HYPERNASALITY FOLLOWING ADENOIDECTOMY – A CASE PRESENTATION

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ASHA CONVENTION 2007
A study by Ren.Y, Isberg,A. and Henningsson, G., 1995), was conducted to identify the cause of velopharyngeal incompetence and hypernasality in sixteen (16) children after adenoidectomy who did not have palatal defects. The results indicated that enlarged tonsils and prominent remaining adenoid tissue on the posterior pharyngeal wall were the cause of hypernasality in these children.
The authors recommended that enlarged tonsils and any protruding adenoid remnants be removed at the time of adenoidectomy to prevent the risk for postoperative hypernasality.

Another study of an eight (8) year review conducted at the Speech Clinic at the Hospital for Sick Children in Toronto, Ontario, Canada, was designed to investigate persistent hypernasality after adenoidectomy in 137 children.
Witzel, Rich, Margar-Bacal and Cox (1986), concluded in this study that velopharyngeal insufficiency causing hypernasal speech after adenoidectomy is not rare. They estimated that this occurs in one (1) of every 1500 children undergoing adenoidectomy, either with or without tonsillectomy.
It was also concluded that spontaneous improvement in hypernasal speech may occur for up to one (1) year after adenoidectomy.

Fifty (50) percent of their patients required pharyngoplasty to correct hypernasality. Thirty-seven (37) percent required speech therapy alone. Thirteen (13) percent improved with no treatment.
“Velopharyngeal incompetence or VPI is the inability of the velum (soft palate) and related musculature to close the nasopharynx, separating the oral and nasal cavities for the production of oral consonants. A VPI can be caused by a deficiency of the velum or an increased size of the pharynx. The latter is difficult to diagnose without imaging.

- Managing Speech Disorders: An introduction to Speech Pathology and Resonance Disorders, (Riski, John E., Ph.D.) www.choa.org
According to Riski, a deep nasopharynx may be unmasked. In some clients, the velopharyngeal mechanism seems to be able to adjust to slow involution, but it may not occur in the sudden increase with an adenoidectomy. He also stated that if hypernasality does not resolve with several weeks of therapy, formal evaluation or physical management, such as surgery or prosthetic devices, may be warranted.

Other information regarding VPI assessment and speech therapy can also be found at www.choa.org
The purpose of this case study was to report the evaluation, goals and progress of a client with persistent hypernasality after adenoidectomy.

The client was receiving services through the public schools for articulation.

The client had previously been evaluated by an ENT who recommended a tonsillectomy and adenoidectomy, followed by speech therapy.

Client continued speech therapy in schools.
CASE HISTORY

CLIENT

- 9 years, 2 months old
- Female
- Mild bilateral mid-high frequency sensorineural hearing loss
- Early history of sleep apnea leading to a tonsillectomy and adenoidectomy in December 2003 at five (5) years of age
- Mother reported hypernasality after surgery
- School-based SLP referred her back to the surgeon (ENT) on several occasions over a two (2) year period because of hypernasality.
- Surgeon reported “it would take time for the throat to adjust.”
- ENT felt no need for further evaluations or procedures warranted
- Mother expressed concern since client wants to become a teacher and requested additional evaluations.
- Client was evaluated at VSU Clinic and enrolled for articulation therapy.
- University supervisor made referral to a different ENT for a second opinion in January 2006
- Supervisor requested client be referred to a Craniofacial Clinic for evaluation of velopharyngeal function
- ENT made referral to a Craniofacial Clinic
RESULTS: CRANIOFACIAL CLINIC EVALUATION

- Hypernasality: Mild
- Hyponasality: Normal
- Audible nasal emission: Mild
- Velopharyngeal function: Marginal
- Cranial nerves: Intact for functioning of speech
- Hard palate: Intact
- Nasopharynx: Appears deep
- Velopharyngeal screening: Revealed inconsistent velopharyngeal closure
- Lateral radiography: Revealed marginal velopharyngeal closure with a deep nasopharynx following adenoidectomy; Soft palate otherwise structurally and neurologically intact
- Nasendoscopy: Revealed central velopharyngeal gap
Recommended surgery

Sphincter pharyngoplasty: July, 2006

Client’s mother reported on the follow-up visit to the surgeon in September, 2006 that “friends and family are able to hear a big difference in her speech but she continues to have some difficulty with sounds and hypernasality.”
SURGICAL RESULTS

Post surgical exam in September 2006 revealed:

- Normal velopharyngeal function
- Marked improvement in her speech and intelligibility, but does not always break pressure consonants and may be using a posterior nasal fricative for the sibilant sounds “s”, & “sh”
- Hearing impairment may also contribute to some of her speech problems
RECOMMENDATIONS FOR THERAPY

- Continue working on aspiration of pressure consonants
- Additional focus on sibilants
- Will return for re-evaluation of speech and velopharyngeal function
THERAPY APPROACH

- Traditional approach is being used

- At the beginning of each session, the Ling-6 sound test is conducted to assure proper hearing aid function

- Frequent explanations provided so client will understand purpose of each goal

- Client asked to collect data of her productions to increase self-monitoring
Due to client’s rapid speech rate and lack of appropriate mouth opening, the Boone Voice Program for Children (Facilitating Approach #10) was utilized.

Using appropriate mouth opening (over articulation) also improves the client’s resonance.
INTERVENTION GOALS AND PROGRESS

- FALL 2006:
- Goal:
  - The client will imitatively produce the following pressure consonants in isolation, and in initial, medial, and final word position in syllables, and in words using appropriate oral resonance with 100% accuracy for three consecutive sessions: /p,b,t,d,k,g/

- PROGRESS:
  - Client achieved 100% accuracy
Goal:

- The client will spontaneously produce /s/ in all word positions using appropriate oral resonance.

Progress:

- Client produced /s/ spontaneously in all word positions at phrase level
SPRING 2007:
Goal:
- The client will spontaneously produce the following pressure consonants in initial, medial, and final word position in phrases, sentences, paragraphs, and conversation, using appropriate oral resonance with 100% accuracy: /p,b,t,d,k,g/

Progress:
- This goal was met at sentence level
Goal:
- The client will spontaneously produce /sh/ in all word positions using appropriate oral resonance.

Progress:
- Client achieved 100% at **phrase** level

Goal:
- The client will spontaneously produce a series of words, phrases, and sentences with appropriate mouth opening with 100% accuracy.
Progress:

- This goal was met at sentence level. It is now being combined with other goals, and she is reminded to use over-articulation while working on her other goals and during conversation. When client reaches paragraph level on other goals, she will read paragraphs to practice this as well.
Goal:
- The client will imitatively produce /s/ in the initial, medial, and final position of words in phrases using appropriate oral resonance with 100% accuracy.

Progress:
- Client achieved 100% accuracy
SUMMER 2007:

Goal:

- The client will imitatively produce /s/ in the initial, medial, and final position of words in phrases with 100% accuracy. (Note: Baseline data at the beginning of the semester showed work still needed at phrase level).

“Straight Speech – A Lisp Treatment Program” by Jane Folk was begun in summer to improve manner of production for /s/.

Progress:

- Steps 1, 2, and 3 were completed during summer.
FALL 2007:

- The client has completed steps 4 through 9 of the “Straight Speech” program.
- The client is also working on production of /r/ and vocalic /r/.
- Client continues treatment two (2) times per week through VSU as well as in school.
CONCLUSION

- This client was scheduled to return for further objective evaluation by the SLP at the Craniofacial Clinic in August, 2007; however, this has not occurred since Mother is deployed and child is living with relatives.

- During Fall Semester 2007, the client has not worn her hearing aids, as new ear molds are being made. This makes it difficult for her to self-monitor.
The client is very motivated and continues to make progress in therapy.

Goals for using appropriate mouth opening/appropriate resonance will be continued through conversational level, as client is not consistently carrying over this skill.
For additional information regarding this case study, contact:

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