

# **Utilizing Diagnostic Imaging for the Operative Management of Velopharyngeal Insufficiency: A Survey of the ACPA**

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## **BACKGROUND:**

Appropriate management of velopharyngeal insufficiency (VPI) after primary palatoplasty is essential for proper speech development in cleft palate patients. The purpose of this study was to survey the diagnostic workup and operative management of VPI amongst surgeons throughout the United States.

## **METHODS:**

An anonymous survey was emailed to all members of the ACPA with board certifications in plastic and reconstructive surgery, otolaryngology, or oral and maxillofacial surgery. The survey inquired about demographics, clinical volume, use of diagnostic imaging for VPI workup, and factors influencing operative decisions for VPI treatment.

## **RESULTS:**

80 surgeons completed this survey. 89% reported board certification in plastic surgery with or without additional training in OMFS or ENT surgery, and 69% reported additional fellowship training in pediatric/craniofacial plastic surgery. Frequency of imaging modalities for diagnostic workup of VPI and secondary procedures for operative treatment of VPI are shown in Tables 1 and 2, respectively. Imaging results were reported to “completely” influence secondary velopharyngeal operations decisions for 62.5% of surgeons, and “somewhat” influence these decisions for 32.5% of surgeons. 5.0% of surgeons actively denied utilizing imaging modalities for their diagnostic workup of VPI. 53.8% of surgeons never perform secondary VPI procedures in combination, 33.8% perform secondary VPI procedures in combination <20% of the time, and only 12.4% perform combination procedures >20% of the time. 72.5% of surgeons reported a lack of standardized VPI management protocol in their practice, compared to 13.8% reporting utilization of a standardized academic protocol and 13.9% reporting utilization of a unique institution-, team-, or surgeon- specific protocol.

## CONCLUSIONS:

This data demonstrates obvious variation in both the diagnostic and operative management of VPI amongst surgeons in the United States. Diagnostic imaging was reported to completely influence decisions on secondary pharyngeal operations for approximately two-thirds of surgeons responding to our survey of the ACPA. The other one-third reported only relying somewhat on imaging. Very few (5%) do not utilize any imaging in their VPI workup. Nasoendoscopy represented the most common diagnostic tool utilized for VPI workup amongst responding surgeons, followed by videofluoroscopy. Posterior pharyngeal flaps represented the most common secondary pharyngeal operation performed, followed by furrow z-plasties and sphincter palatoplasties. Notably, only 27.5% of surgeons reported following standardized protocols for diagnostic and operative management of these patients, half of which are institution-specific, and the other half of which are true standardized academic protocols.

Table 1: Imaging Modalities	Rarely (0 – 20%)	Occasionally (21- 40%)	Sometimes (41 – 60%)	Often (61-80%)	Usually (81-100%)
Nasoendoscopy	8.8%	8.8%	11.3%	17.5%	53.8%
Videofluoroscopy	66.3%	6.3%	7.5%	3.8%	16.3%
Ultrasound	98.8%	1.2%	0%	0%	0%
MRI	95.0%	5.0%	0%	0%	0%
No imaging	87.5%	8.8%	1.3%	1.3%	1.3%

Table 2: Secondary Procedures	Rarely (0 – 20%)	Occasionally (21- 40%)	Sometimes (41 – 60%)	Often (61-80%)	Usually (81-100%)
Furrow Z-plasty	46.3%	31.3%	11.3%	5.0%	6.3%
Posterior pharyngeal flap	22.5%	12.5%	18.8%	22.5%	23.8%
Sphincter palatoplasty	56.3%	27.5%	11.3%	3.8%	1.3%
Posterior wall augmentation	91.3%	6.3%	2.5%	0%	0%
Soft palate augmentation	93.8%	5.0%	1.3%	0%	0%
Other	85.0%	3.8%	3.8%	2.5%	5.0%