Case Series

Lipofilling as an aesthetic restorative technique for the facial hemiatrophy of Parry-Romberg syndrome: An analysis of 27 cases

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ABSTRACT

INTRODUCTION: The aim of this paper is to present our experience using autologous fat transplantation for facial augmentation and to evaluate the effectiveness of lipofilling in different regions of the face for the reconstruction and aesthetic improvement of the facial contouring.

DISCUSSION: Progressive haemifacial atrophy, also Known as Parry Romberg’s disease, is a common craniofacial disease that conventionally affects the subcutaneous tissue on one side of the face. We report here a series of 27 cases of hemifacial atrophy (Parry-Romberg syndrome), admitted to our department, and treated with lipofilling in conformity with Coleman’s guidelines. The volume of fat grafting was assessed by an attempt to reach symmetry with the contralateral side within a single procedure.

CONCLUSION: All patients claimed that they were satisfied or very satisfied with the aesthetic results and affirmed that it had a positive psychological impact on their daily life.

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1. Introduction

Parry-Romberg syndrome is a common and devastating disease that leads to severe disfigurement and possible functional impairment after years of progressive haemifacial atrophy [4]. It has a great impact on social life; aesthetic rehabilitation is a difficult task for the rehabilitation of these patients.

2. Patients and methods

The study was performed on 27 patients (16 women and 11 men) treated in the aesthetic unity of maxillo-facial department. The period of study between June 2010 and June 2020.

The entire series had an identical indication for fat injection, i.e. haemifacial atrophy, and were initially examined to accurately assess and mark areas requiring lipofilling treatment.

Fat grafting site is in function of the most affected region of the face: upper, middle and lower. The Fat harvest, preparation and reinjection were performed in a standardised procedure in conformity with Coleman’s guidelines [1].

Preoperative and post-operative photographs were systemati-
cally obtained. The repair procedure was performed with general anaesthesia and fat was taken from the abdominal wall, the thigh or the inner side of the knee. The volume of transplanted fat was determined by trying to reach symmetry with the contralateral side. Overcorrection was (0-C) performed with the awareness that there will be some volume loss over a period of time.

Post-operatively, patients were invited to come back for follow-up at two weeks, six-month, twelve-month and eighteen-month. At each follow-up visit, surgical complications were documented and patients were photographed. They were asked to rate their level of satisfaction with post-operative facial aesthetics on a five-point score (1: poor, 2: fair, 3: good, 4: very good, 5: excellent). This score has been used and validated by several previous studies [2, 3]. Two groups of outcomes (positive and negative) have been described on the base of surgeon and patient satisfaction.

IBM SPSS Statistics for Windows (Version 25.0.0 Armonk, New York: IBM Corp) was used for all statistical analyses. Descriptive and Chi-square analysis were used to determine univariate relationships. The level of statistical significance was set at P < .05. The results are presented in Tables 1–3.

This case series has been reported in line with the PROCESS criteria [15].
Table 1
Characteristics and results of patients with (PRS) Parry Romberg Syndrome.

| characteristics | N  | %    |
|-----------------|----|------|
| Group-Age (years) |    |      |
| < 20            | 2  | 7.4  |
| 21–39           | 17 | 63.0 |
| 40–59           | 8  | 29.6 |
| Gender          |    |      |
| Male            | 11 | 40.7 |
| Female          | 16 | 59.3 |
| Harvest site    |    |      |
| Abdomen         | 13 | 48.1 |
| Thigh           | 5  | 18.5 |
| Knee            | 9  | 33.3 |
| Graft site      |    |      |
| Upper           | 4  | 14.8 |
| Middle          | 14 | 51.9 |
| Low             | 9  | 33.3 |
| Complication    |    |      |
| Absente         | 5  | 18.5 |
| Over-correction | 8  | 29.6 |
| Skin-irregularities | 4 | 14.8 |
| Fat-reabsorption| 7  | 25.9 |
| Other           | 3  | 11.1 |
| Outcome         |    |      |
| Negative        | 14 | 51.9 |
| Positive        | 13 | 49.1 |
| Rejection       |    |      |
| Yes             | 12 | 55.6 |
| No              | 15 | 44.4 |

Table 2
Relationship Between outcomes, Gender, Harvesting site, and Grafting site.

| characteristics | NEGATIVE | Outcome | p     |
|-----------------|----------|---------|-------|
| Gender          |          |         |       |
| Female          | 12       | 4       | .004  |
| Male            | 2        | 9       |       |
| Harvest site    |          |         |       |
| Abdomen         | 7        | 6       | .839  |
| Graft site      |          |         |       |
| Thigh           | 3        | 2       |       |
| Knee            | 4        | 5       |       |
| Upper           | 4        | 0       | .023  |
| Middle          | 4        | 10      |       |
| Lower           | 6        | 3       |       |

*Significant p < .05.

3. Results

Patient characteristics, technical considerations and results concerning their outcomes with the procedure are reported in Table 1. Sixteen of the participants were women and eleven were men. The average age of the 27 patients enrolled in the study was 33.93 years at the moment of surgery, leading to a sex ratio of 1.45 (range, 16–52 years).

Due to its ease of access and availability, the most frequently used donor site was the abdominal wall (13 procedures), followed by the inner side of the knees (9 procedures each). Surgical intervention was performed by our chief professor of the department who has 15 years of operative experience.

In all cases, good incorporation of the grafted fat was observed in the host sites (Figures 1, 2 and 3).

Fig. 1. (A) Marking of harvesting abdomen wall. (B), (D) Fat preparation for autologous fat transplantation. (C) Marking of recipient facial site.

Fig. 2. A twelve-month follow up with a good result.

Retrospective photographic documentation analysis showed a progressive volumetric decrease until about 6 months after surgery; after that, the volume of the graft remained fairly stable (Figure 4).

Eight of our patients have graft hypertrophy as a complication; this overcorrection (O-C) was done with the expectation that there will be some loss of volume over a period of time. In spite of massage

Table 3
Relationship Between seeking reinjection and follow-up period.

| characteristics | Six | Follow-up (months) | Eighteen | p      |
|-----------------|-----|--------------------|----------|--------|
| Rejection       |     | Twelve          |        |        |        |
| Yes             | 2   | 4                | 6        | .048   |
| No              | 9   | 1                | 5        |        |

*Significant p < .05.
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impressive, even when the esthetic result was limited, patients seemed satisfied and we observed positive results regarding behavioral changes, with patients showing improved interpersonal relations and increased self-esteem. With well-trained surgeons, harmonious and safe results can be achieved using Coleman’s lipostructure in patients with Parry Romberg syndrome who present facial lipoatrophy, leading to prompt and long-term impacts on the patients’ self-confidence.

5. Conclusion

Fat reinjection is a simple, efficient and reproducible procedure, with a high degree of satisfaction and few complications. The corrective surgery of facial hemiatrophy in Parry–Romberg syndrome can provide benefits in terms of physical appearance and psychological well-being, and should be considered as a part of the general management.

Declaration of Competing Interest

Authors of this article have no conflict or competing interests. All of the authors approved the final version of the manuscript.

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Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Rachid Aloua: Corresponding author writing the paper.
Ouassime kerloud: writing the paper.
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