

Abdominal dermal fat grafting in Parry-Romberg syndrome

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استخدام نسيج ادمي شحمي مأخوذ من جدار البطن لتقويم ضمور الوجه لمرضى متلازمة رومبيرغ

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المستخلص

عدة طرق استخدمت في السابق لعلاج ضمور وعدم تناظر انسجة الوجه لمرضى متلازمة باري رومبيرغ مثل حقن الوجه بشحوم ذاتية او زرع نسيج شحمي ادمي او نقل عضلي او زرع غضروف او عظم او عن طريق نقل نسيج حر. او باستخدام مواد صناعية مثل الكولاجين او مادة الوديرم او هائلورونك اسيد او مادة مدبور. خبرتنا في زراعة نسيج ادمي شحمي من جدار البطن لتصحيح ضمور واعوجاج الوجه لمرضى متلازمة رومبيرغ توضح في هذا البحث استخدام نسيج ادمي شحمي لتصحيح الضمور واعوجاج الوجه لمرضى متلازمة رومبيرغ. الدراسة اعتمدت على ثمان مرضى لمتلازمة رومبيرغ الذين تم علاجهم بزراعة نسيج ادمي شحمي من جدار البطن لتقويم الانسجة الرخوة للوجه، المرضى تم جمعهم من سنة 2004 ولغاية ايار 2014 من خلال العمل في مستشفى الكرامة التعليمي في الكوت ومستشفى الواسطي للجراحة التقيمية والتجميلية في بغداد. 6 مرضى كانوا ذكورا و 2 من الاناث، مع اعمار تتراوح من 10-30 سنة. ان استخدام النسيج الادمي شحمي هو عملية سهلة ويمكن تكرارها حتى الحصول على افضل نتيجة مع عدم الاضرار بالمنطقة الواهبة للنسيج. الكلمات المفتاحية : متلازمة رومبيرغ، ضمور نصفي للوجه، اعتلال الانسجة الرخوة، زيادة او تضخيم الانسجة.

Abstract

Many procedures have been used for correction of the soft tissues atrophy and facial asymmetry in patient with parry-romberg syndrome, including tissue augmentation with either autologous fat, dermal - fat, regional muscle or fascia flap, cartilage or bone grafting and free flap transfere., or the use of synthetic augments like collagen , hhyaluronic acid , alloderm , silicone or medpore materials.

My experience with dermal fat grafting in the correction of deformities associated with parry Romberg syndrome is presented.

Objectives

The use of dermal fat graft for soft tissue augmentation and correction of the asymmetry in patients with parry Romberg syndrome.

Methods

The study depending on 8 patients with parry Romberg syndrome were treated by abdominal dermal fat graft for soft tissue augmentation, the cases collected from 2004 until may 2014 in al-Karama Teaching Hospital in Al Kut City, and in al Wasity Hospital for plastic and reconstructive surgery. There were 6 male and 2 female patients, their age ranged from 10 -30 years.

Results

The atrophied side of the face was well corrected by dermal fat graft even some patients were required more than one session of augmentation.

Conclusion

The dermal fat graft is a simple technique, with no morbidity and could be repeated multiple times to achieve the best result and the patient satisfaction.

Keywords

Parry- Romberg syndrome, hemifacial atrophy, soft tissue defect, dermal fat graft, soft tissue augmentation.

Introduction

Parry-Romberg syndrome also known as progressive hemifacial atrophy, it's a rare neurocutaneous syndrome with progressive shrinkage and degeneration of tissues including skin, subcutaneous fat SMAS, and the bony skeleton, usually on only one side of the face. but occasionally extending to other parts of the body(1).

Caleb hillier parry was the first whose described the syndrome in 1825, while mortizheinrichRomberg secondally described the syndrome in 1846(2,3).

The German neurologist Albert Eulenburg was the first to use the descriptive title progressive hemifacial atrophy in 1871(4,5,6).

The syndrome is of unknown etiology and pathogenesis, but some believe it's of an autoimmune mechanism {circulating antinuclear antibody}, localized scleroderma, and sympathectomy. Resulting in unilateral skeletal and soft tissue including the skin and its adnexa atrophy {fat, fascia, cartilage, bone, and muscle} (7,8).

The syndrome has a higher prevalence in female with ratio of roughly 3:2 and typically appears between 5-15 years of age, the condition observed equally on the left side of the face as often as on the right side (9).

The syndrome can be diagnosed via careful history and clinical examination of the facial asymmetry. Skull x-ray, ct- scanning and OPG for assessment of the skeletal atrophy of the facial skeleton, particularly the maxilla and the mandible relationship and the jaws occlusion pattern.

Brain MRI ,lumbar puncture and serum test for auto antibodies may also be indicated in some cases.⁶ Medical management with immune suppressive drugs such as methotrexate , cyclophosphamide , azathioprine or by corticosteroids was used but with doubtful result and the benefits have not been clearly established⁽¹⁰⁾. The surgical treatment might include one or more of the following modalities: autologous fat transfer or fat graft, temporoparietal fascia flap, sternocleidomastoid superiorly based flap, cartilage or bone graft to augment the atrophied side of the face. Or the use of allografts like collagen, hyaluronic acid alloderm , or augmentation of the atrophied face with synthetic material like silicone, and medpore .

Microsurgical transfer of parascapular fasciocutaneous flap , tram flap , rectus abdominis muscle or latissimus dorsi muscle flap can be used for larger defects of atrophy, but it's not easily available in many hospitals⁽¹¹⁾.

Bone surgery with bone grafting of the maxilla to restore vertical height and jaws occlusion relationship, mandibular distraction lengthening technique also can be done to provide the vertical height of the face and to correct the malocclusion (11).

Materials and methods

This study was carried on eight patients collected in 10 years, from 2004 till may 2014 from Al-Karama Teaching Hospital in Al –Kut City and in Al –Wasiy Hospital of reconstructive and plastic surgery. , Six of them were males and two were females with hemifacial atrophy involving mainly the soft tissue, two cases in this study had severe skeletal atrophy and severe facial asymmetry. Their ages ranged from 10 -30 years. All cases were undertaken general anaesthesia with oral endotracheal intubation.

The recipient site was prepared with good sterilization by povidone iodine 10% solution, the main incision was made in the preauricular area, other incision might be required in the nasolabial fold with good subcutaneous and /or sub massetric (smas) undermining from the lower mandibular margin to the zygomatic arch and from the nasolabial fold to the preauricular region to create a pocket to receive the dermal fat graft. Other incision in the forehead 2 cm posterior to the anterior frontal hair line might be needed to provide approach for forehead augmentation.

The dermal fat graft was taken from the lower abdomen through an elliptical incision parallel to the inguinal ligament.

The ellipse is of about 3:1 ratio to facilitate easily wound closure without tension, its deepithelisation was done in situ before harvesting, with thickness of about 1.5 cm.

The donor site was undermined, irrigated well with normal saline; haemostasis achieved and closed in two layers. In the recipient site, the graft inserted through the preauricular incision with the dermal surface facing the skin, traction suture could be applied to pull the graft from the nasolabial incision and to maintain good distribution of the graft in the cheek area .Over augmentation with 20% thicker graft was important to compensate the volume loss during healing. The recipient site is closed in layers and pressure dressing is given. Antibiotic were continued for the next 1 week. Change of dressing every 3 days, and the sutures removed 7 days from the face and after 10-14 days from the abdomen.



RT. Side hemifacial atrophy.



Insertion of abdominal dermal fat graft through Preauricular incision



Forehead augmentation with dermal fat graft



postoperative view, 10 days after surgery

Results

All of the 8 cases (Tables 1,2,3) were followed several months after surgery .with good result of the cheek and forehead augmentation and with good retained of the facial symmetry, early edematous swelling and ecchymosis in the face were resolved in few days postoperatively.

Some degree of volume loss was seen in one case whose in progressive atrophy and another session of dermal fat grafting was done to him.

No scar problem in all cases where medical managements of the scars was applied early in the form of steroid and silicone preparations.

Table (1): Number of cases according to the patient sex

males	6 cases
females	2 cases
Total no. of cases	8

Table (2): No. of cases according to the age group

7 cases	20- 30 years of age
1 case	10-19 years of age

Table (3): The result according to the gained facial symmetry and patients satisfaction

Excellent result	4
Good result	3
Unsatisfactory result	1

Discussion

The concept of autologous fat transfer was reported as early as 1893(12). Dermal fat graft for soft tissue augmentation become very popular procedure, the free abdominal fat transfer was used to correct cheek, malar and chin defects for the first time in 1909(12)(13)(14)(15). The technique did not gain popularity with restriction due to inclusion cyst formation from the epithelial cells and due to fat resorption. N girishkumar and G Kthaplia found the superiority of dermal fat graft over local or regional flaps including nasolabial flap, temporalis muscle flap and temporoparietal flap (16). Kyung Suk Koh and et al used the adipose derived stem cells with micro fat grafting in many cases with good result without the need for microvascular free flap transfer (17).

With the proper way of dermal fat grafting the result widely differ. the advantage of dermal fat graft as a reconstruction material include their biocompatibility, remain supple, are relatively resistant to infection, and accommodate facial growth, they also can be easily harvested with adequate volume and minimal morbidity and can easily contoured to fit any defect, and can be done under local anesthesia, so it's become superior to other procedures where local and regional flap were used.(18-22)

Conclusion

The dermal fat graft is a simple and effective technique to repair facial defects in the forehead and cheek areas with minimal morbidity, the procedure could be repeated after about 6 months until achieving the satisfactory result for the patient.

Careful patient selection, assurance, proper planning and gentle handling of the graft are few of the essential prerequisites for long term success.

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