

Electroacupuncture Combined with Acupoint Thread Embedding for the Treatment of Chronic Cough: A Case Report

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Abstract: *Chronic cough has become a common disease that troubles People's Daily lives. However, the high cost of treatment plans and the side effects after taking medicine make patients neglect this disease. We report a simple and effective new treatment plan Case Introduction: A female was diagnosed with chronic cough. For over two years, the cough has recurred intermittently and worsened for three months, seriously affecting her daily life. Oral medication was ineffective, but the cough still occurred frequently. This case report provides a new basis for the treatment of chronic cough with electroacupuncture combined with acupoint embedding.*

Keywords: Electroacupuncture; Thread embedding; Chronic cough; Case report.

1. Introduction

Cough is one of the common diseases in internal medicine, and most patients with chronic cough often buy cough suppressants, antibiotics and other drugs for symptomatic treatment at the beginning of the disease, and only go to the hospital when the cough does not heal or cannot be tolerated. There is a general consensus on the definition of chronic cough in all regions of the world: chronic cough occurs when cough is the main or only symptom, there is no obvious abnormality on chest x-ray, and cough persists for > eight weeks in adults and > four weeks in children [1,2]. According to the survey, the prevalence of chronic cough is about 9.6 percent worldwide and 4.4 percent in Asia, with a higher prevalence in Europe and the United States than in Asia [3]. There are no national epidemiological survey data in China, and the prevalence of chronic cough in adults is about 2.0% to 28.3% based on studies in various parts of China [4]. Chronic cough is easy to be mistreated in clinical diagnosis and treatment, and due to the lack of effective treatment for a long time, it has caused economic and physical burden to patients [5], and in severe cases, patients have symptoms such as enuresis and urine leakage [6], which greatly reduces the quality of life. Therefore, it is important for society and individuals to adopt more economical and effective long-term treatment options.

Epidemiological studies on the etiology of chronic cough at home and abroad have shown that different climatic environments, living habits, and physical ages will lead to differences in the incidence and etiology. In 2021, China's newly revised Guidelines for the Diagnosis and Treatment of Cough clearly pointed out that the main causes of chronic cough are cough variant asthma (CVA), upper airway cough syndrome (UACS), eosinophilic bronchitis (EB), Gastroesophageal reflux-related cough (GERC) and allergic cough (AC), and other causes such as chronic bronchitis, bronchiectasis, tracheobronchial tuberculosis, ACE inhibitors and other drug-induced cough, bronchopulmonary cancer, psychogenic cough/somatic cough syndrome, etc., can also cause chronic cough, but it is relatively rare. Clinically, there

are still some patients with chronic cough who cannot be confirmed after a comprehensive examination, which is called unexplained chronic cough. There are also some patients with underlying causes of chronic cough, but after treatment of these causes, the cough symptoms do not improve significantly, which is called refractory chronic cough.

CVA is the most common specific type of asthma and the most common cause of chronic cough [2], accounting for about one-third of chronic cough causes. It is characterized by irritating dry cough with paroxysmal nocturnal and early morning cough without significant wheezing. The onset or exacerbation of cough is often caused by pungent odors such as cold air, dust, and oil fumes [7]. Clinical testing may show a positive bronchial provocation test or a mean diurnal variation rate of PEF >10%. UACS, formerly known as postnasal drip syndrome (PNDS), refers to a chronic disease in which inflammatory diseases of the nasal cavity and sinuses cause nasal secretions to reflux to the back of the nose and throat, directly or indirectly stimulating cough receptors, resulting in a series of clinical manifestations such as cough, sputum production, nasal congestion, sneezing, and sore throat [8]. Therefore, the diagnosis is usually confirmed with the help of auxiliary tests to diagnose the underlying disease and after the targeted treatment is effective. The clinical manifestations of EB are non-specific, and chronic cough is often the only clinical symptom, which can also be induced or aggravated by oil smoke, dust, and cold air. Because its clinical presentation mimics that of CVA, it is necessary to diagnose elevated sputum eosinophils. GERC is a special type of GERD, which is a clinical syndrome caused by the reflux of stomach acid or other gastric contents into the esophagus, causing cough and a series of reflux symptoms, such as acid reflux, retrosternal burning, belching, etc. Diagnosis can be made with the help of esophageal reflux monitoring. AC is an allergic disease in which a specific allergen is present, sputum eosinophils are normal, airway hyperresponsiveness is absent, and glucocorticoids and antihistamines are effective. The clinical manifestations are mainly paroxysmal irritating dry cough, which can be induced by cold air, dust, speech, etc. There are various causes of chronic cough, and symptoms,

signs, and auxiliary tests can be used to assist in diagnosis to prevent misdiagnosis and missed diagnosis.

2. Treatment

2.1 Western Medical Treatment

Treatment of CVA is the key to the treatment of chronic cough, and specific treatment can greatly enhance the efficacy and shorten the course of the disease, CVA is the same as that of bronchial asthma (BA), and its therapeutic effect through inhaled glucocorticoids and bronchodilators has also been reported to be effective in anti-leukotriene receptor antagonist therapy [9]. The course of treatment for CVA is more than 8 weeks. Treatment of UACS depends on the underlying disease, with corticosteroids and antihistamines as needed, and leukotriene receptor antagonists may be added if the response is inadequate. EB is usually treated with inhaled corticosteroids, which are more effective. GERC can be used in the form of lifestyle modifications, acid suppression, gastric protection, and gastric motility [10]. AC can be treated with antihistamines and glucocorticoids. For those who are uncertain about the cause, symptomatic treatment such as cough suppressant and phlegm reduction can be taken first, and at the same time, the treatment plan can be adjusted at any time according to the inference of possible etiology and diagnosis according to the clinical manifestations. Non-drug treatments include speech-language pathology and physical therapy, which are low-cost and high-return therapies in daily life, which can reduce the frequency of cough and improve the quality of life by combining the two to reduce the frequency of cough [11].

2.2 Chinese Treatment

At present, traditional Chinese medicine has also made progress in the treatment of chronic cough, and the corresponding treatment plan is formulated according to the main symptoms and clinical manifestations of patients. There are many prescriptions for the treatment of chronic cough recorded in ancient Chinese medicine and modern medicine, and their efficacy is remarkable and relatively convenient [12]. At the same time, the external treatment method of traditional Chinese medicine has the advantages of excellent curative effect, fast and few side effects. Common TCM external treatment methods include acupuncture, floating needle, acupoint injection, cupping, massage, acupuncture, heat-sensitive moxibustion, and acupoint embedding, each with its own characteristics [13]. Therefore, safer and more effective therapies will be selected to treat chronic cough. We will describe a case of acupuncture point thread embedding in the treatment of a patient with chronic cough, and the patient's cough symptoms improved significantly after treatment.

3. Case Presentation

On October 25, 2023, a 43-year-old female patient presented with intermittent cough for more than 2 years and worsening for 3 months. More than 2 years ago, the patient had a dry cough without phlegm for no obvious reason, and he usually needed to wear a mask, and his cough worsened after being stimulated by cold air and choking on his words. Allergic rhinitis was ruled out after medical history, and there was no

obvious abnormality in X-ray examination, and there was no obvious improvement in the previous oral administration of montelukast tablets, traditional Chinese medicine decoction and other drugs, which seriously affected daily life and sleep quality. Therefore, I came to our hospital for outpatient treatment.

4. Electroacupuncture and Acupuncture Point Embedding Therapy

Material preparation: Huatuo brand 0.3×40mm disposable acupuncture needle (Suzhou Medical Supplies Field Co., Ltd.), medical cotton swab, disposable sterile injection needle (specification is 0.7×30), disposable medical rubber gloves, medical gauze, ophthalmic tweezers (straight without hook), iodophor, cotton swab, bottle mouth sticker, 4-0# collagen line, electroacupuncture instrument.

Acupoint selection: Lung Shu, Kidney Shu, Gao Huang, Ding Chuan, Zhongfu, Fu Zhong, Lie Que, Tian Tu. (Table 1 is the acupoint location table)

The specific operation of electroacupuncture: The patient lies in the supine position. Acupuncture is performed at the Qiantian Tu acupoint in Zhongfu Zhongfu Zhonglie, all using oblique needling. The depth of the needle insertion is 0.5-0.8cm. After the patient receives qi through twisting, lifting and intervention, the electroacupuncture device is connected and the needle is retained for 30 minutes. Using the same method, after the needle is lifted, place the patient in a prone position and continue to needle the Feishu, Shenshu, Gaohuang and Dingchuan points.

The specific operation of thread embedding: the patient takes the recumbent position, the surgeon stands on his right side and presses the acupoints locally on the patient's body surface, and marks the acupoints with a blue bile and purple pen; After local disinfection of the acupuncture points and their surrounding skin with iodophor cotton swabs, the seven-step hand washing method disinfects hands; Wear sterile gloves, use sterile tweezers to pick a section of 4-0# collagen thread about 0.5-2cm long (according to the patient's physique), and then thread 1/2 of it into the front end of the disposable sterile injection needle, leaving part outside the needle. (Figure 1 shows the collagen mitoplasm and disposable sterile injection needles used.)The surgeon fixes the acupuncture point with the thumb and index finger of the left hand, the end of the needle tube in the right hand and inserts the acupuncture point, pulls out the needle body after rotating it slightly, leaves the thread at the acupuncture point, presses the needle hole vertically with medical gauze to stop the bleeding, and finally applies the bottle mouth sticker to the needle hole. The patient was instructed to take precautions after the acupuncture points were buried (such as local prohibition of water on the day, avoiding wind and cold, unwinding emotions, light diet, etc.).

Treatment course: electroacupuncture every 1 day, three times a week, a total of 4 weeks; After 4 weeks, acupuncture points were buried once every 7 days for a total of 4 weeks.

5. Clinical Results

At the end of the 8-week treatment, the patient's symptoms

improved significantly, the cough symptom scale score was significantly reduced, and the Leicester Cough Questionnaire (LCQ) results has improved compared with before treatment.



Figure 1: Disposable sterile injection needle and collagen line

Table 1: Acupoint location

Acupoint Location	
BL13	
BL23	In the spinal region, third thoracic vertebrae subspinous process, open 1.5cun beside posterior median line
BL43	In the spinal region, forth thoracic vertebrae subspinous process, open 5cun beside posterior median line
LU1	On the chest, horizontally level the first intercostal space, outside the sub-clavicular fossa, 6cun lateral to the anterior midline
LU7	On the forearm, 1.5cun above the transverse crease at the distal end of the palmar side of the wrist
CV17	On the chest, level horizontally at the fourth intercostal space, along the anterior midline
CV22	In the anterior cervical region, at the center of the suprachial fossa, on the anterior midline
EX-B1	In the spinal region, Horizontal 7th cervical vertebra under the spinous process, open 0.5cun beside posterior median line

6. Comment

6.1 Understanding of Chronic Cough in Chinese Medicine

Cough refers to a symptom of loss of lung relaxation caused by external or internal injury and other factors, and the upward reversal of lung qi, coughing sound or accompanied

by phlegm. In traditional Chinese medicine, chronic cough is classified as “persistent cough”, and “stubborn cough”, which has a great impact on the function of the internal organs, qi and blood [14]. The treatment of acupoints adopts the method of Yu recruitment and matching acupoints. This method uses the acupoints in the front and back parts of the combination, which can coordinate the balance of yin and yang, qi and blood in the human body, so as to regulate the deficiency and reality of the meridians and viscera. Yu acupoints and Zhao acupoints are special acupuncture points where the qi of the internal organs is infused, and they are the acupuncture points where the qi of the five internal organs is infused into the lower back and condenses in the chest and abdomen [15]. In particular, the position of the recruiting acupoints is closer to the position of the corresponding viscera, thus forming a correspondence between the Yu acupoint, the viscera and the recruiting acupoint, which reflects the characteristics of three-dimensional treatment between the Yu acupoint and the recruiting acupoint, the yin and yang communication, and the viscera-based three-dimensional treatment [16].

6.2 Acupuncture Point Analysis

The Tiantu acupoint was first published in “Lingshu Ben Lose”: “The Tian Tu acupoint is in the missing basin.” “Tiantu, also known as Yuhu, is the Renmai acupoint, which has the effect of nourishing the yin fluid in the throat and regulating the qi and blood in the throat [17]. Renmai is the sea of yin veins, the lungs are connected to Ren by the lack of acupoints, and the cloud of “Biao Youfu” is “The eight meridians always connect the eight intersecting acupoints, which is the guiding principle in itself”.

Feishu: “Jingyue Quanshu” says that “The lung is the main organ of qi, and the kidney is the fundamental organ of qi”, and the lungs should be the lungs, which is the place where lung qi is transferred and infused, and is an important acupoint for the treatment of lung diseases. Modern people have pointed out that the main treatment of lung lesions is the main treatment of lung diseases, which has a certain effect on improving lung function and eliminating the pathological syndromes caused by lung dysfunction, so it has the effect of relieving the surface of the lungs and suppressing lung qi [18].

Shenshu: Gold and water are born together, the kidney is the main qi, and the kidney shu is the back of the kidney shu acupoint. “The dai channel restricts the abdominal viscera qi machine, and the dai channel is responsible for the collection of yin and jin of the vein organs and the main yang qi, and the Kidney shu acupoint located on the line of the dai channel, which once again verifies that the Kidney shu acupoint also has the dual role of regulating yang qi and yin jin [19].

Gaohuang: According to the law of “where the acupoints are, the main treatment is reached”, because the acupoints are located between the lungs and the heart, and the yang qi of the heart and lungs is concentrated, and the main qi of the lungs is breathing, so the selection of the acupoints can play a role in nourishing the zongqi [20].

Zhongfu acupoint is the place where the qi of the lungs accumulates, which is close to the lungs and is connected to the lungs, so it has the effect of relieving cough and asthma,

clearing lung heat, and relieving lung asthma. However, if Zhongfu and Lung shu are matched, the method of shu recruiting and matching acupoints can give full play to the synergistic effect of shu recruiting acupoints and enhance the efficacy [21].

Danzhong Acupoint, “The Yellow Emperor’s Neijing Lingshu Hai Treatise”: “Those in the body are the sea of qi.” “The middle part of the body refers to the middle part of the chest, where the lungs reside, breathing, the lungs can spread the essence of the water valley towards the hundred veins to nourish the whole body, so the middle part of the body is called the sea where the zong qi gathers, also known as the sea of upper qi [22]. In the front, take the Tiantu and danzhong, and then take the lung shu and Dingchuan, and secretly combine the front and back acupoints to enhance the effect of acupuncture points.

Lieque: When the evil qi is on the surface, it can be used to dispel the wind and relieve the surface, and when the evil qi enters the inside, it can also use the way of the table to attract the evil to go out [23]. And because the acupoint is one of the eight vein intersection points, it leads to the Ren channel, so it has the effect of regulating the meridian qi of the Ren channel and treating the lesions of the Ren channel.

7. Summary

The theoretical basis of acupuncture point embedding is derived from the ancient theory of needle retention, which is the product of the collision between traditional medicine and modern medicine, and is the method of “staying still for a long time”. The Soul: The End” long-term ill.... The illness is deep and has lasted for a long time.” According to this theory, the sheep intestine or protein line is embedded in the corresponding acupuncture point, and plays a role in continuous stimulation, so as to achieve the effect of disease treatment and disease prevention, which is a composite method that integrates multiple methods and effects (including acupoint sealing, acupuncture, bloodletting, and needle burial) [24]. Because the acupuncture point thread will puncture the blood veins during the operation, causing a small amount of bleeding and oozing at the eye of the needle, it produces a “blood pricking effect”, which can dredge the stagnant blood in the meridians and regulate qi and blood [25]. Under the innovation and development of thread embedding needles and implant materials, acupoint thread embedding has gradually matured. Acupuncture point embedding is developed under the guidance of the theoretical basis of traditional Chinese medicine, and “replacing needles with threads” is a composite treatment method that integrates a variety of therapies and multiple effects, and has short-term quick and long-term continuous effects, in order to achieve the purpose of “arrive of qi” [26]. This greatly avoids the patient’s fear of daily acupuncture and improves patient compliance.

The acupuncture point embedding is convenient to operate and the treatment frequency is low, which greatly reduces the time cost paid by patients to the clinic. The protein thread is embedded in the acupuncture points to produce a continuous stimulation that can make up for the shortcomings of long and frequent acupuncture treatment, and its efficacy is accurate

after verification, which is worthy of clinical promotion and application.

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