

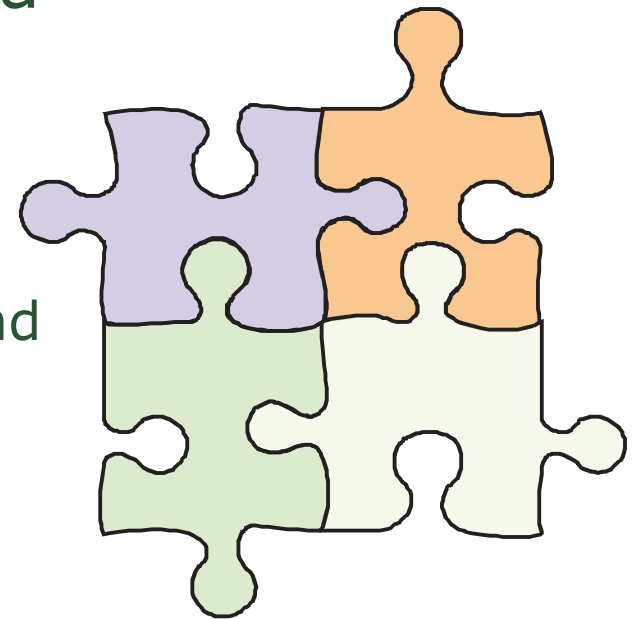


**Speech therapy in
treatment of Vocal cord
Nodules**

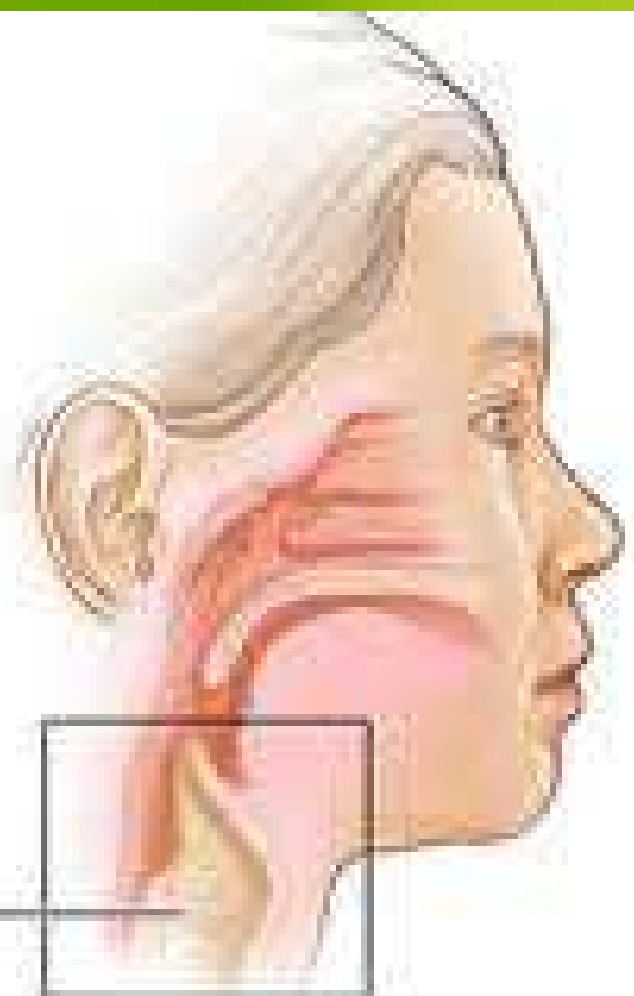


Definition

- ❖ Small benign swellings/ Edema of the subepithelial tissue
 - Along margins of the vocal cords
 - At the junction of the anterior and middle thirds.
- ❖ Usually bilateral
- ❖ Pale to pink in color
 - Usually matching the color of the vocal cords.

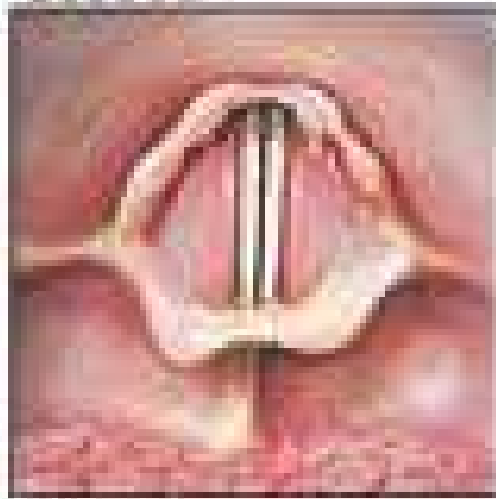


(Von Leden, 1985)

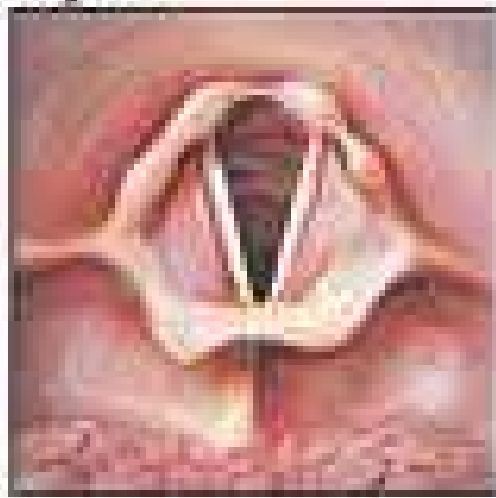


Normal
vocal
cords

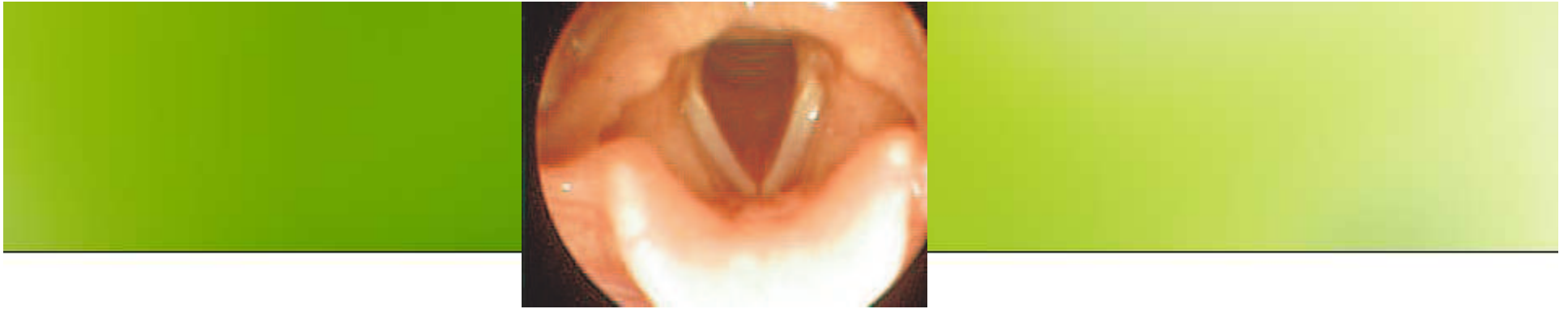
Closed



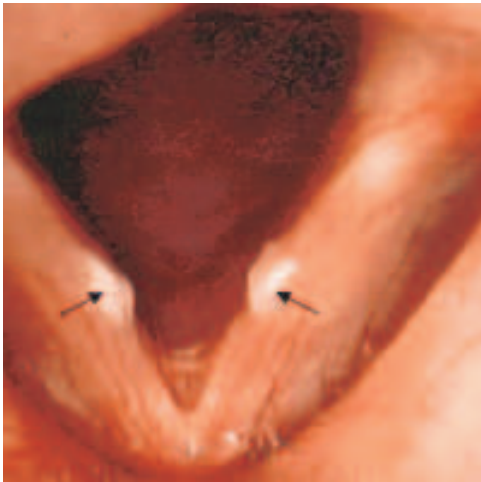
Open



© Healthline, Inc. All rights reserved.



Normal vocal cord



Vocal cord Nodules



Polyp



vocal fold paralysis

Symptoms

❖ Key features:

- Hoarseness
- Laryngeal hyperfunction
- Reduced pitch
- Breathy vocal quality
- Dysphonia

❖ Symptoms vary in accordance with:

- Extent of lesion
- Length of time since onset
- Laryngeal inflammation

❖ Some children may be asymptomatic



(Pannbacker, 1999; Stemple et al., 2000)

Causes

❖ Vocal Trauma

- ✓ Loud talking/screaming
- ✓ Singing
- ✓ Cheerleading
- ✓ Coughing/Sneezing
- ✓ Crying
- ✓ Laughing/Cheering
- ✓ Sound Effects/Animal Noises
- ✓ Dehydration



(Bowen, 1997)



Causes

- ❖ Medically-related factors:
 - Excessive cough/throat clearing
 - Allergies/upper respiratory conditions
 - Dehydration
 - Gastric reflux
- ❖ Psychological, Physiological factors
- ❖ Personality
- ❖ Affective Disorders: ADD, ADHD.



Prevalence, Incidence and Demographic information

731 children exhibiting laryngeal pathologies

Incidence of vocal nodules:

- N = 128
- 17.5%

Demographics:

- Male to female ratio = 2:1
- Age ranges most affected:
 - Ages 4-5; N = 29
 - Ages 6-11; N = 607



(Dobres, Lee, Stemple, Kummer, & Kretschmer, 1990; Pannbacker, 1999)

Misdiagnosis

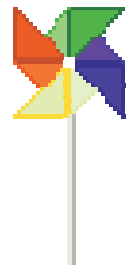


- ❖ Prevalence data may be inflated due to misdiagnosis
- ❖ Chronic hoarseness is often mistakenly attributed to vocal fold nodules
 - Reflux Laryngitis (American Academy of Otolaryngology, Head and Neck Surgery)
 - Polyps
 - Intracordial cysts
 - Contact ulcers
 - Papillomas
 - Squamous cell carcinomas



Treatment

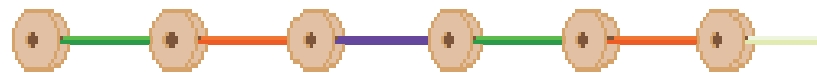
- ❖ Management Options Include:
 - Voice treatment (Speech therapy)
 - Surgical Removal
 - Voice treatment (Speech therapy) and surgical removal
 - No Treatment



(Allen et al., 1991)

Other Things to Consider

- ❖ Age of child
- ❖ Duration of the nodule
- ❖ Presence/absence of symptoms
- ❖ Response to previous Tx attempts
- ❖ Choice of treatment
 - SLP, ENT, and child/caregiver preference



(Pannbacker, 1999)

Treatment (continue)

❖ Voice Hygiene:

- Educate the client about:
 - Normal voice production
 - Vocal nodules
 - Potential etiologies
 - Effects on voice
- Identify vocally abusive behaviors and environment.
- Decrease vocal abuse



Treatment (continue)

❖ Voice Therapy:

➤ Develop Voluntary Vocal Management Skills:

- Reduce amount of talking
- Reduce vocal loudness

➤ Tension reduction in musculature of the larynx:

- Increase the flow of breath during phonation
- Easy onset of vocal fold adduction
- Progressive relaxation exercises (e.g., neck rolls, shoulder lifts, soft humming)

(Deal, McClain, & Sudderth, 1976; Hillman, Hammarberg, Sodersten, Doyle, & Holmberg, 2001; Wohl, 2005)



Treatment (continue)

❖ Surgical Intervention:

➤ Advantages:

- Immediate removal of vocal nodules
- High rate of initial success

➤ Disadvantages:

- Nodules are likely to:
 - Recur if strategies are not learned and maintained
 - Resolve at puberty



Treatment (continue)

➤ Disadvantages:

- Post-operatively patients must observe:
 - One week of voice rest
 - Four to six weeks of using a soft voice only
 - Strict adherence to antireflux medications and dietary restrictions
- Additional risks:
 - Scarring
 - Anesthetic complications

(Mori, 1999; Pannbacker, 1999; Wohl, 2005)



Reasons NOT to Recommend Surgical Removal

- ❖ Tendency to Recur
 - Difficult to modify a child's vocal behavior
 - Often remain abusive in the postoperative period
- ❖ Vocal Nodules often Spontaneously Resolve near Puberty
 - Cheerleaders may be the exception
- ❖ Even when Vocal Nodules Persist, It is possible to improve voice quality with voice therapy



(Koufman, n.d.)

No Treatment

- ❖ Tendency to resolve spontaneously without treatment
- ❖ Therefore, Treatment is unnecessary
- ❖ Some Children may not be compliant
- ❖ The child might not be aware of the dysphonia
- ❖ The child might be asymptomatic

(Pannbacker, 1999)



Choice of Treatment

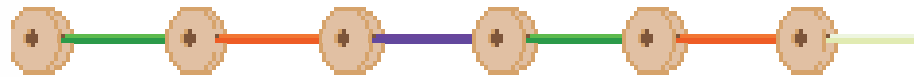
- ❖ 81% also felt voice therapy can “always” or “frequently” be helpful
- ❖ 97% of SLPs chose initial voice therapy treatments for both children and adults
- ❖ 87% felt voice therapy can “frequently” be effective
- ❖ 94% “always” or “frequently” refer children with suspected vocal nodules to an ENT (72% of adults)



(Allen et al., 1991)

Summary

- ❖ There is limited data on the outcome of voice treatment for children with vocal nodules
- ❖ The majority of studies about vocal nodules have been of adults
 - Only 4 studies included children
- ❖ Both the number and quality of research studies needs to increase in order to accurately state that voice treatment is efficacious
- ❖ However, voice treatment is currently the most favored method for treating children
 - If chosen, surgery is often the last option



(Pannbacker, 1999)

References

- **Allen, M.S., Pettit, J.M., & Sherblom, J.C. (1991). Management of vocal nodules:
A regional survey of otolaryngologists and speech-language pathologists. *American Speech-Language-Hearing Association, 34(2)*, 229-235.**
- **American Academy of Otolaryngology, Head and Neck Surgery. (n.d.). Hoarseness in children is often misdiagnosed, leading to ineffective treatment. Retrieved April 2, 2003, from <http://entnet.org/ent-press/pressreleases/ABEA1.cfm>**
- **Bowen, C. (1997). Vocal nodules and voice strain. Retrieved April 3, 2003, from http://members.tripod.com/Caroline_Bowen/teen-nodules.htm**
- **Deal, R.D., McClain, B., & Sudderth, J.F. (1976). Identification, evaluation, therapy, and follow-up for children with vocal nodules in a public school setting. *Journal of Speech and Hearing Disorders, (41)*, 390-397.**
- **Koufman, J.A. (n.d.). Vocal Nodules. Retrieved April, 2, 2003, from <http://www.bgsm.edu/voice/vocal-nodules.html>**
- **Pannbacker, M. (1999). Treatment of vocal nodules: Options and Outcomes. *American Journal of Speech-Language Pathology, 8(3)*, 209-217.**
- **Von Leden, H. (1985). Vocal nodules in children. *Ear, Nose, and Throat Journal, (64)*, 473-480.**





CHÂN THÀNH CÁM ƠN