**An Overview of Common laryngopharyngeal reflux of older people**

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**Abstract**

Clinically, the reflux of gastric juice into the esophagus is called gastroesophageal reflux disease (GERD), and the reflux of gastric acid into the throat or pharynx is called laryngopharyngeal reflux disease (LPRD). The reflux of such acid to soft tissues beyond the esophagus will cause damage, which may turn into a relatively serious condition, especially for those with laryngeal reflux. Previous literatures often recommend longer treatment and higher dose of PPI for general gastroesophageal reflux. It is because that if gastric acid reaches the pharynx and larynx, it will cause damage to the vocal cords. Patients with laryngopharyngeal reflux can feel the symptoms while sitting at rest, which may contrast with GERD patients of esophageal reflux to feel the symptoms when lied down. The content in the stomach, including pepsin and gastric acid, is the culprit to cause major damage to the tissues, then with the bile salts from gallbladder, it further worsens the injury. High-risk population include those with obesity and obstructive sleep apnea.

**Keywords**: Laryngopharyngeal Reflux; gastroesophageal reflux disease (GERD); obstructive sleep apnea; obesity.

**Introduction**

Fat accumulation in tissues may alter the shape to compress on the connective tissues between the stomach and the esophagus, leading to a decrease in the pressure of the lower esophageal sphincter to promote reflux of gastric acid. Furthermore, the abnormality in the sensitivity of the nerves in the throat will continue to trigger a sense of symptoms even in the absence of acid stimulation. Although laryngopharyngeal reflux and GERD are both related to gastric acid, they vary significantly as two different diseases by many symptoms. Common symptoms of laryngopharyngeal reflux include hoarseness (71%), chronic cough (51%), foreign body sensation in the throat (47%), repeated throat clearing (42%), mild dysphagia (35%), etc[1,2].

**Clinical feature of laryngopharyngeal reflux**

Laryngopharyngeal reflux often mimics symptoms of upper respiratory conditions such as nasal discharge, chronic allergic rhinitis, or sinusitis. There are 12 symptoms of laryngopharyngeal reflux such as: 1. Hoarseness; 2. Sore throat; 3. Foreign body sensation in the throat; 4. Increased throat secretion; 5. Nasal backflow; 6. Difficulty swallowing; 7. Chronic cough; 8. Habitual throat clearing; 9. Difficulty breathing; 10. Bad breath; 11. Chest pain; and 12. Burning sensation in the chest or a feeling of suffocation[3-5]. The diagnosis will require differentiating the following conditions, including 1. Nasal backflow, 2. Chronic rhinitis (allergic/non-allergic), 3. Upper respiratory tract infection, 4. Habitual throat clearing, 5. Excessive smoking and drinking, 6. Overuse of the voice, 7. Temperature and weather changes, and 8. Environmental stimuli. Many publications are available on the disease, but there are rather general symptoms that are not specific to the problem of gastrointestinal tract, such as: dry throat, hoarseness, foreign body sensation when swallowing, sleep snoring, chronic cough, even otitis media, tinnitus, sinusitis, periodontal disease, tooth decay, etc., as these may present as problems of upper aerodigestive tract, which may also be partially attributed to acid reflux[6-9].

**Diagnosis of laryngopharyngeal reflux**

Acid reflux involves acidic substances, such as hydrochloric acid, enzymes (particularly pepsin), food residues, bile acids, and gut flora. The episode of reflux may also involve liquid components, especially in the lower esophagus; thus, laryngopharyngeal reflux has been suggested to differ by its cause being fine gaseous aerosols. Temporary relaxation of the lower esophageal sphincter may also induce the condition. Once the aerosols reach the larynx, in proximity of pharynx, they are in easy access to the nasal cavity, nasopharynx and lower respiratory tract[10-12]. The diagnosis of Laryngopharyngeal Reflux Syndrome is based on clinical symptoms and endoscopic examination, supplemented by pH monitor of the digestive tract. The commonly used scale is the Reflux Symptom Index (RSI), which will attribute score from 0 to 5 to the nine symptoms based on the severity, that is, 0 point for no symptom to 5 points for serious condition[13-15]. If the RSI score is greater than 13, it’s an indication of high probability of laryngopharyngeal reflux syndrome and vice versa. The nine symptoms for scoring the index are as follows: 1. Hoarseness or other voice problems, 2. Frequent throat clearing, 3. Thick throat or nasal discharge, 4. Difficulty swallowing, 5. Coughing after eating or lying down, 6. Difficulty breathing or choking, 7. Constant cough, 8. A foreign body sensation in the throat, and 9. Burning or pain in the chest. In recent years, the international consensus has introduced a standard diagnosis of gastroesophageal reflux, relying on pH test or laryngoscope, which is usually performed in the outpatient department of otolaryngology[1,16,17].

**Prevent and Non-medication therapy**

The most common advice for patients of laryngopharyngeal reflux is the change of diet and lifestyle. Drug is only recommended after the above measures fail. Common drugs for treating laryngopharyngeal reflux include: 1. Alginate (which produces a physical barrier at the lining of the stomach and intestines, relieving the discomfort of throat reflux for up to 4 hours with less side effects); 2. Proton pump inhibitors (PPIs), serving as the primary medicine by inhibiting gastric acid secretion and thus throat reflux; and 3. Neuromodulator, such as reflux-reducing agent or visceral pain modulator. Physician usually recommends treatment by lifestyle adjustment, medication and surgery[3,18]. Changing the daily habit (including the diet) will not only improve the discomfort of reflux but also is considered as the first-line treatment because the side effect of such modality is minimal. Patients are advised to lose weight, quit smoking, reduce alcohol intake, adjust eating habit, raise the head of the bed when sleeping, reduce coffee consumption, avoid carbonated drinks, and reduce intake of high-fat foods[3-5]. They are also encouraged to exercise regularly three hours after a meal. If the symptoms are not improved, then medication is considered and the common one is proton pump inhibitor (PPI), which as the name suggests, inhibits gastric acid secretion.

**Medication treatment**

The drug was previously used to treat gastric ulcers and gastroesophageal reflux, so it is not recommended for long-term use. When PPI fails, physician may consider neuromodulator, such as tricyclic antidepressants (TCA), gabapentin, pregabalin, etc., all of which can be used as antacids in second-line treatment, despite of being not as effective. There are: 1. Selective serotonin recycle inhibitor (SSRI), 2. Serotonin and norepinephrine recycle inhibitor (SNRI), 3. Norepinephrine and serotonin release promoter, 4. norepinephrine and dopamine recovery inhibitor (NDRI), and 5. serotonin antagonist & serotonin recovery inhibitor (SARI) (Table 3). And in recent years, the observation of throat discomfort caused by abnormal nerves has led the researchers to use drug to reduce the sensitivity, including tricyclic antidepressants (TCAs). The drug is recommended for three doses, only if diet control, lifestyle adjustment, and gastric acid reduction therapy are not effective. Cyclic antidepressants and neuromodulator are the choice of treatment when PPI is ineffective. For patients with persistent symptoms of non-acidic or small acid reflux, reflux-reducing agent or visceral pain modulator has been suggested to show some effect[4-6]. However, in recent years, there are some concerns being raised about the safety of PPIs, especially when more reports of negative outcome for long-term use (> 1 year) or abuse, which will lead to increased risk of severe kidney disease, dementia, community pneumonia, osteoporosis and fractures, hypomagnesemia, and cardiovascular diseases. Therefore, the US Food and Drug Administration (FDA) clearly stipulates that people should not use PPIs without a proper physician’s diagnosis and the treatment for a duration of 4 weeks is recommended[3-7].

**Conclusion**

The initial recommendation to treat the disease is to control the diet by avoiding spicy or irritating foods, as well as adjusting one’s lifestyle. Drug treatment will only commence if the symptoms are not improved. The golden standard of diagnosing the disease is the symptoms with endoscopic examination. For example, a patient with apparent throat symptoms will be ordered to examine by otolaryngological endoscope to see if there is any sign of reflux[2]. Also, there are cases where physician has used drug reaction to diagnose the condition, such as using PPI when suspecting the case of throat reflux. If improved, then the patient may be diagnosed. When all drugs fail, the physician may proceed to discuss about surgical operation with the patient. For example, fundoplication is performed to improve the muscle relaxation at the gastroesophageal junction. But, in the past, most surgeries require dissecting open the abdomen. However, the technology advances that now, surgery is performed under laparoscopy, for which the patient is only put under general anesthesia with five small holes in the abdomen, serving as the entry points to reconstruct the lower esophageal sphincter. And the operation time is now only 2 to 4 hours, and it has 100% success rate[1,5]. The postoperative complications of the operation are merely 3%. Therefore, patients with severe laryngopharyngeal reflux can be cured by surgery.

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