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Physician & Surgeon – Practice Limited to Laryngology

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Specializing In:

Disorders of:

hoarseness
breathing
singers
actors
speakers

Procedures of:

diagnostic stroboscopy
digital laryngeal imaging
laryngeal injections
laser treatments
vocal cord augmentation
microlaryngoscopy
nerve grafting
vocal pitch surgery
laser tumor resection

Dear _____,

Here are some topics to consider.

My favorite instructional course in neurolaryngology:

Visual Neurolaryngology

Recommended time: 45 minutes

Minimum time: *15 minutes (rushed, a few examples).*

Visual diagnosis of laryngeal neurologic impairments is not only possible, but is perhaps the most accurate method for evaluating the neurologic status of the upper airway. The actions of each intrinsic muscle can be isolated visually by the careful observer.

Although electromyography is a valuable tool, it is a cumbersome examination, uncomfortable for the patient, difficult to interpret and careful endoscopic evaluation seems at least as precise.

A complete endoscopic neurolaryngology examination begins in the mouth and nasopharynx, examining all of the muscles innervated by the Xth cranial nerve, not just the vocal cords. Topical anesthesia, slow observation during respiration, stroboscopy, video recording and post examination slowing of movement lead to an accurate neurolaryngeal diagnosis.

Principles of the neurolaryngology examination include:

1. Each muscle has only a single action,
2. That action can be isolated,
3. That action can be elicited and visualized,
4. The patient always attempts to compensate and the examiner's goal is to remove compensation in order to better visualize the neurologic impairment.

Some of the concepts covered in this lecture will include endoscopic visualization of paralysis, paresis, synkinesis, dyskinesia, fixation, tremor, spasm, and reinnervation. Extensive use of video recordings will support the precepts.

I have a color booklet to accompany this lecture. It can be downloaded as a pdf file or for printing.

<https://www.voicedoctor.net/neuro>

A 2nd option for a shorter talk where I focus only on one branch:

Lateral Cricoarytenoid nerve injury - the missed neurologic impairment

Recommended time: 30 minutes

Minimum time: 15 minutes (single example)

Evaluation of the cricoarytenoid muscle requires a specific approach to examination including both respiration and phonation. It is the most missed neurologic injury of the larynx.

The audience will learn specific visual techniques to identify this recurrent laryngeal nerve injury, including paresis, synkinesis and dyskinesis of the nerve. Treatment options will also be discussed.

A 3rd option:

Persuading clinicians why it is relevant and rewarding to listen and to record voices, not just look.

Secrets of Listening (hearing a voice disorder)

Using your ear for accurate diagnosis of hoarseness

Recommended time: 45 minutes

Minimum time: 30 minutes (rushed, fewer examples). *Less than that and probably the topic will be incomplete.*

Hearing a voice disorder is the most valuable tool available to the laryngologist/phoniatrist/voice therapist and yet listening remains the most underutilized test in laryngology. Vocal capabilities consists of identifying the comfortable speaking pitch, maximum phonation time, highest and lowest pitch while noting the quality of voice production. Loud and soft voice production at low pitch and repeating at high pitch will elicit audible vocal cues revealing vibratory impairment, also suggesting the pitch and volume at which to record the stroboscopic examination.

Objective 1: The participant will learn how to describe hoarseness in terms of physics. Signal and Noise are the components of sound production important to the diagnostician.

Objective 2: The participant will learn to hear and describe the sounds of the two major types of hoarseness - air leak and roughness (white noise & diplophonia).

Objective: The participant will learn techniques for eliciting hoarseness; choosing a pitch; recording and then correlating the source of the sound impairment. Stroboscopic examination findings will be correlated.

The participant will listen to audio recordings, making a prediction about the pathology that will be visualized. The stroboscopic examination will be viewed for comparison with the prediction. By the end of the workshop, the participant should be forming a more accurate differential diagnosis after listening to an impaired voice.

Each type of vocal cord vibratory impairment generates a specific pattern on this type of vocal capabilities pattern matching elicitation - a vocal signature. For example, weakness of the vocal cords will be exacerbated at low pitch and low-volume sound production. Vocal cord swellings such as nodules, polyps and hemorrhage will most significantly impair vocal cord vibration at high pitch and low-volume.

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<https://www.voicedoctor.net/vcb>

A 4th option:

High Definition Laryngology

Recommended time: 30-45 minutes

Minimum time: 15 minutes (rushed, a few examples).

There may be more than one company that would be willing to bring endoscopes for such a course. I'm happy to correspond with some if you are interested in this as part of the hands-on.

Abstract

High definition laryngology is the combination of equipment and expertise leading to a precise diagnostic view of functioning vocal cords. High technology for imaging the vocal cords includes stroboscopic lighting, chip on tip endoscopes, high-definition cameras, digital recording, high definition monitors, high speed cameras and selective color filters. High definition techniques allow the examiner to optimize images, regardless if they are obtained with high or low technology or even lower quality equipment. An optimum combination of equipment and technique leads to a cost-effective, high yield and accurate diagnosis for laryngeal problems. It also leads to an improved understanding of how the larynx actually functions normally, producing clear sound both for speaking and for singing. This is high-definition laryngology. This lecture may help you decide what equipment to utilize or purchase. It will provide you with ideas for new techniques to image the vocal cords and how to think about laryngeal function more precisely.

Objectives - brief

1. Upon completion of the session, participants should be able to... understand various video standards from standard definition to ultrahigh-definition, selective color imaging and their application to endoscopy and how to utilize consumer video equipment for laryngeal imaging.
2. Upon completion of the session, participants should be able to... utilize low technology techniques to create high-definition images with lower cost equipment.
3. Upon completion of the session, participants should be able to... understand video and stroboscopy artifacts and make reasonable diagnoses even with the artifact present.

Objectives - detailed

1. Understand how the most important component of laryngology is the video recording of the image. The capacity to review an image several times reveals many additional details. Using a high resolution computer screen along with software which allows the easy ability to move frame by frame, backwards and forwards or at variable speed aids the examiner in visualizing microscopic vibratory impairments otherwise occurring faster than the examiner's perception is able to digest the information.
2. Understand how the correlation of sound with video augments the diagnostic value of the image. Variation in vowels, changes in pitch and changes in vocal intensity all alter the visual endoscopic image.
3. Understand how the most commonly used endoscope, the very cost-effective flexible fiber-optic endoscope, artificially alters our perception of the larynx. If the examiner keeps this visual alteration in mind, a better diagnosis can be made, even with these blurred and honeycombed images. It is also the wisdom of knowing what you don't know.
4. Understand how variations in lighting alter our perceptions of what we see and specifically how even standard definition rigid and flexible endoscopes can offer complementary views of the larynx, the combination resulting in essentially a high-definition perception of the larynx.
5. Understand how topical anesthesia - at very little cost and only a small addition of time - can turn a standard definition (SD) image into essentially a high definition (HD) image by navigating the endoscope closer. Closeness yields a recording with more pixels on the pathology and consequently is equivalent to a higher resolution image. Consequently audience members who can only afford the minimal amount of equipment can learn to obtain essentially high definition images of pathology with low-budget equipment.
6. Understand the capabilities of the highest resolution images that can be obtained with high definition cameras from Toshiba, Olympus and Pentax for both rigid and digital chip-on-tip endoscopes. Whether or not you can afford an HD endoscope, you will leave with an understanding of what you might be missing.
7. Understand how the added visual qualities of selective color imaging such as NBI (narrow band imaging) by Olympus or iScan by Pentax, highlight vasculature. Neovascularization readily identifies the borders of many lesions, some malignant and some benign.

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<https://www.voicedoctor.net/HD>

A 5th option:

Nanomargin tumor surgery

Recommended lecture time: 20-30 minutes

Minimum time: *15 minutes*

Nanomargin tumor management - A new paradigm for consideration with today's technology.

Laryngeal tumor management is based on outdated studies treating vocal cord tumors with large margin excisions, frozen sections and follow up with non-recorded flexible fiberoptic endoscopy.

Technical and technique advancements including optical advancements in microscopes, Chip-on-tip endoscopes, high definition video recording, selective lighting, vascular recognition and, close examination techniques allow for an alternative approach to small vocal cord tumor management.

Epithelial growths on the vocal cord mucosa, including squamous cell carcinoma, leukoplakia, hyperkeratosis and benign pathology, such as papilloma, do not inherently require removal of any normal tissue. Large margins were an outgrowth of the technology available to examiners in the past.

This brief lecture will introduce the concept of nano-margin tumor excision along with close and meticulous follow up examinations.

Premises for this management strategy include the following:

1. Chip endoscopes provide a substantially clearer view of pathology
2. Topical anesthesia allows the examiner to visualize vocal cord mucosa close enough view microvasculature around the margin of the lesion.
3. Video recording at higher definitions allow a close and prolonged examination of that vasculature.
4. It has become possible to make reasonably accurate visual diagnoses.
5. This can eliminate the need for a biopsy in lesions that are likely to benefit from complete excision.
6. Using an ultrapulse CO₂ programmable laser to cut precisely and close to the tumor margin can lead to complete excision.
7. Frozen section pathology and even permanent pathology claims about margins are inherently inaccurate because of tissue orientation and selective sampling error.
 - a. A nano-margin excision will typically be reported as positive margins by traditional pathological exam.
8. Frequent (monthly) follow up with continued close, recorded chip endoscope exams reveal residual tumor early. (Exam intervals can be lengthened if normal exams persist.)
9. Essentially the endoscopic exams after healing are the visual margins and more accurate than the surgical pathologic margins.
10. Office Blue laser allows for quick treatment of small areas of residual abnormal tissue.

A 6th option:

Feminizing the voice

Recommended time: 30-60 minutes

Minimum time: *15 minutes (rushed, few examples).*

Currently there are five common medical tools utilized to alter/affirm aspects of an individual's voice such that appropriate female gender will be perceived by the listener. To varying degrees, they alter the comfortable speaking pitch, vocal resonance and vocal range.

In alphabetic order:

- Cricothyroid approximation
- Feminization laryngoplasty
- Laser vocal cord tightening or reduction
- Vocal cord webbing
- Voice and speech therapies

There is not a clear single best tool and more than one tool may be used to achieve the patient's desired goal.

Key Points

1. There are several non-exclusive approaches to adjusting an individual's comfortable speaking pitch upward.
2. Only surgical approaches will remove the lower pitch range.
3. Different approaches have different benefits.
4. Different approaches have different medical risks and financial costs.
5. Complete affirmation of a feminine vocal quality involves both speaking pitch and resonance characteristics.

I have a color booklet to accompany this lecture. It can be downloaded for printing.
https://www.voicedoctor.net/femlar_pdf

A 7th option:

AI enhancement of laryngeal stroboscopy

Recommended time: 15 minutes

One effective uses of artificial intelligence is when you use it selectively for a specific task. When using an endoscope to record movement of the vocal cords, stroboscopy generates an apparent and artificial slowing of vocal cord vibration. We utilize stroboscopy to make decisions in an efficient manner even though we are not viewing the actual vibrations as we would be in high speed video. Some versions of AI can further stabilize and enhance the slow motion aspect of stroboscopy. This can be very valuable to the examiner to understand how vocal cord margin pathology impairs vibration and thus impairs sound.

Reviewing these enhanced videos with the patient, also contributes to their understanding of what might be done to improve the quality of their voice.

Sincerely,

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