Uncommon Cases on Nose Surgery

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ABSTRACT

Three cases of nasal surgery requiring less used procedures in daily clinical practice are presented. In the first case, a tibial graft early carried out was reused and associated to cartilaginous graft and inclusion of porous polyethylene. Converse flap was used for the second case and nasal dorsum tissue expansion was the resource adopted for the third case. The results obtained are shown and conduct in each case is discussed.

INTRODUCTION

Treatment of rhinoplasty sequelae and nose reconstruction have arisen the plastic surgeon interest and allowed for a rich production of scientific papers.

Nasal reconstruction seemingly originated in India, in 3,000 B.C., using frontal region skin and, in other times and places, flaps for nasal reconstruction came from arm (Tagliacozzi, 1597), neck, abdomen and shoulder. More modern methods evolved to three basic lines: (1) Indian method, with the use of frontal median flap; (2) French method, using side flaps at nasolabial and face region, and (3) Italian method, involving brachial flap. Nowadays we also rely on microsurgical flaps and the use of dermoexpanders[1].

Converse proposed the performance of an axial cutaneous flap ("scalp flap") based on superficial temporal artery that uses frontal region tegument advancing to nasal region. This flap pedicle includes a scalp segment which, after integration period, is returned to its original position and the remaining bloody zone is repaired with skin free graft[2, 3].

One of the difficulties found in clinical practice is the choice of the ideal organic or inorganic material to replace tissues and correct nasal defects. Sheen[4] presented

extensive rationale for the use of nasal septum and auricular concha autogenous cartilage in secondary rhinoplasty and reported this one as the ideal material for reparation of substance and support structure loss with good results.

CASE STUDY

Three clinical cases of patients victims of accident with nasal traumatism and submitted to previous treatment in other services are presented.

CASE # 1

Female patient victim of automobile accident with multiple nose fractures and submitted to several surgical interventions performed by different surgeons aiming at repairing trauma lesions (Figs. 1 and 2).

Among the previously carried out procedures, an

Fig. 1 - Preoperative photograph of case #1 patient, showing limits of glabella bone graft down to nasal tip.

Fig. 1 - Fotografia pré-operatória da paciente do caso nº 1, demonstrando os limites do enxerto ósseo da glabela até a ponta nasal.

Fig. 2 - Preoperative photograph of case #1 patient, side view.

Fig. 2 - Fotografia pré-operatória da paciente do caso nº 1, em perfil.

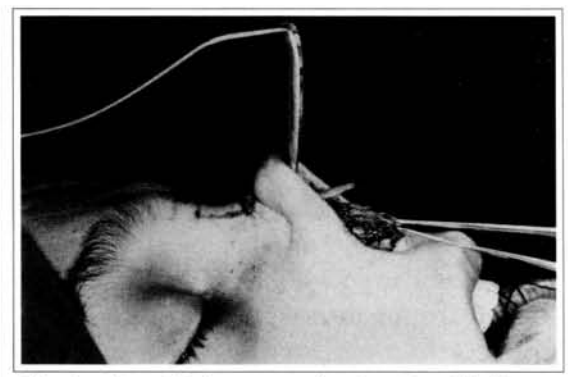

Fig. 3 - Case #1 intraoperative showing tibial bone graft reaching nasal tip region.

Fig. 3 - Intra-operatório do caso nº 1 mostrando o enxerto ósseo tibial atingindo a região da ponta nasal.

Fig. 4 - 3D-computerized tomography showing tibial bone graft surgically observed in Fig. 3.

Fig. 4 - Tomografia computadorizada em 3D mostrando o enxerto ósseo tibial observado cirurgicamente na Fig. 3.

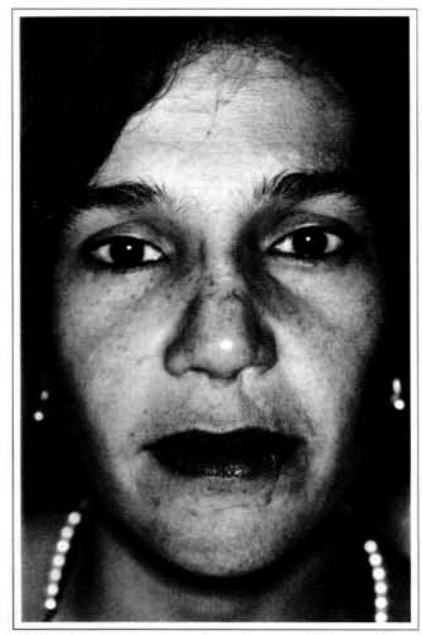

Fig. 5 - Photograph of case #1 patient presenting nasal dorsum irregularities seven months after last surgery.

Fig. 5 - Fotografia da paciente do caso nº 1, apresentando irregularidades do dorso nasal no período de sete meses após a última cirurgia.

autogenous bone grafting from a tibial segment for repairing nasal dorsum was carried out. The bone graft was introduced under pressure ("fastened with pegs") at glabella region and its lower end was situated at nasal tip (Figs. 3 and 4).

The patient complained of non-esthetic aspect and nasal tip hardness. She was submitted to open sky treatment (open rhinoplasty) with graft section at its median portion, and distal fragment was transferred to right side of proximal fragment (fixed) in close contact to this and fixed by steel thread. Nose median third and tip regions were repaired with auricular cartilage autogenous graft, in such a way to achieve a esthetically better mobile tip. Despite the whole nasal dorsum being covered by temporal fascia graft, the patient presented nasal dorsum irregularities by the seven-month postoperative (Fig. 5). It has been finally selected to use gutter-shape porous polyethylene (Medpor®) and, at the same surgical procedure, partially absorbed cartilaginous grafts were drawn achieving uniformity to the region (Fig. 6). Figures 7 and 8 present postoperative result 12 months after inclusion of porous polyethylene.

CASE # 2

Patient victim of automobile accident with multiple facial wounds, including loss of the whole cutaneous coverage and nasal tip cartilages. At first care we carried out removal of all devitalized tissues and proceed to partial skin grafting for bloody area coverage and prevention of infection (Fig. 9).

Emergency room surgeon report described a degloving at frontal region. This fact, associated to clinical examination of patient, showed vascular pedicle lesion and contraindicated execution of frontal median flap ("Indian flap"). For this reason, we chose to use Converse flap based on right superficial temporal artery with migration of frontal region medial portion to coat dorsum, tip and columella, carried out two month after skin graft. The cartilaginous losses were repaired with auricular cartilage autogenous grafts (Fig. 10). Figures 11, 12, 13 and 14 show the patient at 24-month postoperative period, waiting for orbitopalpebral reconstruction surgery.

Fig. 6 - Case #1 intraoperative showing inclusion of canoe-shape porous polyethylene to be introduced at nasal dorsum.

Fig. 6 - Intra-operatório do caso nº 1, demonstrando a inclusão do polietileno poroso em forma de canoa, a ser introduzido no dorso nasal.

Figs. 7 & 8 - Photographs of case #1 patient in 12-month postoperative period after inclusion of porous polyethylene.

Figs. 7 e 8 - Fotografias da paciente do caso nº 1, no período pós-operatório de 12 meses após a inclusão do polietileno poroso.

Fig. 9 - Case #2 patient presenting multiple face wounds and total loss of nasal coverage 10 days after trauma.

Fig. 9 - Paciente do caso nº 2 apresentando ferimentos múltiplos na face e perda total da cobertura nasal, no período de 10 dias após o trauma.

Fig. 10 - Photograph of case #2 patient at postoperative twenty-first day after reconstruction with Converse flap upon pedicle release.

Fig. 10 - Fotografia da paciente do caso nº 2, no vigésimo-primeiro dia de pós-operatório da reconstrução com o retalho de Converse, por ocasião da liberação do pedículo.

Figs. 11, 12 & 13 - Side, oblique and front view photographs of case #2 patient, at 24 month post-operative.

Figs. 11, 12 e 13 - Fotografias da paciente do caso nº 2, em perfil, oblíqua e de frente no pós-operatório de 24 meses.

Fig. 14 - Photograph of case #2 patient wearing sun glasses for social life while awaiting for orbitopalpebral reconstruction surgery.

Fig. 14 - Fotografia da paciente do caso nº 2, utilizando-se de óculos escuros para o convívio social, enquanto aguarda a cirurgia de reconstrução orbitopalpebral.

Fig. 15 - Photograph of case #3 patient showing frontal region and scalp anterior third tegumentary lesion.

Fig. 15 - Fotografia da paciente do caso nº 3 demonstrando lesão tegumentar da região frontal e do terço anterior do couro cabeludo.

Fig. 16 - Photograph of case #3 patient, with skin graft integrated to frontal region. Nose presents nasal tip lesion with skin, cartilage and pad loss.

Fig. 16 - Fotografia da paciente do caso nº 3, com enxerto de pele integrado na região frontal. O nariz apresenta lesão da ponta nasal, com perda de pele, cartilagens e forro.

Fig. 17 - Photograph of case #3 patient in the cutaneous expansion period of nasal dorsum region, with frontal pileous region already reconstructed after great scalp expansion.

Fig. 17 - Fotografia da paciente do caso nº 3 no período de expansão cutânea da região do dorso nasal, com região pilosa frontal já reconstruída após grande expansão do couro cabeludo.

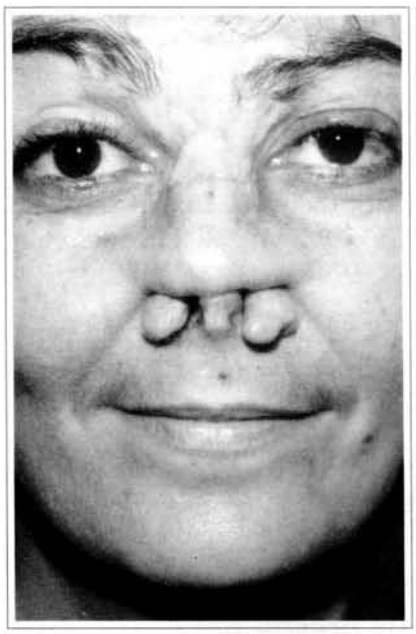

Fig. 18 - Photograph of case #3 patient showing expansion obtained, at 30-day postoperative period, awaiting for supplementary surgery.

Fig. 18 - Fotografia da paciente do caso nº 3 demonstrando a expansão obtida, no período pós-operatório de 30 dias, aguardando etapa cirúrgica complementar.

Figs. 19 & 20 - Photographs of case #3 patient at 20 day early postoperative period after last procedure.

Figs. 19 e 20 - Fotografias da paciente do caso nº 3 no período pós-operatório precoce de 20 dias após o último procedimento.

CASE # 3

Patient victim of automobile accident with loss of part of the tip and lower third of nose. She was submitted to two other reparation attempts with two-sided Converse flap that evolved to failure due to lack of proper vascular pedicle with necrosis and tegumental coverage loss at frontal region and scalp at head anterior portion. Figure 15 shows patient at three-week period after second attempt of Converse flap rotation during operating procedure for bloody area coverage.

Lesions were first treated with partial skin autogenous graft for closing wounds and clinical improvement of patient (Fig. 16). At subsequent operative times, scalp expansion for head repairing and nasal dorsum expansion for tip correction were carried out (Fig. 17).

Cartilaginous losses were repaired with auricular concha cartilage. Figure 18 shows partial result of reparation with correction of nasal wing junction remaining to be corrected with tip expanded tissue. Final result obtained at 20-day postoperative period is presented in Figures 19 and 20. Supplementary procedures may be carried out in a timely basis.

DISCUSSION

Nose presents specific problems when any type of organic or alloplastic material is used as the thin skin and the region susceptible to strength action determine late irregularities and complications. Flexibility of the material employed is also an important issue as a too rigid tissue or a non-elastic inclusion determine the artificial appearance while too flexible materials may cause deformations in the long term[5].

In case #1, the thin skin of nasal region allowed observation of deformities arising from bone and cartilaginous grafts irregularity. Thus, we selected to use an inorganic material, gutter-shape porous polyethylene providing a regular nasal dorsum at its full extent.

Porous polyethylene (Medpor®) has been used in esthetic surgeries as well as for the correction of traumatic and congenital deformities. It is characterized by being such a material that allows for tissue growth into its pore inward and even bone tissue penetration[6, 7] presenting low rates of complications.

Nasal tip reparation should not be carried out with rigid material and so auricular cartilage constitutes the ideal material to replace losses at this region. Peer[8], Jovanovic & Berghaus[9] et al. emphasized the long survival of cartilaginous autogenous draft, its availability and its possibility of being sculptured.

The use of cutaneous flaps to substitute nasal tegument losses must always give priority to the neighboring tissues that have proper coloration and thickness to cover nose. Execution of flaps with axial pedicles requires anatomical knowledge and technical skills of the surgeon as the failures in these surgeries lead to hard resolution sequelae.

In case #2, the impossibility of performing frontal median flap ("Indian") led us to indicate Converse flap. The advantage of this flap is that it has sufficient tissue to reconstruct the nose lobule portion and columella and in addition, its length provides attainment of proper size and projection of nasal tip. The ideal cutaneous coverage should respect the nose esthetic unit.

The use of expanders of nasal dorsum tissue has a very limited indication but, in case #3, seemed to be the best option as the other alternatives would add scars to nasolabial regions or would imply the use of flaps at distance with less favorable esthetic results.

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