GAVIN PUBLISHERS

OPEN ACCESS

Annals of Case Reports

Boumediene ABOU-BEKR.et al.Ann Case Report 6: 708.

Case Report

DOI: 10.29011/2574-7754.100707

Place of the Arephonoscope in the Management of Velar Insufficiency After Cleft Palate

Boumediene Abou-Bekr*, Mouhamed Adjed, Yamina Ouadah, Abderahim Baba Ahmed

Pediatric surgery departement EHS Mother Child Tlemcen, Algeria

***Corresponding author:** Boumediene Abou-Bekr. Pediatric surgery departement, EHS Mother Child Tlemcen, Algeria.

Citation: Boumediene Abou-Bekr (2021) Place of the arephonoscope in the management of velar insufficiency after cleft palate. Ann Case Report 6: 708. DOI: 10.29011/2574-7754.100708.

Received Date: 25 September 2021; **Accepted Date:** 18 October, 2021; **Published Date:** 25 October 2021.

Abstract:

The subject of this presentation is the evaluation of velar insufficiency (PVI) by aerophonoscopy in children with cleft lip and palate. Aerophonoscopy is the simplest tool to accurately assess phonation. In this context, we worked on a population of 146 cases of cleft lip and palate already operated on. The application of aerophonoscopy allowed us to assess the velar function in these cases. The results show that 24 children had normal phonation, 52 children had velar insufficiency who responded well to speech therapy, 05 cases had closed rhinolalia, and finally 65 cases.

Remainder underwent surgical correction with pharyngoplasty upper flap (PLS) This synthesis work is the result.

Introduction

Velopalatine-operated clefts represent 55% of the causes of PVI in children [1]. The management of IPV is far from being well codified, because it must call on a multidisciplinary team. Aerophonoscopy is the simplest tool to accurately assess phonation. In this context, we worked on a population of 146 cases of cleft lip and palate already operated on. The application of aerophonoscopy allowed us to assess the velar function in these cases.

Methods

In a population of 146 patients operated on for cleft palate, palate and velar, explored clinically, radiologically and by aerophonoscopy (speech therapy), 81 were excluded from the study: The remaining 65 cases underwent flap pharyngoplasty superior (PLS) - equivalent to 44.5% of all patients explored (Figure 1).

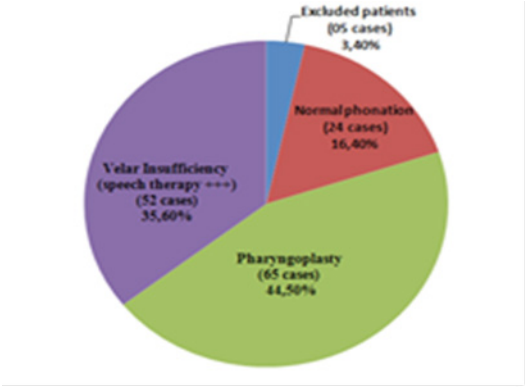


Figure 1: Distribution of patients explored.

The aerophonoscopy examination is interesting because it allows: (Figure 2).

Figure 2: Arephonoscope RD version 2010 Photo taken at the infantile surgery center (CIS), Tlemcen Algeria.

To quantify nasal air leakage in phonation and to clearly identify differences in nasal leakage in speech. And compare nasal losses between two check-ups, assess the effects of an operation (PLS) - or speech therapy.

In a desire to keep the method of analyzing nasal losses practical and simple, we opted for the following quote: (Figure 3).

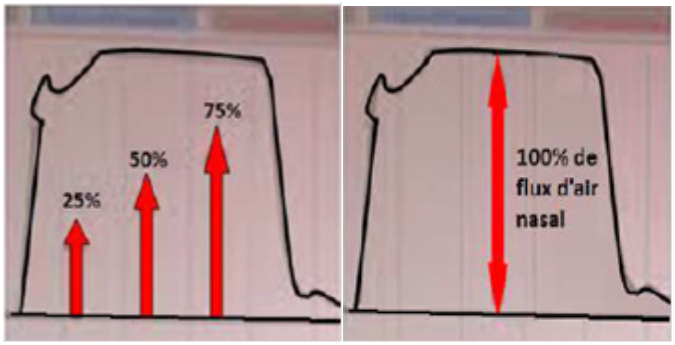
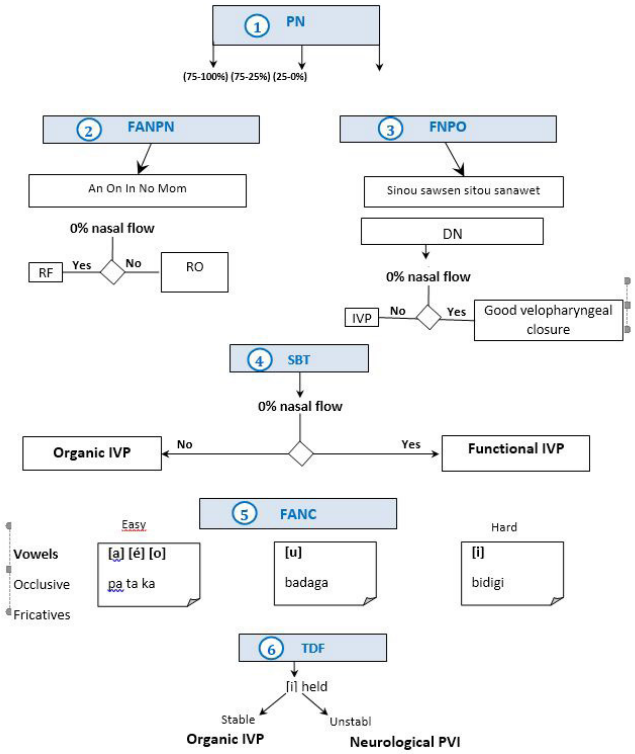


Figure 3: Quantification of nasal airflow.

0: no nasal loss, 1-25: slight nasal loss, 25-50: moderate nasal loss, 50-75: severe nasal loss, 75-100: very severe nasal loss.

The balance sheet tests, carried out in this protocol, are those exposed in part theoretical. A specific evaluation of the aerophonoscope was carried out on the basis of the work of Dr G. Rousteau [2] (Figure 4).



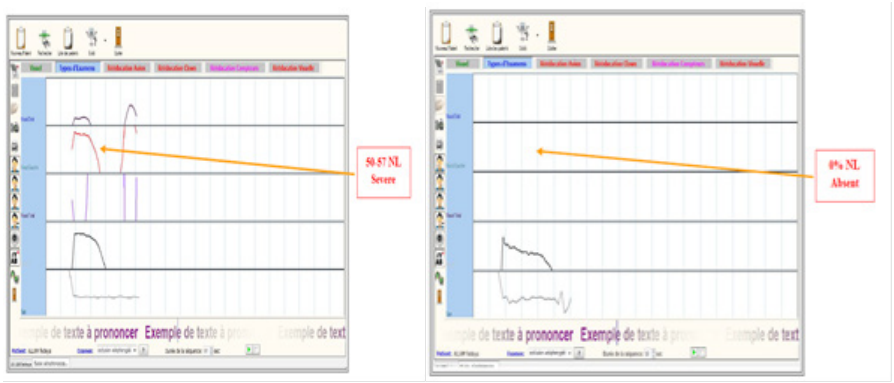
TDF: Background tone; **FANPN**: Nasal airflow in nasal speech; **DN**: Nasal wasting; **RF**: Closed rhinonality; **FANPO**: Nasal airflow in oral speech; **PN** : Nasal permeability; **SBT**: Tonic mouth murmur; **FANC**: Consonant nasal airflow; **RO**: Open rhinonia

Figure 4: Evaluation algorithm of (ivp) by «personalized» Arephonoscope.

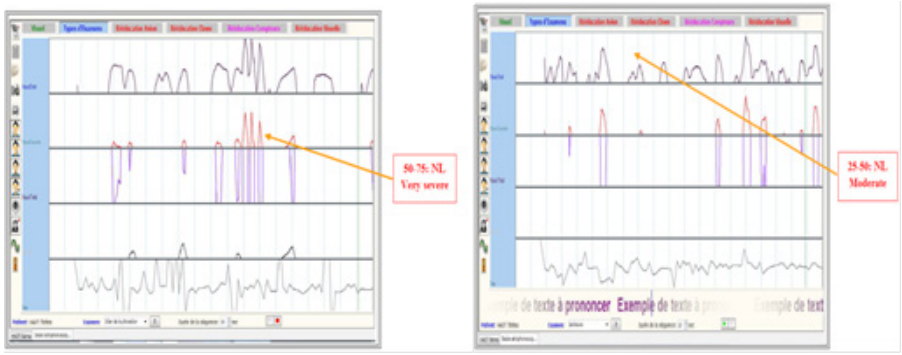
Results

After having explored our series of patients by aerophonoscope, we were able to determine the type of (ivp) (Figure 5).

AB: patient with organic velopharyngeal insufficiency: the absence of nasal leakage in SBT after the intervention - PLS - (1 month).

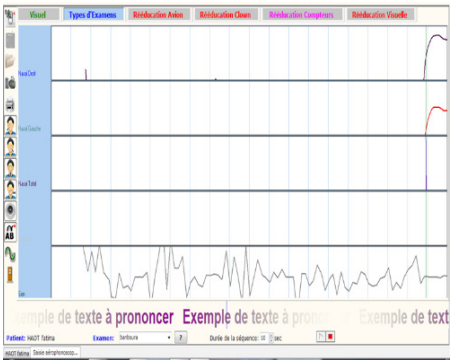


A-Tonic mouth breath (SBT) in pre PLS B-Tonic mouth breath (SBT) post PLS (after 01 month).



TO-Nasal airflow in oral speech (FANPO) in pre PLSB-Nasal air flow in oral speech (FANPO) in post (After 06month).

ABC: Patient with organic velopharyngeal insufficiency: decrease in nasal leakage in (FANPO) after 6 months of intervention (PLS) and the absence of after one year.



0: DN absent

C- Nasal air flow in oral speech (FANPO) in post PLS (After one year).

Figure 5: Illustration of aerophonoscopic exploration case.

If the DN: nasal wasting is important on **the SBT** and TF, FANPO, and FANCO: PVI is 90.8% organic.

If the DN is zero on the SBT, minimal on the TF, high on the FANCO, and the FANPO: the IVP is functional in 9.2%.

According to the data collected from the Borel Maisonny classification, we were able to reproduce three curves of the overall evolution of postoperative phonation as a function of the various clinical, speech therapy and aerophonoscopic checks carried out periodically at 01 month, 06 months, 12 months and 24 months. (Figure 6).

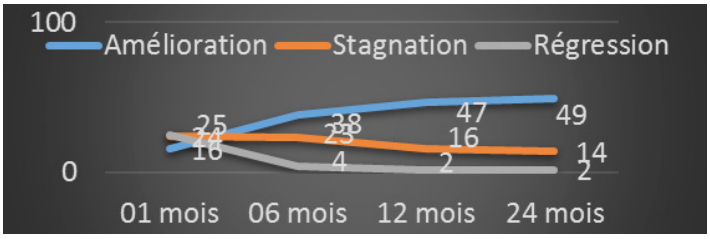


Figure 6: Global evolution of postoperative phonation and percentage of improvement in stagnation and regression.

Discussion

According to the data collected the overall evolution of postoperative phonation based on the aerophonoscope data and improvement, stagnation and regression. Recent and detailed studies relating to the aerophonoscope are quite rare. For Ganry [3], the aerophonoscope provides reproducible inter- and intra-individual quantitative measurements. Its sensitivity to the degree of occlusion of the velopharyngeal sphincter is good in healthy subjects. The benefit of aerophonoscopy in the application of the treatment plan for labial-alveolar-palatal clefts remains to be established. For Gbaguidi, Testelin and Devauchelle in [4], in the case of an ivp, the aerophonoscope seems to be an examination adapted to the evaluation of the phonation, in particular because of its simplicity of use, its non-invasive character and. can be repeated on demand.

Starting at what age? G. Rousteau (88), in his study on 314 patients, estimates that the examination is possible from 3 years and a half. In addition, due to the reproducibility of the tests, the phonation can be objectively compared for the same patient, before and after a surgical intervention. The other advantage of this device is its speech therapy aid, allowing the patient to rehabilitate himself thanks to a retroactive visual effect. Thus, the team of Devauchelle et al. indicates that when pharyngoplasty is decided following the identification of a velopharyngeal insufficiency in a child with a cleft palate, an aerophonoscope assessment is offered in the month preceding the operation, then at one month, six months and one year postoperatively [4]. The early result is therefore evaluated one month after the according to P. Blot [5], exploitable numerical values making it possible to develop research protocols, particularly in the case of velar surgery but also in the monitoring of patients operated on for functional rhinoplasty, this is one of our research objectives current. A research thesis in speech therapy [5] studied the reliability of the intra and inter subjective reproducibility of the measurements provided by the aerophonoscope. The goal is to make the aerophonoscope a privileged instrument in the study of PVI. Studies mention the use of the aerophonoscope in the assessment of velopharyngeal insufficiency, but few lead to a quantitative quantitative study (which joins our observations on the limitations of the aerophonoscope), with the potential identification of limitations or defects with this tool. A 2009 research paper mentions: adjustment problems during the study of measurements (sensor calibration) difficult sensor sterilization conditions (obligation to protect it with a pad for each patient) obviously impacting the measurements. No technical advice for signing the protocol, forcing us to «grope» to make as few mistakes as possible. The complexity of managing an aerodynamic device, the purchase protocol of which takes time, not necessarily coinciding with the schedule provided for the «classic» evaluation - the child is not always cooperative, which makes it difficult obtaining correct and actionable measurements. adjustment problems during the study of measurements (sensor calibration) difficult sensor sterilization conditions (obligation to protect it with a pad for each patient) obviously impacting the measurements. No technical advice for signing the protocol, forcing us to «grope» to make as few mistakes as possible. The complexity of managing an aerodynamic device whose purchase protocol takes time, not necessarily coinciding with the planned schedule for the «classic» assessment - the child is not always cooperative, which makes it difficult obtaining correct and actionable measurements. adjustment problems during the study of measurements (sensor calibration) difficult sensor sterilization conditions (obligation to protect it with a pad for each patient) obviously impacting the measurements. No technical advice for signing the protocol, forcing us to «grope» to make as few mistakes as possible. The complexity of managing an aerodynamic device, the purchase protocol of which takes time, not necessarily coinciding with the schedule provided for the «classic» evaluation - the child is not always cooperative, which makes it difficult obtaining correct and actionable measurements. study of measurements (calibration of the sensor) of the difficult conditions of sterilization of the sensor (obligation to protect it with a pad for each patient) obviously impacting the measurements. No technical advice for signing the protocol, forcing us to «grope» to make as few mistakes as possible. The complexity of managing an aerodynamic device whose purchase protocol takes time, not necessarily coinciding with the planned schedule for the «classic» assessment - the child is not always cooperative, which makes it difficult obtaining correct and actionable measurements. study of measurements (calibration of the sensor) of the difficult conditions of sterilization of the sensor (obligation to protect it with a pad for each patient) obviously impacting the measurements. No technical advice for signing the protocol, forcing us to «grope» to make as few mistakes as possible. The complexity of managing an aerodynamic device, the purchase protocol of which takes time, not necessarily coinciding with the schedule provided for the «classic» evaluation - the child is not always cooperative, which makes it difficult obtaining correct and actionable measurements.

Conclusion

The arephonoscope is a good tool for the pediatric surgeon in the evaluation of cyclopharyngeal insufficiency.

What we know about this subject: it provides specific help. It is an effective therapeutic accessory because it allows velar rehabilitation assisted by several modes.

What this study adds, it allows: the patient to easily detect his defect with great reliability in the search for nasal leaks, and an easy pre and post evaluation, and comparative studies of subsequent examinations according to the chosen protocol. However, certain difficulties were pointed out: the difficulty of the adjustments during the measurements of the study, the blocking of the software in particular at the beginning of its use.

Competing interests: The authors do not declare any competitive interest.

Acknowledgments: We warmly thank all the patients who agreed to participate in this study.

References

1. SHPRINTZEN R G (2013) The velopharyngeal mechanism. Cleft lip and palate S. Berkowitz (ed) USA.
2. Rousteau G. 1 Talmant JC (2017) Velo-pharyngeal incompetence, an assessment by means of aerophonoscope: Attempt of classification and therapeutic implications REV LARYNGOL OTOL RHINOL. 138: 143-156.
3. Ganry L, BLOT P, SABONI W (2015) Quantitative exploration of phonation by aerophonoscopy reproducibility study on healthy subjects rev de stomato chi maxillo facial 117: 62-66.
4. GBAGUIDI C, TESTELIN S, DEVAUCHELLE B (2003) Pharyngoplasties in the treatment of velopharyngeal insufficiency of cleft palates. Speech therapy, orofacial slits. 216: 67-79.
5. BLOT P, KHONSARI RH (2009) Measurement of nasal flow in aerophonoscopy Measurement of nasal air flow and aerophonoscopy: Journal of Stomatology and Maxillofacial Surgery 110: 89-93.