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CLINICAL CASE

Modification in the retropharingeal flap for velopharyngeal insufficiency with a refractory palate fistula

Modificación en el colgajo retrofaríngeo en insuficiencia velofaríngea con fístula palatina refractaria

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ABSTRACT. Introduction: Velopharyngeal dysfunction (VPD) refers to any situation in which an individual is unable to completely close the nasal airway during speech. **Case report:** Male of 16 years, lip and cleft palate post operated, with a velopharingeal dysfunction and a cleft fistula. We covered by an incision closing the middle line, with a satisfactory evolution. **Conclusions:** The goal of surgical intervention is to produce or restore velopharyngeal competence while avoiding the complications of upper airway obstruction. Dysfunction velopharyngeal is the most frequent cause of nasal voice, and most of them have anterior palate fistula, the posterior retropharingeal flap is the best surgical option.

Keywords: Cleft, palate, posterior pharingeal flap.

RESUMEN. Introducción: *La disfunción velofaríngea (VPD) se refiere a cualquier situación en la que un individuo es incapaz de cerrar completamente las vías respiratorias nasales durante el habla.* ***Reporte de caso:*** *Varón de 16 años, operado de labio y paladar hendido, con una disfunción velofaríngea y una fístula hendida. Se le realizó una incisión que cierra la línea media, con una evolución satisfactoria.* ***Conclusiones:*** *El objetivo de la intervención quirúrgica es producir o restablecer la competencia velofaríngea evitando las complicaciones de la obstrucción de las vías respiratorias superiores. La disfunción velofaríngea es la causa más frecuente de la voz nasal, y la mayoría de los pacientes tienen una fístula en el paladar anterior; el colgajo retrofaríngeo posterior es la mejor opción quirúrgica.*

Palabras clave: *Paladar, hendido, colgajo retrofaríngeo posterior.*

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We declare that we have no conflicts of interest.

INTRODUCTION

Normal speech is dependent upon the functional and structural integrity of the velopharynx, a complex and dynamic structure that serves to uncouple the oral and nasal cavities during sound production.[1]

Velopharingeal disfunction (VPD) refers to any situation in which an individual is unable to completely close the nasal airway during speech. The velopharyngeal mechanism is comprised of a complex group of structures that act in unison to control airflow through the nose and mouth by elevation of the soft palate and constriction of both the lateral and posterior pharyngeal walls.[2]

Velopharingeal disfuntion simple denotes that it will have an incomplete closure without knowing the cause, it is seen roughly 20 to 30% of individuals who have undergone cleft palate repair and 5 to 10% of patients with a submucous clef palate.[1,2]

Any disruption in this mechanism may result in abnormal, poorly intelligible speech, having a hypernasality, nasal emission, decrease vocal intensity, and/or facial grimacing.[3]

Figure 1: Anterior palate fistula, with velopharyngeal dysfunction.

Figure 2: Posterior pharingeal flap in triangle to close the middle line with the fistula and nasal.

Using a posterior pharyngeal flap or the creating of midline flaps from the posterior pharyngeal wall represents the oldest surgical technique for the management of the VPD. The pharyngeal flap functions primarily as a central obturator of the velopharyngeal port.[1-4] Since its original description by Schoenborn and popularization by Shprintzen et al, posterior pharyngeal flap has been the most widely and effectively used procedure for VPInsuficency.[5]

CASE REPORT

Male of 16 years, with a right complete palate and Lip cleft, at the age of 5 months he gets queiloplasty, and at 18 months the palatoplasty.

The patient did not had an stable economy, having lack of vocal therapy, and a torpid evolution, we see him in a rural campaign of clef and lip palate in San Luis Potosí, after a nasopharyngeal endoscopy, confirm a velopharyngeal dysfunction, and a anterior palate cleft of 14 mm *(Figure 1)*, so we decided to program for a posterior retropharingeal flap *(Figure 2)*, during surgery we decide to cover

the anterior palate fistula with the posterior retropharingeal flap, we implement a modification in the technique *(Figure 3)* by opening the middle line and have the improvement to connect to the fistula so we covered to retropharingeal space, extending and suturing to the floor of nasal space until the fistula full cover, and close the palate, having a successfully postsurgical *(Figure 4)*.

Ethical aspects: the submission of this manuscript is subject to the approval of the education and research office of the institution. Data of each patient were managed confidentially and anonymously. Patients signed the institutional informed consent form.

DISCUSSION

The velopharyngeal sphincter is situated between the oral and nasal cavities and permits the speaker to separate the nasal cavity from the oral cavity. Velopharyngeal closure is achieved by tension of the velum and its elevation toward the pharyngeal walls that move toward the rising velum and diminish the lumen of the velopharynx.[1] The velopharyngeal port is defined anteriorly by the soft palate, or velum, laterally by the lateral pharyngeal walls, and posteriorly by the posterior pharyngeal wall.[2]

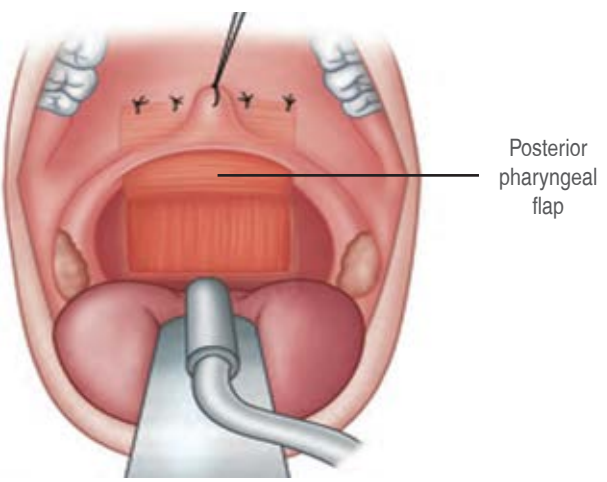

Figure 3: Posterior pharingeal flap, convenient technique.

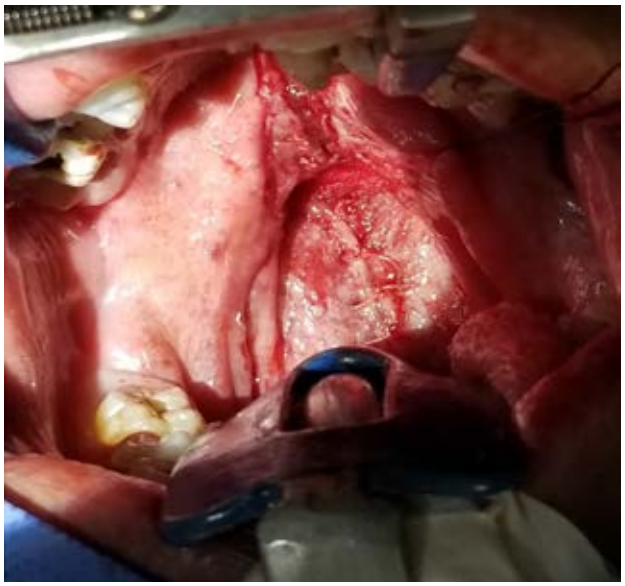

Figure 4: Posterior pharingeal flap, with a triangle modification, closing full nasopharyngeal flap.

Anatomic causes are most common and are typically associated with a previously repaired cleft palate associated in 20 to 30%.[2]

Fistulas anywhere within the palate can lead to abnormal intraoral air escape, and tonsillar hypertrophy or scarring of the posterior tonsillar pillars can also serve as a barrier to normal closure of the velum against the posterior pharyngeal Wall.[1,2]

Although palatal fistula is common after cleft palate repair, up to 34%, 8 minimal literature regarding its management is available.[2,3]

Velopharyngeal insufficiency is found in cleft palate, submucous palatal fistulae, post adenoidectomy, and neuromuscular disorders or persists after cleft palate surgery or removal of tumors.[3]

Non-surgical treatment options

The options are having a prosthetic but is just temporal or just like a permanent solution. Prostheses typically are available in the form of a palatal lift or an obturator. Soft palate obturators or speech aid prostheses are more effective in velopharyngeal insufficiency, where the palate has inadequate tissue length.[2,4]

Surgical treatment options

There are numerous surgical treatments VPD including posterior pharyngeal wall augmentation, sphincter pharyngoplasty, palatal lengthening procedures (Furlow palatoplasty and pushback palatoplasty), and posterior pharyngeal flaps.

The common aim of these procedures is to create a permanent partial obstruction of the velopharyngeal space in order to correct hyper nasal speech.[3,4]

Pharyngeal flap is created by suturing an inferiorly based or more commonly a superiorly based posterior pharyngeal wall flap to the soft palate to bridge the central portion of the velopharyngeal gap, leaving a lateral port on each side for breathing.[3] The goal of this procedure is to recruit tissue from the posterior pharyngeal wall and attach it to the soft palate to bridge the central portion of the large velopharyngeal gap.[2-4] Several modifications have been added to limit complications and improve results.[5]

The width of the pharyngeal flap should be tailored to the functional and anatomic needs of each patient, again as determined by preoperative imaging.[1,5]

The pharyngeal flap opening the middle line, until the fistula to get close, doing a pharyngeal flap with the mucosa and pharyngeal muscle, this flap is in triangle because is the best option to close the fistula, making sure lateral space with a nasal tube *(Figure 3)*.

Complications

Complications of pharyngeal flap surgery include bleeding, dehiscence, and nasal airway obstruction, including obstructive sleep apnea.[3,5]

Off all complications obstructive sleep apnea is the most serious of the pharyngeal flap surgery. It was estimated to occur in up to 20% of patients.[3,5]

The vast majority of patients demonstrate resolution of clinical and polysomnographic evidence of nocturnal upper airway obstruction within several months of surgery, as edema subsides.[5]

CONCLUSIONS

The L-shaped posterior pharyngeal flap is one of the most common improved in VPD, but a modification in it (doing a triangle flap, opening the middle line), will close with more efficient an anterior palate fistula, having less complications, and a full close of the fistula in the future.

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