Characteristics of Voice Disorders

Voice Disorder: Characterized by the abnormal production and/or absence of vocal quality, pitch, loudness, resonance, and/or duration, given an individual’s age and/or sex.

Prevalence
Between 3-10% of Americans have voice disorders at any given point in time

Classification of Voice Disorders

- Structural or Organic diseases affecting the larynx/vocal folds
- Disorders of misuse/abuse
- Neurogenic diseases affect the parts of the central or peripheral nervous systems involved in voice production
- Psychogenic – no observable cause of vocal problem
Symptoms

Hoarseness –

Breathiness –

Harshness –

Tremor -

Stridor –

Glottal Fry –
Monopitch –

Uncontrolled pitch –

Diplophonia –

Aphonia –

Resonance Disorders:
I. Structural Voice Disorders:

Laryngomalacia:
- Congenital disorder resulting from lack of calcium in the cartilages above the folds that typically resolves by 2-4 years of age.
- The aryepiglottic folds are drawn down into glottis on inhalation

Voice characteristic:

Laryngeal Web:
- Thin band of connective tissue joining the two vocal folds

- Congenital laryngeal atresia: when web completely closes the glottis and requires immediate surgery in order for the infant to breathe

- Congenital disorder

- Or may be the result of surgical trauma to the vocal folds

Voice characteristics:
Papilloma:
- Benign neoplasms or wart-like growths on the epithelium of the vocal folds

  - Most likely caused human papilloma virus, although may be hormone-related.

Voice characteristics:

Subglottic Stenosis:
- Narrowing or closing of larynx below the level of the vocal folds.

  - Etiology includes accident, surgical trauma, neoplasms, scarring, GERD

  - Symptoms may be mild to more severe

  - Laser surgery to remove excess tissue or cartilage
**Cricoarytenoid Joint Fixation:**
- Joint becomes fixed so that it cannot rotate
- Etiologies include rheumatoid arthritis, gouty arthritis, trauma (scar tissue)
- Can be treated with drugs:

**Characteristics:**

**Sulcus Vocalis**
- Fine longitudinal furrow or ridge along medial edge of vocal fold
- Etiology is congenital, from trauma, or with aging
- Therapy involves vocal fold exercise or injection of material to bulk up the fill in the ridge

**Voice characteristics—**

*Bowed folds:*

**Edema**
- Swelling of the membranous or cover of the vocal folds
- Usually a biological response to GERD
II. Disorders resulting from vocal abuse/misuse:

Examples: excessive loudness –yelling/screaming, hard glottal attack, using inappropriate pitch, excessive talking, speaking over noise, habitual coughing & throat clearing, smoking, talking in smoky environment, etc......

Vocal Nodules
- Account for ~22% of all voice disorders
- Benign growths (usually on both folds) originating from epithelium or cover of the vocal fold where vibration is most vigorous
- Folds have “hour-glass” shape
- Correlation between incidence of vocal nodules and those whose jobs rely on heavy voice use:
  - Nodules can be further described as:
    Early stage:
    Late stage:

Voice characteristics:
Polyps
- Benign tumors of the mucosa or cover of folds
- More pliable & softer than nodules
- Can result from single abuse incident or over time or from allergies

Voice characteristics:

Contact Ulcer
- Vocal processes on arytenoids have a very thin mucosa that as a result is susceptible to abuse
- Often rough grainy tissue (granulation) develops around the ulcer
- Result from abuse most often coughing/throat clearing, speaking loudly or with very low pitches
- May be related to GE reflux:

Characteristics:
III. Neurogenic Voice Disorders:

CNS or PNS involvement

Vocal Fold Paralysis

- May be unilateral or bilateral

- May be abductor

- May be adductor

- Resulting from RLN damage- abduction & adduction are affected, pitch control relatively intact

- Resulting from SLN damage – CT muscle is affected so pitch control is affected

- Affected fold may atrophy (lose bulk/tone) if it is not being innervated

- Etiology includes:
  - Trauma
    - Viral infection
Neurological disease

Damaged during surgical procedures

Heart problems

Characteristics: depending upon type of paralysis):

**Psychogenic Voice Disorders:**
- Patient complains or presents with voice symptoms that cannot be accounted for by neurogenic, organic, misuse/abuse disorders (e.g. puberphonia)

- Usually a psychologist becomes involved/ SLP treat voice issue

- When to suspect a psychogenic disorder:
  - Relationship between onset and stressful life event
  - Verbal communication is important in a conflict
  - Vegetative throat clearing, coughing, laughter with phonation
  - Patient has a “secondary gain” by not being able to speak it gets them out of a job or other responsibility
Spasmodic Dysphonia

- SD is a type of dystonia involving the intrinsic muscles of the larynx

- Exact cause of dystonias is unknown, but researchers feel that the basal ganglia is likely involved

- SD is not very common and since symptoms can mimic other disorders is not always correctly diagnosed

- SD is sometimes considered a psychogenic disorder, as it is worsened by stress and is less severe or voice may even be normal when sighing, laughing, or singing

- There are several types of SD:
  - Adductor SD
    - Most common it occurs when muscles that adduct the vfs contract too strongly
    - Voice has a strained/strangled quality with occasional breaks when the air cannon escape because the glottis is closed off so tightly
- Abductor SD
  - Less prevalent it occurs when the abductors or vf openers have spasms and as a result it is difficult to adduct the folds to produce sounds
- Mixed SD:
  - Affects both opening/closing of vfs

Treatment for SD