients by injection of autologous fat following rhinoplasties in order to correct surgical sequelae. During consultations, we asked each patient what they wanted to correct. Only the defects mentioned by the patients were corrected by fat injection. The indications were correction of surgical sequelae following primary rhinoplasty in 15 cases and secondary rhinoplasty in five cases with an interval of at least 12 months after the initial or last procedure. The following anomalies were treated: saddle nose deformity ($n = 4$), lateral osteotomy sequelae ($n = 6$), disinsertion of triangular cartilage or nasal bone with inverted V deformation ($n = 4$), dorsum irregularities ($n = 5$) or nostril notches ($n = 1$).

From 2006 to 2010, Lipostructure® was performed according to the Coleman technique under general anaesthesia ($n = 10$).[10] Fat was harvested at the following donor sites: the internal side of the knees and the subombilical region. We used 11-G cannulae (3 mm Ø). Fat was harvested with 1-cc syringes and then centrifuged at 3000 rpm for 3 min. The purified fat was then placed in 1-cc syringes and injected with 17-G cannulae (1.7 mm Ø).

Beginning in 2010, we modified our instruments in order to obtain finer, atraumatic instruments which enabled us to perform the procedure under local anaesthesia.[11] From 2010 to 2012, we subsequently performed this procedure of micro-injection of adipose tissue in 10 patients. The use of these new cannulae is ideal for lipofilling in the nose (Figure 1).

The first step consists of anaesthetising the entry point using lidocaine with epinephrine. The entry point is made with a 14-gauge or 2-mm needle; a similar 2-mm cannula is used for the infiltration and harvesting. For the infiltration, we use lidocaine with epinephrine which can be diluted three or four times with saline. Harvesting is performed using a 10-cc syringe with a low suction technique with <1 cc vacuum,[12] and then is centrifuged for 2 min at 3000 rpm. The lower layer containing the infiltration liquid is then emptied. Normally, there is no oil. A female—female joint enables to transfer the fat from the 10-cc syringe to 1-cc syringes. It is not necessary to anaesthetise the area where the fat tissue is going to be injected. The entry points are made with a 21-gauge or 0.8-mm needle through the dermis, then the 21-gauge blunt cannula is introduced. It is possible to make several layers and to cross them as micrografts are about 500 μm and contain several hundred cells. The small size of samples enables to deposit the fat superficially as close as possible to the dermal layer.[11]

The entry points are located in the glabellar region at the base of the ala nasi or the columella. They are determined according to the location of the nasal volume defect that requires filling (Figure 2A).

The injection plane is generally performed on contact with the periosteum, but the recent use of micro-cannulae enables injections in the superficial musculo-aponevrotic system (SMAS) or in the direct subdermic plane (Figure 2B). The patients were seen at 2 weeks, 2 months and 18 months. Patient satisfaction was the first judgement criterion. Two surgeons also evaluated the results as very good, good or poor on comparison of preoperative and postoperative photos at 18 months.

Results

Twenty women underwent autologous fat injections to correct rhinoplasty sequelae. The mean age of the patients was 53 years. The quantity of fat injected ranged from 1 to

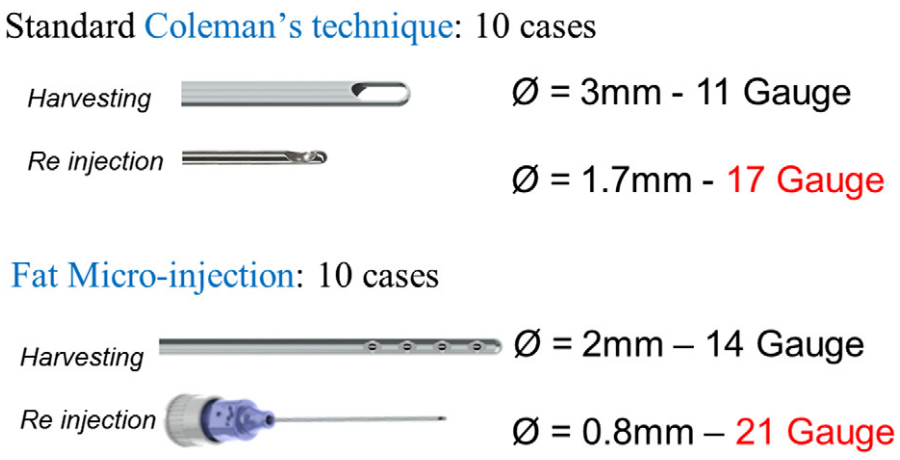

Figure 1 Harvesting and injection cannulae: Coleman technique used from 2006 to 2010, micro-injection cannulae used since 2010.