Journal of Cranio-Maxillo-Facial Surgery 44 (2016) 925–933

Contents lists available at ScienceDirect

Journal of Cranio-Maxillo-Facial Surgery

journal homepage: www.jcmfs.com

Face graft? Extrapolation of facial allotransplantation to children

Bernard L. Devauchelle [a], Sylvie R. Testelin [a, *], Julien Davrou [a], Cécilia Neiva [a], Benoît G. Lengele [b], Jean-Michel Dubernard [c], Stéphanie Dakpe [a, **]

[a] CHU Amiens – Department of Maxillofacial Surgery, France
[b] Department of Plastic and Reconstructive Surgery, University Clinics of Louvain Brussels, Belgium
[c] University Hospital of Lyon – Department of Urology Transplantation, France

ARTICLE INFO

Article history:
Paper received 29 March 2015
Accepted 14 March 2016
Available online 21 April 2016

Keywords:
Allotransplantation
Microsurgery
Face reconstruction
Reconstructive microsurgery
Immunosuppression

ABSTRACT

The possibility to imagine a vascularized composite allotransplantation for disfigured children is felt more critical than for adults non on technical point of view but in terms of indications and justifications. The question is not about surgery. It is related to the pathologies themselves for which transplant could be suitable. Moreover the procurement of face transplant will be more difficult because of immunologic criteria but also age and phototype. Specificity of the newborn malformative face is usually not only a question of tissue defect. It is reasonably not an indication for VCA. It should be added that nothing is known about the future of transplantation in terms of duration but also morbidities due to immunosuppression. Indications are rather negative.

To rise the question of VCA for children has a double benefit. The first is to point out that surgical innovation often arise from a non imaginable or non imagined clinical situation. The second is the question of VCA in newborn regarding the tolerance.

"In each case we find ourselves in the presence of a man of genius who began by making great discoveries, and then asked himself how one would have to go about it to make them: a course paradoxical to all appearances and yet the only natural one, since the opposite method of procedure had been tried much more frequently and had never succeeded."

(Bergson, 1969)

1. Introduction

Can composite tissue allotransplantation of the face be considered as an option in children? And, if so, what unknown factors have yet to be resolved? Moreover, is this question really relevant, inasmuch as history has shown that, in the field of surgery, circumstances and actions have always preceded theoretical concepts? Finally, can the limited experience acquired in adults be extrapolated to children?

These are some of the questions that the surgeon who performed the first face transplantation nine years ago (Devauchelle et al., 2006) and who is now extending these techniques to disfiguring congenital malformations would like to share with the reader, even if not all of these questions can be answered at the present time. The term "face graft", although held in contempt by the French National Ethics Advisory Committee (National Official Journal, 2002), was deliberately chosen for the title of this article, as it reflects the ontological dimension of this type of surgical procedure.

2. Facial allotransplantation

Use of the term "composite tissue allotransplantation" of the face is based on more than two hundred scientific papers published in the literature before the procedure had even been performed, together with several hundred articles published in the specialist press since. This fastidious review of the literature suggests that, as in other disciplines, the spoken and written word prevails over acts.

As the term "face graft" speaks for itself, performing, showing, hearing about and seeing this procedure are sufficient to justify the use of this term rather than a tedious discussion of its meaning. However, exhibitions require catalogues and explanations, and "medical science" feeds on figures and words.

* Corresponding author. Department of Maxillofacial Surgery, University Hospital, Avenue Laennec, 80090 Amiens, France. Tel.: +33 3 22 87 90 70.
** Corresponding author.
E-mail address: testelin.sylvie@chu-amiens.fr (S.R. Testelin).

http://dx.doi.org/10.1016/j.jcms.2016.03.006
1010-5182/

One of the most recent review articles on facial transplantation (Khalifian et al., 2014) illustrates the limitations of this exercise, that of a retrospective view that is designed to be objective and comprehensive. This review was based on 28 cases of "face graft" performed over a nine-year period, although our own review identified 31 cases (Table 1) with no written record of seven of the cases reported in the previous review.

However, a strong point of this publication was that this author had personally performed one face graft (March 2012) and conducted a rigorous critical analysis. Another strong point is that this article highlighted the essential aspects of tolerance and immunosuppressive therapy, functional rehabilitation and especially neurological rehabilitation, spatialization of the facial skeleton and restoration of dental occlusion, with a briefer discussion of

Table 1
Worldwide distribution of allotransplantations (2005–2013).

Patient	Date	Place	Surgical team	Age Gender	Etiology
1	November 2005	Amiens **France**	Devauchelle Dubernard	38/F	Dog bite
2	April 2006	Xi'an **China**	Guo	30/M	Bear bite
3	January 2007	Paris **France**	Lantieri	29/M	Neurofibromatosis
4	December 2008	Cleveland **USA**	Siemionow	45/F	Gunshot wound
5	March 2009	Paris **France**	Lantieri	27/M	Gunshot wound
6	April 2009	Paris **France**	Lantieri	37/M	Third-degree burn
7	April 2009	Boston **USA**	Pomahac	60/M	Electrical burn
8	August 2009	Paris **France**	Lantieri	33/M	Gunshot wound
9	August 2009	Valencia **Spain**	Cavadas	42/M	Cancer sequelae
10	November 2009	Amiens **France**	Devauchelle Dubernard	27/M	Gunshot wound
11	January 2010	Seville **Spain**	Gomez-Cia	35/M	Neurofibromatosis
12	March 2010	Barcelona **Spain**	Barrett	30/M	Gunshot wound
13	June 2010	Paris **France**	Lantieri	35/M	Neurofibromatosis
14	March 2011	Boston **USA**	Pomahac	25/M	Electrical burn
15	April 2011	Paris **France**	Lantieri	45/M	Gunshot wound
16	April 2011	Paris **France**	Lantieri	41/M	Gunshot wound
17	April 2011	Boston **USA**	Pomahac	30/M	Electrical burn
18	May 2011	Boston **USA**	Pomahac	57/F	Animal attack
19	January 2012	Ghent **Belgium**	Blondeel	M	Industrial accident
20	January 2012	Antalya **Turkey**	Ozkan	45/M	Burn
21	February 2012	Ankara **Turkey**	Nasir	25/M	Burn
22	March 2012	Ankara **Turkey**	Ozmen	20/F	Gunshot wound
23	March 2012	Baltimore **USA**	Rodriguez	37/M	Gunshot wound
24	May 2012	Antalya **Turkey**	Ozkan	34/M	Burn
25	June 2012	Amiens **France**	Devauchelle Dubernard	52/F	Vascular tumor
26	February 2013	Boston **USA**	Pomahac	44/F	Chemical burn
27	May 2013	Gliwice **Poland**	Maciejewski	33/M	Gunshot wound
28	July 2013	Antalya **Turkey**	Ozkan	27/M	Gunshot wound
29	August 2013	Antalya **Turkey**	Ozkan	54/M	Gunshot wound
30	December 2013	Gliwice **Poland**	Maciejewski	26/M	Neurofibromatosis
31	December 2013	Antalya **Turkey**	Ozkan	22	Gunshot wound