EARLY VELOPLASTY VERSUS CLASSIC URANOSTAPHILORAPHY

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Abstract

In the management of the cleft lip and palate the veloplasty represents an important part of the treatment. Classic, the majority of the surgeons, practices this intervention after the age of 18 months of the child, in the same time with the closure of the hard palate. Another timing to close the hard and soft palate was introduced by Psaume and Malek in 1983: precocious veloplasty at the age of 3 months and further, the cheiloplasty and uranoraphy in the same intervention at the age of 6-7 months. In our department we practiced a modified Malek's protocol: in the same manner, the veloplasty at the age of 3 months, only the cheiloplasty of the age of 6 months and the uranoraphy, classic, after the age of 18 months. We made a comparative prospective study for a period of 10 years (from January 1995 to December 2004) using classic approach and modified Malek's protocol. From a cohort of 158 patients with cleft lip and palate, 125 (79,11%) were treated in the classic manner and 33 (20,89%) were treated with early veloplasty. The palatal suture was broken partially or totally in 10 patients (30,30%), after that to these patients was made classic uranostaphiloraphy after the age of 18 months. The study also shows the advanteges and the disadvantages of the precocious veloplasty and the necessity of a long-term study to clarify the utility of this approach.

Key words: cleft lip and palate, veloplasty, uranoraphy, urano-staphiloraphy, cheiloplasty.

Cleft lip and palate (CLP) represents a frequent, complex, malformation, which poses multiple treatment problems, from birth until adulthood. This malformation requires the treatment provided by many specialties. Due to the complexity of the malformation and treatment, over a long period of time, there have been developed a large number of treatment schemes and numerous surgical methods for each treatment step. None of the treatment plans has proved to be ideal. According to the report of the Eurocleft Project 1996 – 2000, after analyzing the reports received from 201 European centers that treat CLP, there have been noticed a large number of approaches regarding this malformation, hardly finding two resembling methods.

All the surgical interventions are aimed at obtaining a result that is esthetic and morphologically normal, or as close to normal as possible. But, in the mean time, they can also be the cause of secondary bone deformation, thus leading to new ideas for various surgical techniques, and new approaches to this complex pathology. Surgical treatment methods can classified in two main categories:

- *Classical Timing*, presents two major, opposed, tendencies, referring to the age when the procedure that closes the hard and soft palate should be performed. Classic, the treatment begins with the lip reconstruction, and, since the year 1954, it's been applied from the age of 6 months, considering that before this age the risk of retraction of the incisive region still exists (Petit et Psaume-Ullik) (2,3). Then, after Victor Veau, the soft and hard palate it totally closed at the age of 18 months, associating with this treatment method another orthodontic treatment at the age of 6 years. In the mean time, Schwekendiek was promoting the reconstruction of the soft palate at the age of 6-8 months, and his disciples have retained the same dates as Victor Veau, but closing the hard palate at the age of 7 or 8 years, associating with this treatment an obstruction prosthetics device from birth until later (Hotz) (2,4). Regarding these very different tendencies and treatment methods, all which cause secondary bone deformation of more or less importance, we ask ourselves if the age

when the hard palate is closed determines the secondary bone deformation, or is the cause of a different etiology (2). The necessity of associating an orthopedic treatment demonstrates that the absence of a closed hard palate is not a solution for avoiding the secondary bone deformation. It is necessary to consider the notion of scar retraction as well as the one of the abnormal muscular balance between the tongue and the upper lip (2).

- *The Inversed Sequence (early veloplasty),* was introduced by Psaume and Malek in 1983: early prosthetic device for restoring the role of the tongue. This is an obturation device with a velar extention which is used during the age of two months. This device will reduce the windening of the tongue, will help it's tip to lower, allowing, at the same time the correction of the palatinal plates, the growth of the vomer and prepares the function of the soft palate.

The early staphiloraphy will lead to the correction of the pterygoid process with the narrowing of the cavum, and the tongue will advance forward and will lower, allowing it to play the contra-pressure role during the process of suction. The tongue will orient the growth of the upper arcade, particularly the outer margin of the division, before the lip reconstruction. Through this method a complete reconstruction of the malformation can be achieved, before the age of 7 months. (2, 3, 5, 6, 7). This method avoids transversal scar retractions and allows the tongue to oppose the convergent unfavorable forces. The growth can take place normally for the bone structure, in spite of a total surgical reconstruction, without the mandatory support of a prolonged orthodontic treatment.

Material and Method

In the Pediatric Surgery and Orthopedics Clinic of the "Sf. Maria" Children Hospital, from Iasi, both methods for approaching the CLP treatment have been used, but in the inversed sequence, the procedure described by Malek in 1983 has been modified: staphiloraphy at the age of 3 months, cheiloplasty at the age of 6 months and then uranostaphiloraphy during between 18 and 24 months. Considering this new therapeutic approach, we have aimed at evaluating the results and comparing them with those obtained during the classic treatment.

Between January 1995 – December 2004 the study has monitored 158 patients with CLP. 125 (79,11%) have been classical treated and 33 (20,89%) with the inversed sequence. From this 158 patients lot, 78 (49,36%) had the lesion on the left side, 28 (17,72%) on the right side and 52 (32,92%) had the lesion bilateral. 99 (62,65%) were boys and 59 (37,35%) girls. For the patients who were treated using the inversed sequence, only on 2 (6,06%) the protocol introduced by Malek was used: early veloplasty at the age of 3 months, then cheiloplasty, closing the hard palate, at the age of 6-7 months. For the other patients the modified protocol mentioned above was used.

Results and Discussions

The study made in this period was a prospective study, the high difference between the number of patients treated by the two methods was due to a number of causes:

- The authors have practiced early veloplasty as many times it was possible, but the other surgeons used the classic timing
- The early veloplasty was not performed if the age of the patients exceeded 3 months and 2 weeks
- At the age of 3 months, some patients had respiratory diseases which counter indicated anesthesia, they were antipoliomielitic vaccine, they had an incomplete cardiac malformation or had counter indications for anesthesia during that time or had important anemia (Hb under 8 g%)

The early veloplasty was practiced using the Malek technique (fig. 1) published by the author in 1983 (8, 9, 10) (fig. 2, 3).

10 (30,30%) patients, from the total of 33 which had a early veloplasty, had a broken stitch either totally or over 50%, therefore, after the age of 18 they had classic uranostaphiloraphy (fig. 4).

From the 158 patients with CLP, 34 (21,51%) with classic timing had presented fistulas, and 10 (6,32%) with inversed sequence, most of them, 24 (70,59%) and 8 (80%) the fistulas was closed after another intervention after at least one year after the primary surgical intervention. In 7 (20,59%) patients and 2 (20%) two interventions were necessary, and in 3 (8,82%) patients (only from the first category) three interventions were needed.

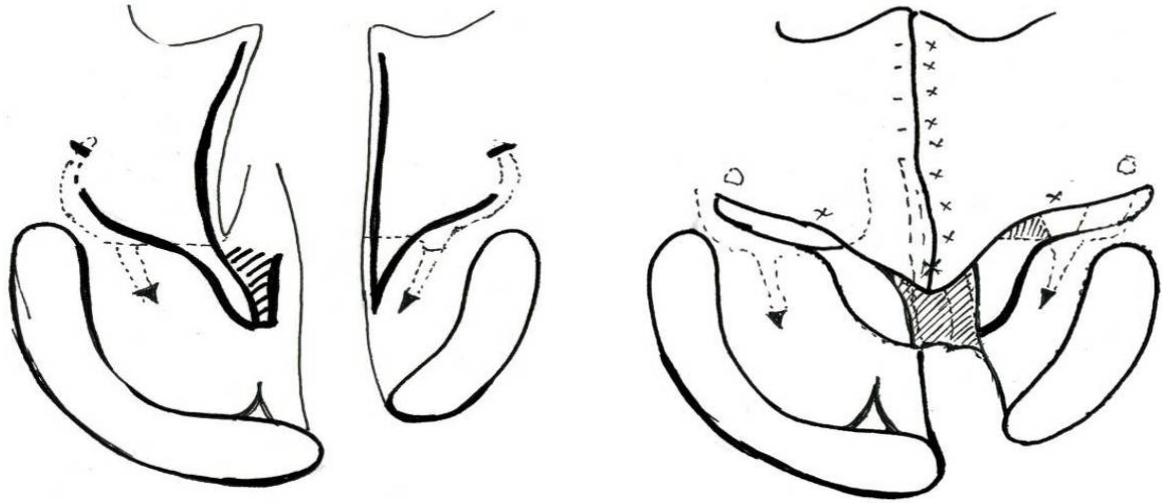

Fig. 1. Early veloplasty, Malek – surgical method.

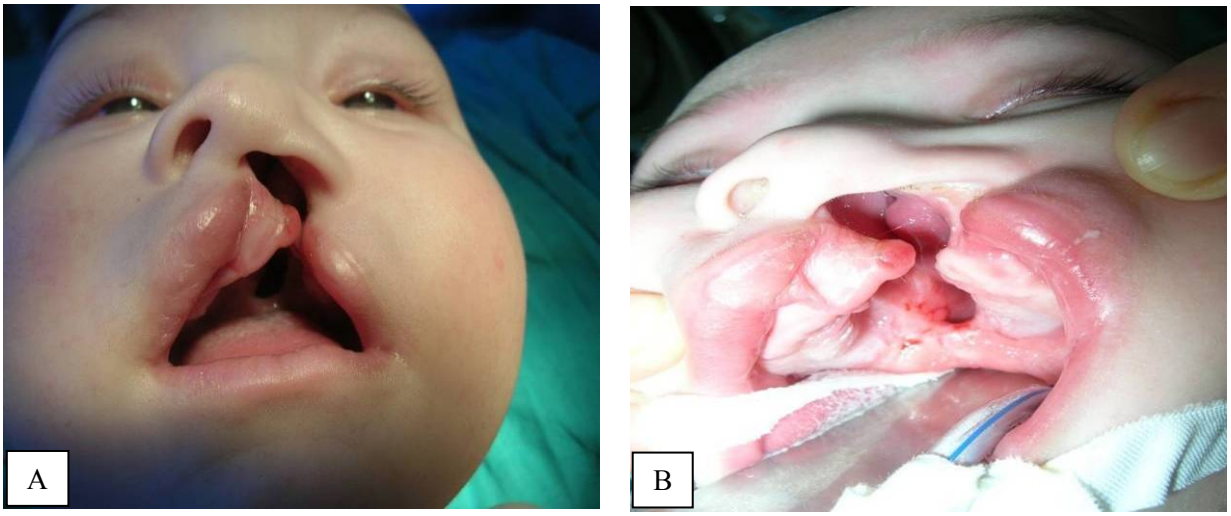

Fig. 2. A- Patient, age of 3 months, before the early veloplasty;
B – aspect of the palate at the age of 6 months, before the cheiloplasty.

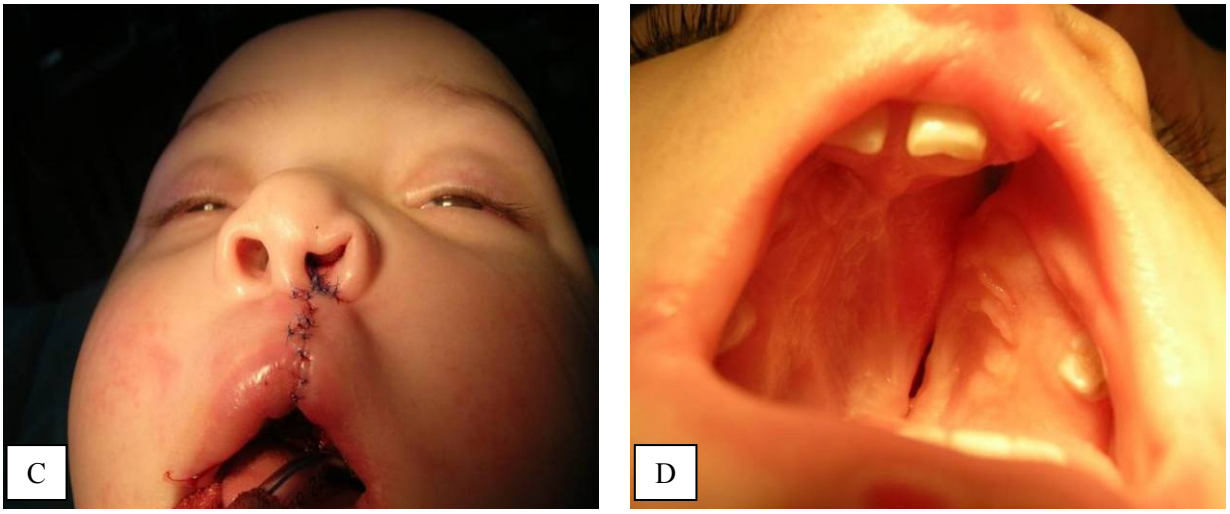

Fig. 2. C – After the chelioplasty, immediately post operator aspect;
D – palate aspect at the age of 20 months, before the uranoraphy.

Fig. 3. Patient at the age of 5 months, 2 months after the early veloplasty (before the chelioplasty).

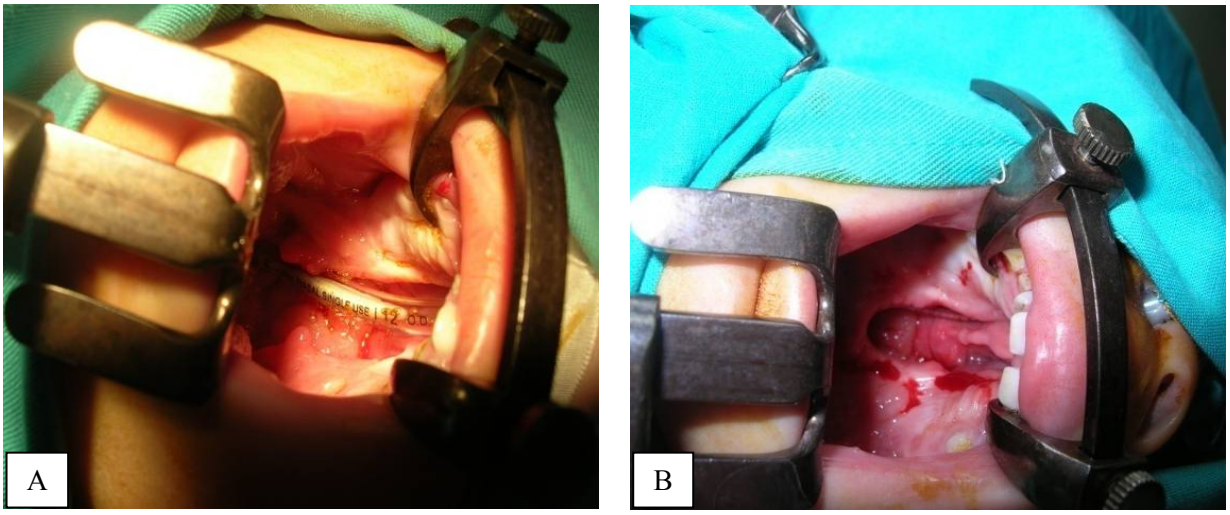

Fig. 4. A – Patient at the age of 2 years, treated with classic timing (before the uranostaphiloraphy), B – Patient at the age of 18 months, with early valeoplasty, with a partially broken suture (before uranostaphiloraphy).

Conclusions

The authors consider that the early veloplasty represents a progress in managing the children with CLP, because, after the early veloplasty, the remaining cleft palate on the hard palate, will shrink so much, that when the uranoraphy is performed, the cleft palate is between 0.5 – 1 cm wide. As a result, the uranoraphy will be performed a lot easier, with less complications, thus less fistulas in the palate, which in our study were three times less at the patients who had early veloplasty, the final closing was made easier, also reflected by the small number of interventions.

The family always notice right away, post operator, improvement in the feeding of breast fed children, with no reflux, with a noticeable enhancement phonation.

There are however disadvantages. From a surgical point of view, it is true that the cleft palate is smaller and easier to close, but in the same time, the dissection for identifying the two layers (nasal and oral) is much more difficult, especially in the velar layer, due to the scar tissue. Also, in case the veloplasty has failed and the suture was totally broken, the uranoraphy is harder to practice due to the scar tissues and the cleft palate has a reduced mobility.

It is true that the complications rate (30,30%) was

really high, discouraging even, but we consider that this rate can be reduced by respecting certain necessary practicing conditions for all the elective surgical interventions that we sometimes skipped, but which lead to these complications. The infants who are supposed to have surgery should have a weight correspondent to the age, and should not have anemia (Hb over 10,0 g%) and to be without respiratory diseases in that time, or less than 2 week before the operation.

References

1. Bill Shaw, P. Nelson, G. Semb, V. Brattstrom, K. Molsted, B. Prahl - Anderson – The Euro- cleft Project 1996-2000, http://books.google.com/books
2. Berkowitz S. - A Multicenter Retrfospective 3D Study of Serial Complete Unilateral Cleft Lip and Palate and Complete Bilateral Cleft Lip and Palate Casts to Evaluate Treatment, Cleft Palate-Craniofacial J 1999, Vol. 36, No. 5:413-424.
3. Farmand M. - Lip Repair Techniques and Their Influence on the Nose, Facial Plastic Surg 2002, Vol. 18, No. 3:155-164.
4. Pellerin D. – Technique de Chirurgie Pediatrique, Ed. Masson, Paris, 1978.
5. Stricker M., Raphael B. - Le périoste dans les fentes labio-palatines, Ann Chir Pediatrique 1983, Vol. 24, No. 4-5: 274-281.
6. Hartridge T., Illing M.H., Sandy J.R. - The Role of Folic Acid in Oral Clefting, British Journal of Orthodontics 1999; Vol 26; No. 2: 115-120.
7. Delaire J. - Intérêt de la rhinoplastie primaire. Considérations techniques, Ann Chir Pediatrique 1983, Vol. 24, No. 4-5:286 - 296.
8. Malek R. - Staphylorraphie précoce - Problèmes chirurgicaux, Ann Chir Pediatrique 1983, Vol. 24, No. 4-5: 301-304.
9. Malek R.– Traitement initial des fentes labio-palatine, Ann Chir Pediatrique 1983, Vol. 24, No. 4-5: 256-267.
10. Malek R. - Cleft Lip and Palate: Lesions, Pathophysiology and Primary Treatment, Published by Taylor & Francis, 2001.

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