Larynx: nodules and polyps

by Lester D. R. Thompson, MD

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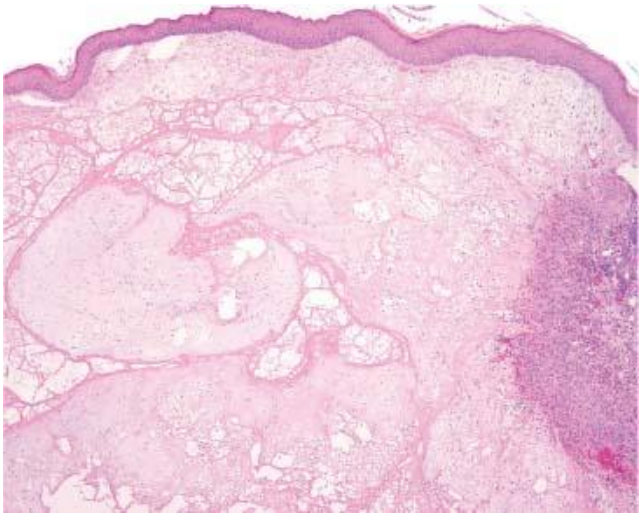
About 1.5% of the overall population suffers from hoarseness; among the most common causes of hoarseness are vocal fold nodules and polyps. Vocal fold nodules and polyps represent reactive changes of the laryngeal mucosa and adjacent stroma that result in benign nodular or polypoid growths. Their etiology is multifactorial, but vocal misuse is one of the most common causes, followed by infection, smoking, and hypothyroidism. Extroverts are more likely to develop nodules and polyps.

The causes of a nodule are slightly different from the causes of a polyp. In children, nodules are slightly more common in boys than in girls; polyps have no predilection for either sex, and they can occur at any age.

Nodules usually affect the anterior to middle thirds of the true vocal folds, and they are nearly always bilateral. In addition to the vocal folds, polyps can affect the aryepiglottic fold, ventricular space, and/or the Reinke space, and they are usually unilateral. Voice reeducation, voice therapy, behavior modification, drug therapy, and surgery all play a role in management. Nodules appear as an edematous, gelatinous, hemorrhagic, firm or fixed mass, while polyps manifest as a solitary, soft, rubbery, translucent to red-raspberry-colored mass. Nodules are usually smaller than 0.3 cm, while polyps are usually larger than 0.3 cm.

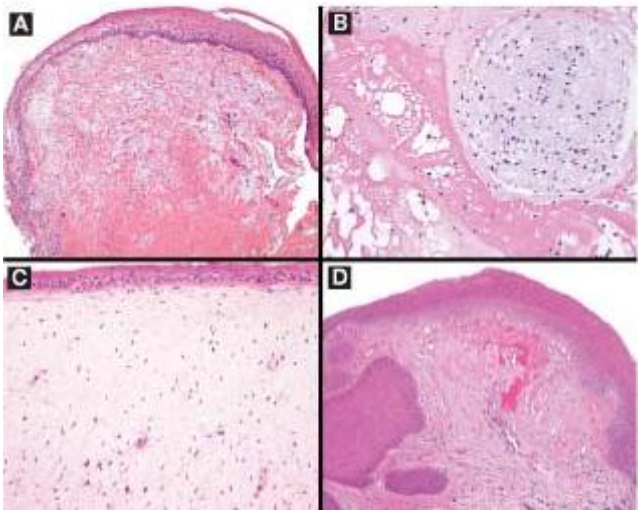
Histologically, nodules and polyps are indistinguishable. Both exhibit an arc of development. An intact epithelium overlies an edematous stroma, which contains proteinaceous material within the interstitium (figure 1). The vascularized stroma exhibits hemorrhage with a loose myxoid matrix. Inflammation is uncommon, although surface granulation tissue and fibrin may be seen. With time, the myxoid material is replaced by fibrin-type material, which becomes almost completely collagenized by fibrosis.

Figure 1. At low-power magnification, this polyp exhibits an edematous stroma beneath an intact epithelium. Note the area of granulation tissue and surface loss (far right).



Polyps are separated into four types: *edematous, vascular, myxoid,* and *hyaline*, based on the stage of development at the time the sample was obtained and on the dominant histologic pattern (figure 2). The primary differential diagnoses include amyloid, myxoma, spindle cell (sarcomatoid) squamous cell carcinoma, and contact ulcer.

Figure 2. These four images show the stages within the arc of development of a vocal fold polyp: a vascularized stroma with hemorrhage and a loose edematous matrix (A), fibrinous material adjacent to a myxoid stroma (B), a myxoid stroma only beneath an intact epithelium (C), and fibrosis beneath an intact and hyperplastic squamous mucosa (D).



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Suggested reading

1. Franco RA, Andrus JG. Common diagnoses and treatments in professional voice users. Otolaryngol Clin North Am 2007; 40 (5): 1025-61, vii.
2. Wallis L, Jackson-Menaldi C, Holland W, Giraldo A. Vocal fold nodule vs. vocal fold polyp: Answer from surgical pathologist and voice pathologist point of view. J Voice 2004; 18 (1): 125-9.

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