



Treatment of gastroesophageal reflux disease-related chronic cough with lung-stomach co-treatment and nourishing-dampness dual-use

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Abstract: Chronic cough is closely related to gastroesophageal reflux disease (GERD). This article mainly discusses the main characteristics of traditional Chinese medicine pathogenesis of GERD-related chronic cough. It is characterized by dryness-dampness combination, cold-heat complex, deficiency-excess complex, and puts forward the therapy of lung-stomach co-treatment and nourishing-dampness dual-use and gives different treatments of Chinese herbal medicines which are commonly used.

Keywords: GERD-related chronic cough; lung-stomach co-treatment; nourishing-dampness dual-use; Chinese medicine therapy

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Introduction

Gastroesophageal reflux disease (GERD) is a common digestive system disease (1), and its incidence is gradually increasing. It refers to a disease in which the contents of the stomach flow back into the esophagus and cause reflux-related symptoms and/or complications (2). The most common symptoms of GERD are heartburn and reflux. Atypical symptoms include upper abdominal pain, upper abdominal burning, belching, non-cardiac chest pain, and extraesophageal symptoms such as chronic cough, asthma, chronic laryngitis (3). About 25% or more of chronic cough is associated with GERD (4). In the past 20 years, we have focused on the theoretical discussion and clinical research of traditional Chinese medicine for the treatment of chronic cough (5), and have achieved positive results. The experience of treating GERD-related chronic cough is summarized as follows.

Main characteristics of pathogenesis

Dryness-dampness combination

On the treatment of chronic cough, distinguish between dryness and dampness first. The clinical symptoms of GERD-related chronic cough include the symptoms of dryness such as pharyngeal itch, pharyngeal dryness, cough without phlegm, and symptoms of dampness (heat) such as heartburn, acid reflux, epigastralgia discomfort, and anorexia. So, it is mostly caused by the combination of dryness and dampness.

Cold-heat complex

GERD patients are often with the symptoms of stomach dull pain, abdominal distension and discomfort, heartburn, acid reflux, gastric upset, bitter or bland taste in the mouth, anorexia, nausea, loose stools, lassitude of spirit and lack of

strength, pale or red tongue, yellow or white fur, slippery or sunken fine pulse. All the above symptoms are cold-heat complex.

Deficiency-excess complex

The cause of GERD-related chronic cough is mostly GERD disease for a long time. Dampness-heat or fire-heat pathogen consume fluid and yin, meanwhile, causing an upward deficiency fire flames; excess results in deficiency; and long-term disease prolonged, consumes the healthy qi, which can cause spleen-stomach weakness, transportation and transformation disorder; turbidity is endogenous; deficiency results in excess. Therefore, GERD often sees the syndrome of the deficiency-excess complex.

Main treatment

Nourishing-dampness dual-use

In general, the treatment of chronic cough has two types: dryness cough with moisturizing drugs to nourish fluid and humor and moisten dryness phlegm; dampness cough with dry medicines to warm yang qi and dispel yin pathogen. GERD-related cough is mostly dryness-dampness combination, so we can choose the method of nourishing-dampness dual-use to treat it. The diseases range from the pure to the complicated, and then the treatment should be varied. It is common to recur sometimes.

Lung-stomach co-treatment

The lungs and stomach are closely related. First, the two are related to each other through the meridians. For example, “lung meridian (LU) is from the middle energizer, under the large intestine, and opening of the stomach is also followed.” Second, both of them are physiologically dropping and functionally interoperable. For example, Huang Yuanyu’s *Su Ling Wei Yun* said, “*Stomach qi drops, the lungs qi also drops, so pungency metal is not reversible*”; pathologically can affect each other, too. For GERD, if the stomach was disordered, gathering wet into the sputum and up to the lungs, or dampness-heat going upper inverse to burn the lungs, so there might be a cough. So, we should treat the lungs and stomach at the same time.

Case presentation

Case 1

Patient Li, a 67-year-old woman presents with a several-months history of a dry cough, and her first visit was on September 5, 2013.

She had repeated cough, pharyngeal itch, pharyngeal dryness, acid reflux and chest burning sensation, mouth dryness, sweating when active, normal diet, normal stool and urine, pale tongue, thin yellow fur, and slippery pulse. Harmonizing the stomach to downbear counterflow and moistening the lung to suppress cough to treat it. Prescription: Huangqi (Astragali Radix) 30 grams, Shanyao (Dioscoreae Rhizoma) 30 grams, Fuling (Poria) 30 grams, Banxia (Pinelliae Rhizoma) 12 grams, Zhishi (Aurantii Fructus Immaturus) 12 grams, Zhuru (Bambusae Caulis In Taenias) 12 grams, Zisugeng (Perillae caulis) 12 grams, Peilan (Eupatorii Herba) 12 grams, Taoren (Persicae Semen) 9 grams, Kuxingren (Armeniacae Semen Amarum) 9 grams, Baiguo (Ginkgo Semen) 15 grams, Xuanshen (Scrophulariae Radix) 15 grams, Haifushi (pumice) 24 grams, Mudanpi (Moutan Cortex) 9 gram, Zhizi (Gardeniae Fructus) 9 grams, Gancao (Glycyrrhizae Radix Et Rhizoma) 6 grams.

Second visit (September 12, 2013): the cough was getting better, normal diet, normal stool and urine, pale tongue, thin yellow fur, and slippery pulse. Last prescription plus Chishao (Paeoniae Radix Rubra) 15 grams, Beishashen (Glehniae Radix) 12 grams, Sangjisheng (Taxilli Herba) 24 grams. 7 doses.

Third visit (September 19, 2013): the cough was ameliorated, normal diet, normal stool and urine, pale tongue, thin yellow fur, and slippery pulse. Last prescription plus Shihu (Dendrobii caulis) 12 grams, Tusizi (Cuscutae semen) 30 grams. 7 doses.

The patient was diagnosed with cough after a cold in 2015. She told us that after the medication, the acid reflux, chest burning sensation, and cough did not recur in the past two years.

Case 2

Patient Zhu, a 65-year-old woman presents with a four-month history of a dry cough, and her first visit was on July 7, 2009.

The patient had no obvious cause of coughing and no sputum 4 months ago. There was no obvious abnormality in the chest X-ray examination in the external hospital, but treatment was invalid. In the past, there was a history of GERD. It was recommended to review the gastroscop for "recurrent esophagitis B grade." Current symptoms: pharyngeal itch and cough continuously, no sputum, dry mouth and bitter taste in the mouth, occasional acid reflux, no upper abdominal pain, normal diet, normal stool, and urine. Physical examination: dark red pharyngeal, auscultation without abnormalities, red tongue, thick yellow greasy fur, and slippery pulse. Harmonizing the stomach to downbear counterflow and depurate the lung to moisten dryness to treat it. Prescription: Chaihu (*Bupleuri Radix*) 12 grams, Huangqin (*Scutellariae Radix*) 12 grams, Banxia (*Pinelliae Rhizoma*) 12 grams, Juluo (*Citri Reticulatae Retinervis*) 12 grams, Taoren (*Persicae Semen*) 9 grams, Kuxingren (*Armeniaca Semen Amarum*) 9 grams, Baiguo (*Ginkgo Semen*) 15 grams, Xuanshen (*Scrophulariae Radix*) 30 grams, Maidong (*Ophiopogonis Radix*) 30 grams, Gake (*Meretricis Concha*) 24 grams, Haifushi (pumice) 24 grams, Chantui (*Cicadae Periostracum*) 12 grams, Fangfeng (*Saposhnikovia Radix*) 12 grams, Shenqu (*Massa Medicata Fermentata*) 12 grams, Gancao (*Glycyrrhizae Radix Et Rhizoma*) 6 grams. 7 doses.

Second visit (July 14, 2009): cough and pharyngeal dryness were ameliorated, but there was still dry mouth and bitter taste in the mouth, and red tongue, greasy yellow fur, and slippery pulse. The treatment principle was the same as before, but to increase the drugs of fortifying the spleen to harmonize the stomach and resolving dampness with aroma, last prescription subtract Xuanshen (*Scrophulariae Radix*), Chantui (*Cicadae Periostracum*), Fangfeng (*Saposhnikovia Radix*), plus Yiyiren (*Coicis Semen*) 30 grams, Zhishi (*Aurantii Fructus Immaturus*) 12 grams, Zhuru (*Bambusae Caulis In Taenias*) 12 grams, Zisugeng (*Perillae caulis*) 12 grams, Peilan (*Eupatorii Herba*) 12 grams. 7 doses.

Third visit (July 21, 2009): the patient had no evident cough; dry mouth disappeared, bitter taste in the mouth only appeared at night, pale tongue, thin yellow greasy fur, and slippery pulse. The last prescription subtracts Maidong (*Ophiopogonis Radix*), Zhishi (*Aurantii Fructus Immaturus*), Zhuru (*Bambusae Caulis In Taenias*), plus Yujin (*Curcumae Radix*) 12 grams, Jineijing (*Galli Gigerii Endothelium Corneum*) 12 grams. 7 doses to consolidate the effect. Told the patient to pay attention to diet and have good spirits to prevent or reduce recurrence.

Case 3

Patient Wu, a 36-year-old woman presents with a 1-year history of a cough, and her first visit was on December 22, 2016.

The patient had a cough for one year. There was no obvious abnormality in the lung CT examination in Japan. The hormone and bronchial inhaler were given, but the control was poor. At present, she still coughs, with a small amount of white sticky phlegm due to phlegm. Sometimes she has a pharyngeal itch, but no apparent nasal flow, and sometimes she has acid reflux, normal diet, normal stool and urine, pale tongue, thin yellow greasy fur, and slippery pulse. Dispersing by pungent drugs and purging by bitter drugs and depurating the lung to moisten dryness to treat it. Prescription: Maidong (*Ophiopogonis Radix*) 18 grams, Banxia (*Pinelliae Rhizoma*) 9 grams, Juluo (*Citri Reticulatae Retinervis*) 9 grams, Fuling (*Poria*) 30 grams, Yiyiren (*Coicis Semen*) 30 grams, Huangqin (*Scutellariae Radix*) 9 grams, Huanglian (*Coptidis Rhizoma*) 6 grams, Houpo (*Magnoliae Officinalis Cortex*) 6 grams, Baidoukou (*Amomi Fructus Rotundus*) 6 grams, Zisugeng (*Perillae caulis*) 12 grams, Kuxingren (*Armeniaca Semen Amarum*) 9 grams, Taoren (*Persicae Semen*) 12 grams, Chantui (*Cicadae Periostracum*) 9 grams, Xuanshen (*Scrophulariae Radix*) 9 grams, Xuanshen (*Scrophulariae Radix*) 18 grams, Chishao (*Paeoniae Radix Rubra*) 18 grams, Gancao (*Glycyrrhizae Radix Et Rhizoma*) 9 grams. 7 doses.

Second visit (December 29, 2016): the patient had no obvious pharyngeal itchy, expectorated every morning, and the expectoration was from thick to thin, normal diet, normal stool and urine, pale tongue, greasy yellow fur, and slippery pulse. Fortifying the spleen to harmonize the stomach and moistening dryness to suppress cough to treat it. Prescription: Dangshen (*Codonopsis Radix*) 12 grams, Fuling (*Poria*) 30 grams, Banxia (*Pinelliae Rhizoma*) 9 grams, Maidong (*Ophiopogonis Radix*) 18 grams, Beishashen (*Glehniae Radix*) 12 grams, Baihe (*Lilii Bulbus*) 18 grams, Gake (*Meretricis Concha*) 24 grams, Haifushi (pumice) 12 grams, Danshen (*Salviae Miltiorrhizae Radix Et Rhizoma*) 15 grams, Taoren (*Persicae Semen*) 12 grams, Kuxingren (*Armeniaca Semen Amarum*) 9 grams, Baiguo (*Ginkgo Semen*) 9 grams, Chantui (*Cicadae Periostracum*) 9 grams, Huanglian (*Coptidis Rhizoma*) 3 grams, Houpo (*Magnoliae Officinalis Cortex*) 6 grams, Zisugeng (*Perillae caulis*) 12 grams, Gancao (*Glycyrrhizae Radix Et Rhizoma*) 9 grams. She brought 7 doses of herb back to Japan.

Discussion

The relationship between cough and stomach reflux is complicated but relatively clear (6). The characteristics of GERD-related chronic cough are that cough mostly occurs in the daytime and upright position and position change, dry cough or cough a small amount of white sticky; eating acidic, greasy food is easy to induce or aggravate cough. It is generally divided into two cases (4): one is cough as the only performance without reflux symptoms; the other is cough with acid reflux, post-sternal burning sensation and belching and other typical reflux symptoms, belonging to the disease of Traditional Chinese medicine such as “stomach cough”, “acid regurgitation” and “gastric upset”.

The *Neijing* said “*All five-zang organs and six-fu organs lead to cough, not only lung*”, “*all gathered in the stomach and associated with the lungs*”, this is in line with the classification of cough in modern medicine by anatomical etiology (7), so GERD-related chronic cough should be treated with lung-stomach co-treatment. From the pathogenesis, GERD-related chronic cough is mostly a dryness-dampness combination disease. Dampness is fitted to dry and should be treated from the stomach and used the drugs of resolving dampness with aroma such as Peilan (*Eupatorii Herba*), Zisuye (*Perillae Folium*), Baidoukou (*Amomi Fructus Rotundus*) and so on; If hot is contained, use the method of dispersing by pungent drugs and purging by bitter drugs, such as Xuanfuhua (*Inulae Flos*), Zheshi (*Haematium*), Banxia (*Pinelliae Rhizoma*), Kuxingren (*Armeniacae Semen Amarum*), Zhishi (*Aurantii Fructus Immaturus*), Houpo (*Magnoliae Officinalis Cortex*), Huangqin (*Scutellariae Radix*), Juluo (*Citri Reticulatae Retinervis*) and so on; treatment of the stomach must also take care of the liver and spleen, and the liver should be soothed, using the drugs such as Chaihu (*Bupleuri Radix*), Zhishi (*Aurantii Fructus Immaturus*), Xiangfu (*Cyperii Rhizoms*), Zisugeng (*Perillae caulis*) and so on; spleen should be fortified, using the drugs such as Dangshen (*Codonopsis Radix*), Fuling (*Poria*), Baizhu (*Atractylodis Macrocephalae Rhizoma*), Banxia (*Pinelliae Rhizoma*), Chenpi (*Citri Reticulatae Pericarpium*) and so on. Dryness is fitted to moisten and should be treated from the lungs. There are three methods to moisten the dryness. One is using the bitter-warm drugs such as Taoren (*Persicae Semen*), Kuxingren (*Armeniacae Semen Amarum*), Gualouzi (*Trichosanthis semen*), Huomaren (*Cannabis Fructus*), Zisuzi (*Fructus perillae*); next is using sweet-cold drugs such as Maidong (*Ophiopogonis Radix*), Baihe (*Lilii Bulbus*), Beishashen (*Glehniae Radix*), Xuanshen

(*Scrophulariae Radix*), Shengdihuang (*Rehmanniae Radix*) and so on; Another is using salty-cold drugs such as Gake (*Meretricis Concha*), Haifushi (pumice), Chantui (*Cicadae Periostracum*), Xuanshen (*Scrophulariae Radix*) (5).

Although the treatment of this disease is mainly based on the lungs and stomach, the three cases are treated with a certain degree of emphasis. Although the rule is the same, the method is slightly different, and the idea of flexibility is also changed. For example, In the case of Li, it focuses on treating the stomach, taking the lungs into account. To downbear the stomach qi, and use a lot of aromatic drugs, and adding the drugs to direct the lungs qi downward and moisten lungs dryness. Case Zhu, although the patient had pharyngeal itchy and coughed continuously, the performance of “dryness syndrome” was the appearance. It is necessary to treat the disease based on the essence. The cough is caused by the stomach heat to reverse the throat, and transform into dryness and engender wind. Its location of the disease is in the stomach, and pharynx and the nature of the disease is dryness combining with wind and heat pathogen. It is necessary to treat both the primary and the secondary symptoms and take lung-stomach treatment into account. Also, when treating the stomach, do not forget to cure the liver. Therefore, soothing the liver to harmonize the stomach and clearing heat to downbear counterflow to treat the primary symptoms, dissipating wind to moisten dryness and soothing the throat to suppress cough to treat the secondary symptoms. The drugs used were from the formulas of Xiaochaihu Decoction, Shexiao Powder, Maimendong Decoction. Case Wu, “Inhaled corticosteroids (ICS)” was given but the effect was not good, so we should doubt whether the original cough variant asthma diagnosis is accurate first, and then consider the disease both gastroesophageal reflux cough and allergic cough. Treatment must aim at the cause of the disease, the patient’s cause of the disease is dampness-heat in the middle energizer dampness-heat, and her symptoms of the disease are dryness syndrome such as pharyngeal dryness in the upper energizer. It is necessary to consider both the primary and the secondary symptoms at the same time, and take lung-stomach treatment into account. It can get a good effect based on the method of dispersing by pungent drugs and purging by bitter drugs.

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