



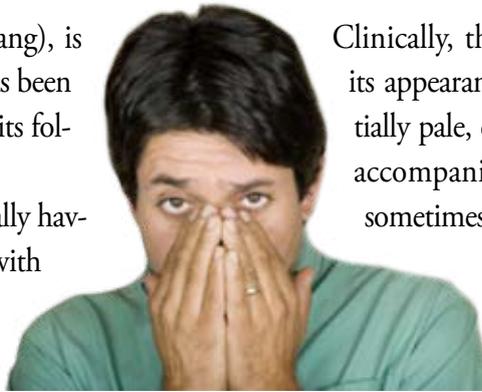
## Exploration of New Applications for Treating Rhinopathy by Using Classic Formula: Pueraria Combination (Ge Gen Tang)

By Dr. He-Qian Song

Pueraria Combination (Ge Gen Tang), is Gui Zhi Tang+Ge Gen+Ma Huang, has been widely used in treating rhinopathy for its following effects:

1. Enhance vascular circulation, especially having significant effect on symptom with bluish-whitish nasal mucosa.
2. Warm and nourish the body. This is the effect of Cinnamon Combination (Gui Zhi Tang).
3. Direct action on allergic reaction. This is also the effect of Cinnamon Combination (Gui Zhi Tang).
4. Vascular constriction of nasal mucosa is from the effect of Ephedra (Ma Huang). It quickly constricts mucosa and improves mucosal swelling.
5. Relax muscle tension, especially neck and shoulder muscle stiffness and pain caused by cold or rhinopathy.
6. Promote sweating, which can quickly relief fever. This is a combine effect of Ephedra (Ma Huang) and Cinnamon Combination (Gui Zhi Tang).

When long-term inflammation occurs in nasal mucosa, local cells gradually change into mast cells. These cells are full with histamine, serotonin, and other allergic substances. The circulation of mucosa worsens because of allergic substances occupied over half of the area.



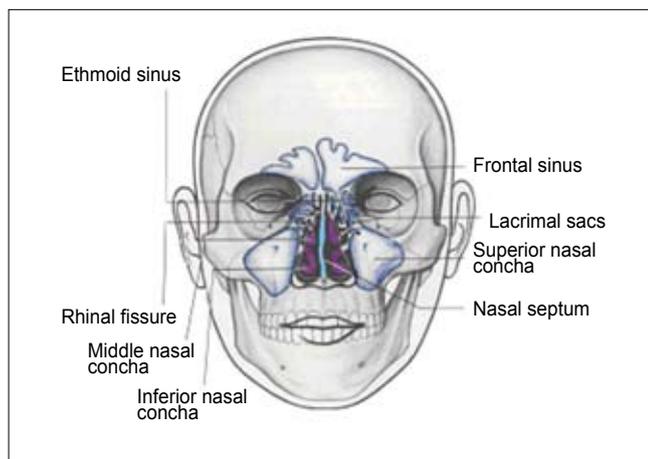
Clinically, this will cause the mucosa to change its appearance, concha mucosa will become partially pale, erymatous, and glassy-like. This often accompanied by headache and neck stiffness, sometimes with very heavy shoulder sensation.

At this time, nasal mucosa as an extremity tissue, is at a state of ischemic and stasis. Therefore, treatment with Pueraria Combination

(Ge Gen Tang) can quickly improve the ischemic condition and peripheral circulation.

The mechanism of Pueraria Combination (Ge Gen Tang) in improving circulation is through the vascular constriction effect of Ephedra (Ma Huang) by achieving increase blood flow purpose. Then use Cinnamon Combination (Gui Zhi Tang) to increase blood flow to improve the coldness of extremities caused by poor vascular circulation and peripheral ischemia.

Pueraria Combination (Ge Gen Tang) has the similar function of warming and nourishing the body as Cinnamon Combination (Gui Zhi Tang). The Gui Zhi Tang in Ge Gen Tang can also relief body and tissue spasms, and quickly diluting allergic substances of nasal mucosa such as histamine into blood circulation through vascular constriction and promote sweating,



therefore, directly remove the cause of allergies. Peuraria Combination (Ge Gen Tang) is the most effective formula for treating nose congestion in “Shan Han Lun”.

The potency of Peuraria Combination (Ge Gen Tang) is to dispel pathogenic factors from the exterior of body with sudorifics pungent in flavor and warming in property by entering foot tai-yang meridian of bladder, hand yang-ming meridian of large intestine and foot yang-ming meridian of stomach. Because of its pungent and warming nature, this is a prescription for warming and transforming the cold and damp inside the body. In treating rhinopathy, Ge Gen Tang is specifically targeting patients with allergic rhinitis with neck stiffness and tend to be of cold constitute, and sometimes with headache.

## CHANGES OF NASAL MUCOSA

The focus on morphology of nasal mucosa of different rhinitis is the mucosal changes of middle and inferior concha, especially the inferior concha. Even only by observing the changes of nasal mucosa of inferior concha can predict the status of other nasal mucosa. The over-swelling of inferior concha mucosa makes it difficult to observe, sometimes nose clamp is needed, but this caused fear and negative experiences to patients.

All concha mucosa of patients with rhinitis will change over time. Color is the first thing should be observed; comparison with normal mucosa is necessary. In normal nasal cavity, because there is no infiltration from

allergic substances, the mucosa should appear pink and moist. Where as, when mast cells are present, mucosa will show a glassy, sometimes erythematous, or sometimes snowflake-like bluish-whitish plaque appearance.

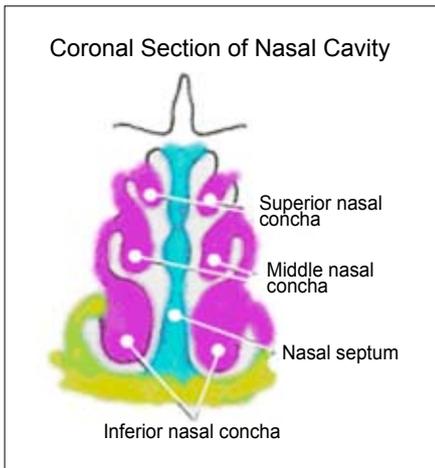
Next is to observe the distortion of mucosa. When mucosa of inferior concha is edematous and hyperemic, it would cause obstruction to nasal cavity and affects breathing, causing nasal congestion. Some patients with nasal septum deviation caused the mucosa of inferior concha and nasal septum to overlap or adhere and seriously worsen the nasal congestion.

Most of the abnormalities of nasal cavity are caused by certain infection. Foremost cause is upper respiratory tract infection by wind-cold-assailing, the mucosa will become red and even erythematous, concha mucosa will swell with nasal discharge. This is the acute stage of rhinitis, classified as stage I and II of rhinitis.

If treatment in acute stage was incomplete, the infection has not been completely eliminated; it will turn into chronic stage. In chronic stage, mucosa will still be edematous and hyperemic. When blood circulation tries to enter the mucosa, it will be blocked due to excess allergic substances in the mucosa. The mucosa will become pale and whitish, and causing swelling of mucosal cells. This is the beginning of stage III.

If mis-treatment continues, it will gradually turn into chronic stage. One of the possibilities is fibrous change of mucosa, which becomes hypertrophic rhinitis and loss of elasticity of concha. Furthermore, the concha mucosa will lose its ability to adapt to temperature, and become swollen and block nasal cavity, causing severe nasal congestion. The main cause for this fibrosis is the long-term ischemia and poor blood circulation.

In some patients, when blood tries to enter the mucosa, because of the poor circulation, it is congested in the mucosa, unable to return to circulation system. At this time, mucosa will have Qi stagnation and blood stasis, the mucosa will appear dark-purplish, like ecchymosis. This is stage IV of nasal allergy.



At stage IV, some patients tend to develop into sinusitis. The mucosa of middle and inferior concha are swollen or constrict, directly affect the opening of maxillary

sinus. When the opening is blocked by swollen mucosa, the flow of nasal mucous is obstructed, which lead to sinus congestion and postnasal dripping.

Eventually, the development of Rhinopathy with blue-whitish mucosa, is due to the uneven distribution of blood circulation. This would induce frontal pain headache. As long as these mucosal changes are present, most patients will develop headache, and some even with neck stiffness and pain, heavy shoulder, and sleeping disorders.

From other point of view, we discover normal mucosa of inferior concha is very moist in semi-circle, and has an opening for air to flow freely.

When continuous invasion of allergens occurs in nasal cavity, then came the abnormal change mucosa will become swollen. The mucosal cells are stimulated by allergens, and immune responses are activated. Histamine, serotonin, etc. are secreted to fight against the allergens. The cells then fill with liquids of allergic substances, and swell becoming mast cells. The swelling of inferior concha mucosa look like polyps, and the mucosa lost its function to adapt to temperature, and continue to swell. This is the main cause for nasal congestion.

## MUCOSA OF NASAL CONCHA

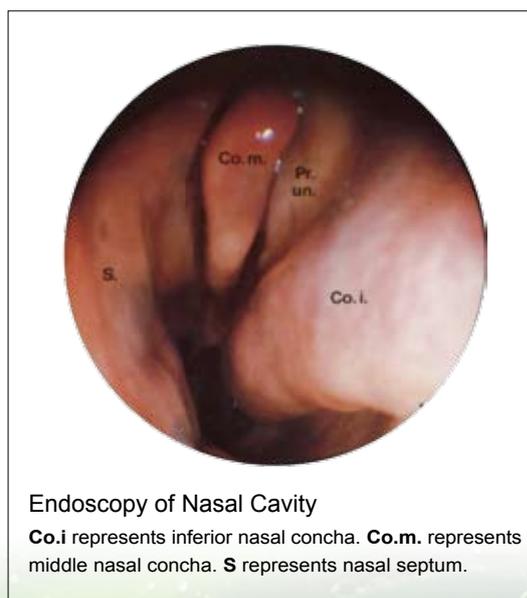
There is one more distinct feature to patients with allergic rhinitis. Their

nasal mucosa of inferior concha will show a glassy-like appearance. This is because the mucosal cells are filled with liquids containing allergic substances, and the mucosa is swollen with mast cells. This is a common sign of patients with nose allergies.

So where do these allergic substances came from? In fact, these are the body's immune response. When foreign allergens invade our upper respiratory tract, these allergen are first blocked by our inferior concha mucosa, antibodies are formed which wrap around these allergens. As antigen-antibody complexes remain wrapped inside mucosal cells, the cells become swollen.

However in most allergy patients, reactions are often induced in the absence of foreign allergen invasions. This is because many tissues and cells consider anti-allergens substances such as histamine as an allergy attack, thereby initiating more anti-allergens and creating a greater allergic reaction.

The swollen mucosa of the inferior concha is quite consistent in morphology, except for patients who have done surgical treatments, such as electrocauterization, excision, laser therapy, cryotherapy, and herbal cautery in which case their morphology will change. Most rhinitis patients are characterized by a semi-circular, swollen mucosa. This obstructs air flow within the concha, and eventually results in nasal congestion.



Endoscopy of Nasal Cavity

Co.i represents inferior nasal concha. Co.m. represents middle nasal concha. S represents nasal septum.

As for the swelling of the middle concha mucosa, it most often happens to picky eaters thereby causing a malformation of the mucosa. Some have mushroom-like appearance, with the upper part of middle concha swollen, some have big belly-like appearance, with the middle part of concha swollen, and some have

hu-lu shape appearance, with the upper and middle part of concha swollen and sunken between them, and making it look like hu-lu.

Abnormal concha mucosal lining leads to specific reactions, such as sneezing, running nose, and nasal congestion. We found by using modernized Chinese medicine and clearly identify concha mucosa is more effective in treating nasal conditions.

## HOW TO TREAT RHINITIS BY USING PUERARIA COMBINATION (GE GEN TANG) ?

### I. Observing Symptoms from Using Ge Gen Tang

Pueraria Combination (Ge Gen Tang) is one of the variants of Cinnamon Combination (Gui Zhi Tang) written in “Shan Han Lun” by Dr. Zhong Jin Zhang. It is the most important remedy for treating headache and neck pain induced by allergic rhinitis. It not only increases blood circulation, warm and nourishes the body, it is also effective in eliminating allergies, promote sweating, and reducing fever.

The use of Pueraria Combination (Ge Gen Tang) targets patients with moderate stamina, and is especially effective for those who tend to suffer from nasal congestion upon contact with cold air or during sleep. For some patients with allergic rhinitis, symptoms can be relieved within 5-10 minutes when treated with Minor Blue Dragon Combination (Xiao Qing Long Tang) or Cinnamon Combination (Gui Zhi Tang). Interestingly, if the symptoms are not controlled within this time, then additional symptoms such as headache, nasal congestion and neck stiffness will be present. If treated with Pueraria Combination (Ge Gen Tang), then the symptoms will be controlled and immediately relieved.

This is fascinating as Pueraria Combination (Ge Gen Tang) and Cinnamon Combination (Gui Zhi Tang) only differ by two herbs (Ge Gen+Ma Huang), one combination is extremely effective while the other has limited effects. Whilst the two combinations have only minor difference, the results are quite distinct-

ive. Therefore, the correct diagnosis of symptoms is the most important aspect, and the correct diagnosis requires detailed diagnosis of the characteristics of the mucosa.

Pueraria Combination (Ge Gen Tang) is used in symptoms with white mucinous nasal discharge, headache, neck stiffness and pain, heavy shoulder and pain.

When treating allergic rhinitis, Pueraria Combination (Ge Gen Tang) is frequently used besides Minor Blue Dragon Combination (Xiao Qing Long Tang) and Cinnamon Combination (Gui Zhi Tang). The most common classical remedy used besides Ma Huang Tang (Ma Huang Combination), is Pueraria Combination (Ge Gen Tang).

Therefore, irrespective of sneezing, rhinorrhea, or nasal congestion, for patients with allergic rhinitis, as long as they show symptoms of headache, neck stiffness and pain, or heavy shoulder and pain, Pueraria Combination (Ge Gen Tang) should be the first choice. This is especially true for allergic rhinitis patients who suffer from frequent thirst.

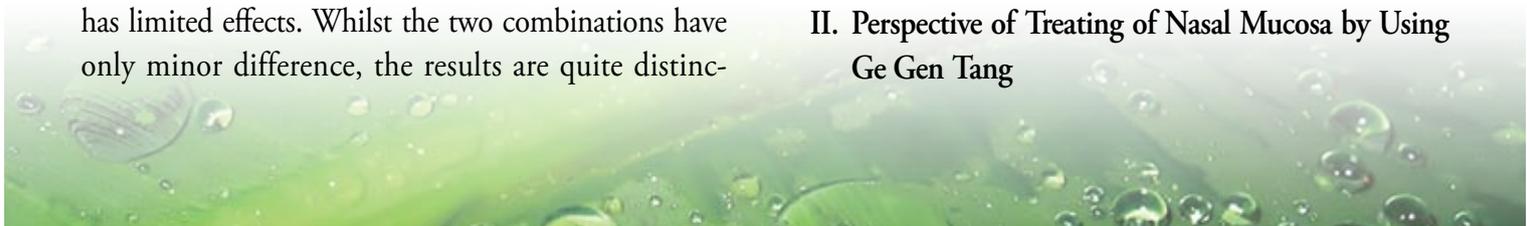
Pueraria Combination (Ge Gen Tang), Minor Blue Dragon Combination (Xiao Qing Long Tang), and Cinnamon Combination (Gui Zhi Tang) are all noted for increasing the energy system. These three combinations are effective in steadily and mildly increasing body temperature, increase immunity, and promote sweat.

In TCM terms, Pueraria Combination (Ge Gen Tang) can resolve the exterior with warmth and acidity, harmonize construction and defense, dispel wind and relieve tissue, and harmonize the blood and free the meridians.

It is an appropriate remedy for headache from cold, neuralgia of head and neck, abdomen pain and dysentery, acute spasm, and stomach flu.

Pueraria Combination (Ge Gen Tang) is often used in febrile diseases, and exterior pattern. It is used for support the right Qi and frees the Qi and vessels.

### II. Perspective of Treating of Nasal Mucosa by Using Ge Gen Tang



Pueraria Combination (Ge Gen Tang) can also relieve vascular spasm thereby decreasing hypersensitivity. This vascular motility mechanism is also shared amongst Ma Huang Combination (Ma Huang Tang) and Cinnamon Combination (Gui Zhi Tang). These three combinations share the same principle, that is, to stimulate the return of mast cells back into circulation, and secreted allergic substances such as histamine, serotonin, and bradykinin will be diluted by blood, thereby reducing allergic reactions. Ephedra (Ma Huang), Cinnamon Twig (Gui Zhi), and Fresh Ginger (Sheng Jiang) can stimulate vascular motility, and warm up peripheral circulation.

In addition, Paeony (Shao Yao) and Licorice (Gan Cao) can relieve abnormal tension, and is also effective against allergies and pain induced by spasm.

Jujube (Da Zao) and Licorice (Gan Cao) can relieve abnormal tension, and also strengthen mucosa.

### III. From Meridian's View

It is a remedy for foot tai-yang meridian of bladder, hand yang-ming meridian of large intestine and foot yang-ming meridian of stomach.

#### A. Hand Yang-ming Meridian of Large Intestine

##### 1. Original Inscription

It curves around the upper lip and crosses the opposite meridian at the philtrum. From there,

the left meridian goes to the right and the right meridian to the left, and ascends both sides of the nostril.

##### 2. Modern Physiology

- The hand yang-ming meridian of large intestine goes through the inferior concha, and ends at Ying-Xiang (LI-20).
- The physiological position is at the lower opening of nasal-lacrimal duct.
- Its branch goes into the lower part of middle concha.

#### B. Foot Yang-ming Meridian of Stomach

##### 1. Original Inscription

It starts from the lateral side of ala nasi. It ascends to the bridge of the nose, where it meets the Foot tai-yang meridian of bladder. Turning downward along the lateral side of nose, it enters the upper gum.

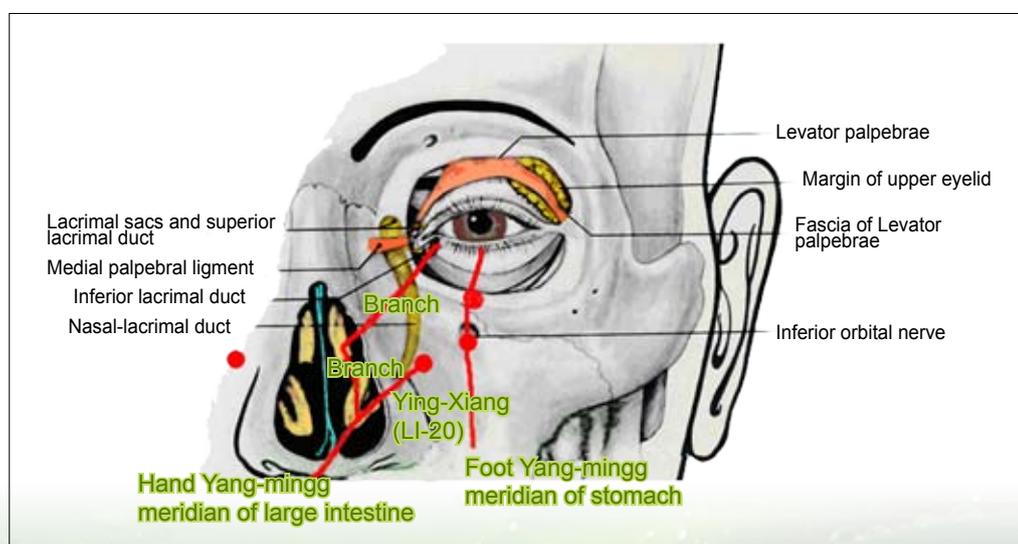
##### 2. Modern Physiology

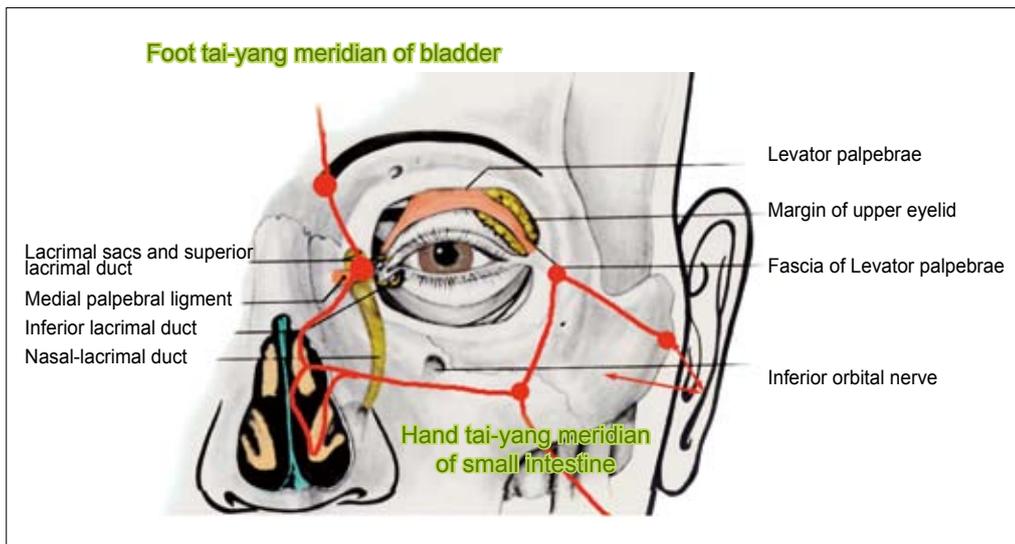
- Connected from hand yang-ming meridian, from lower part of middle concha, to lower lacrimal duct, through the infraorbital nerve.
- It is the beginning of foot yang-ming meridian of stomach, Si-Bai (ST-2).

#### C. Foot Tai-yang Meridian of Bladder

##### 1. Original Inscription

- It starts from the inner canthus. Ascending to the forehead, it joins at the vertex, where a branch arises, running to the temple.
- The straight portion of the meridian enters and communicates with the brain from the vertex. It then emerges and bifurcates to descend along the posterior aspect of the neck.





with severe edema, or nausea and vomiting, then it is for Hoelen Five Herb Formula. These 3 combinations are most widely used for the facial area of the foot tai-yang meridian of bladder.

Because Pueraria Combination (Ge Gen Tang) can enter foot yang-ming meridian of stomach and hand yang-ming meridian

of large intestine, the formula can also be used for enteritis, initial phase of dysentery, and stomach flu patients with fever and aversion to cold, and even those with diarrhea.

Therefore, Pueraria Combination (Ge Gen Tang) is certainly very effective too in treating diarrhea induced by colon hypersensitivity from post nasal dripping. Master Zhong-Jing Zhang has used Pueraria Combination (Ge Gen Tang) plus Pinellia (Zhi Ban Xia) for treatment. It is simply Pueraria Combination (Ge Gen Tang) plus a herb-Prepared Pinellia Rhizome (Zhi Ban Xia ) that can stop nausea and vomiting.

Of course, even with Pinellia (Zhi Ban Xia) added, it is still Tai-yang and Yang-ming remedy. This would not change at all. It is clearly written in article 33 in “Shan Han Lun”: **“For Tai-yang and Yang-ming combined disease, when there isn’t dysentery but retching instead, Pueraria (Ge Gen) plus Pinellia Combination (Ban Xia Tang) should be used.”**

Retching and dysentery, undoubtedly, are internal patterns. Even patients with Tai-yang disease do not show dysentery, only retching, they are still considered combined disease of Tai-yang and Yang-ming. Because retching and vomiting occurs at stomach, the foot yang-ming meridian; and dysentery occurs at large intestine, the hand yang-ming meridian. They both belong to Yang-ming disease.

## 2. Modern Physiology

- a. From hand tai-yang meridian of small intestine, upper part of middle concha, enters lacrimal sacs.
- b. From lacrimal sacs goes upward to supra-orbital, and up to the top of the head.

Pueraria Combination (Ge Gen Tang) is a diaphoretic used for the following condition: externally contracted cold-wind, no sweating and aversion to cold, neck stiffness, and headache. It is mostly used for treating cold. It is very effective, because of its ability to enter foot tai-yang meridian of bladder. The foot tai-yang meridian of bladder ascends to forehead and descends along the posterior aspect of neck, which target headache and neck stiffness.

A more detail look at the course of foot tai-yang meridian of bladder in the nasal cavity reveals that the flow is from hand tai-yang meridian of small intestine, via the upper part of middle concha, enters the lacrimal sacs, and then from the sacs goes upward to supra-orbital, and then up to the head.

Therefore, abnormality in middle concha mucosal, if accompanied with bluish-whitish plaque must be an indication for Pueraria Combination (Ge Gen Tang). If it belongs to the meridian between lacrimal sacs to the eye, then it is an indication for Atractylodes & Hoelen Combination. If accompanied with tears and combine



Furthermore, when both foot yang-ming and hand yang-ming are compromised, is this disease still considered as Tai-yang and Yang-ming disease? According to meridianology, it is considered as combined Tai-yang and Yang-ming disease. Then we further ask “Can patients manifesting **“Tai-yang disease with dysentery and retching”** use this remedy?”

This is certainly a Tai-yang and Yang-ming combined disease. It is suitable to prescribe the patients with Pueraria (Ge Gen) plus Pinellia Combination (Ban Xia Tang).

Pueraria Combination (Ge Gen Tang) is actually widely used in febrile patients with Tai-yang exterior pattern. Even if the diseases is not febrile, regardless of the existence of fever or aversion to cold, as long as the following symptoms are diagnosed, such as floating and forceful pulse, stiff neck, tense shoulder, and with inflammatory hyperemia.

### COMPARISON OF CINNAMON COMBINATION (GUI ZHI TANG), PUERARIA COMBINATION (GE GEN TANG), MINOR BLUE DRAGON COMBINATION (XIAO QING LONG TANG), AND MA HUANG COMBINATION (MA HUANG TANG)

- I. Cinnamon Combination (Gui Zhi Tang), Pueraria Combination (Ge Gen Tang), Minor Blue Dragon Combination (Xiao Qing Long Tang), and Ma Huang Combination (Ma Huang Tang) have similar pharmacodynamics effects to nasal mucosa. Their main effect is stimulating vascular motility and exciting the nervous system.
- II. All four combinations are mainly used for treating Tai-yang meridian
  - A. These four combinations have similar function of retrieving mast cells and hypersensitized cells back to the circulation to relieve allergic symptoms and improve immunity after effecting vascular motility.
  - B. Cinnamon Combination (Gui Zhi Tang) is used when vessels react more intense, which is vascular spasm.
  - C. Once vascular spasm occurred, it can cause isch-

emia to local tissue.

- D. Spasm will also induce pain. Wherever vascular spasm occurred, it is a suitable indication for Ma Huang Combination (Ma Huang Tang).
- E. Persisting spasm induces accumulation of allergenic substances and causes edema in the mucosa and serious denature, which may results in glassy-reflective mucosal surface. If the spasm is relieved, these specific allergic reactions of mucosa can be quickly eliminated.
- F. Once spasm is accumulated, because of its interaction with the immune systems, this causes the blue-whitish plaque on the nasal mucosa, and thus induces other problems along the meridian, muscle tension, contraction and even acute spasm. This would be a condition for using Pueraria Combination (Ge Gen Tang).

### MODIFICATION (JIA JIAN) OF PUERARIA COMBINATION (GE GEN TANG)

- Serious nasal congestion: add Ligusticum (Chuan Xiong) and Magnolia flower (Xin Yi)
- Dark circle caused by rhinitis: add Angelica (Bai Zhi)
- Retching and vomiting with Qi counterflow: add Prepared Pinellia Rhizome (Zhi Ban Xia) and Hoelen (Fu Ling)
- Fever and thirst: add Anemarrhena (Zhi Mu) and Gypsum (Shi Gao)
- Severe shoulder pain: add Hoelen (Fu Ling), White atractylodes (Bai Zhu), and Roasted Aconite (Pao Fu Zi)
- Abdominal pain and dysentery: add Scute (Huang Qin) and Coptis Rhizome (Huang Lian)
- Skin itch: add Silkworm (Jiang Can)
- Chronic sinusitis: add Ligusticum (Chuan Xiong), Platycodon (Jie Geng), Scute (Huang Qin), Gypsum (Shi Gao), and Magnolia flower (Xin Yi)
- Retching: add Rhubarb (Da Huang), Gypsum (Shi Gao), Coix (Yi Yi Ren), Prepared Aconite (Pao Fu Zi), and White Atractylodes (Bai Zhu)

## OTHER APPLICATION OF PUERARIA COMBINATION (GE GEN TANG)

Cold, influenza, pneumonia, bronchitis, headache, congealing shoulder, wrist pain, frozen shoulder, neuralgia, skin diseases, eczema, urticaria, wheals, furuncles, boil, wind-damp syndrome, carbuncle and cellulitis, poliomyelitis, tetanus, diphtheria, Scarlet fever, pertussis, pharyngitis, hypertrophy of tonsils, facial nerve palsy, corneitis, hordeolum, conjunctivitis, trachoma, all kinds of eye diseases, otitis media, otitis externa, toothache, chronic sinusitis, rhinitis, nasal congestion, sinusitis, parotitis, meningitis, lymphangitis, mastitis, intestinal heat, acute colitis, beginning of red dysentery, and other abscessed diseases.

## PHARMACOLOGICAL ANALYSES OF PUERARIA COMBINATION (GE GEN TANG)

- A. Pueraria Combination (Ge Gen Tang) is Pueraria (Ge Gen) and Ephedra (Ma Huang) added to Cinnamon Combination (Gui Zhi Tang), which makes its similar to Ma Huang Combination (Ma Huang Tang). They rigorously dilate blood vessels. After severe effect on vessels, mast cells and hypersensitized cells will return to blood circulation. Once the allergic substances return to the blood circulation, the blood can dilute these substances, and the allergy would then be relieved.
- B. Because Pueraria (Ge Gen) is the emperor herb in this combination, it governs the exterior defense. Pueraria (Ge Gen) can engender liquid and relax muscles, also increase the superficial circulation, to eliminate the heat toxin. Pueraria (Ge Gen) can also increase the contraction and peristalsis of intestine, and to help defecate more easily.
- C. Pueraria Combination (Ge Gen Tang) combines Ephedra (Ma Huang) and Licorice (Gan Cao) to alleviate the tension of trachea during coughing, reduce cough, and also relieve body surface tension and work with Cinnamon Twigs (Gui Zhi) to promote sweating.

D. Cinnamon Twigs (Gui Zhi) not only can modulate blood circulation, but also can excite vascular motility, and increase peripheral circulation. It can invoke the mast cells hidden in the micro vessels, and dilutes its allergic secretions by blood, and reduces hypersensitivity. White Peony (Bai Shao) can improve and strengthen gastrointestinal tract functions, and directly act on abdomen vessels. There are about one third of total blood and vessels of a human body in the abdomen. This also explains why people with wider waist have higher percentage of diabetes and allergy.

E. Licorice (Gan Cao) can resolve liver toxins. Like White Peony (Bai Shao), Licorice can also improve gastrointestinal function. Combination of White Peony (Bai Shao) and Licorice (Gan Cao) forms synergistic effect. Jujube (Da Zao) has the effect of enriching and moisten. Licorice (Gan Cao) and Jujube (Da Zao) not only can relax abnormal tension, but also strengthen nasal mucosa. Fresh Ginger (Sheng Jiang) can help blood flow, support the center, free the vessels, and help digestion.

Pueraria Combination (Ge Gen Tang) is very effective in all applicable diseases, but like other Chinese herbal formula, it lacks scientific evidence. Therefore, finding more scientific evidence not only further ascertain diagnosis and treatment, but also make it more logical and convincing.

Pueraria Combination (Ge Gen Tang) should follow similar precaution as Cinnamon Combination (Gui Zhi Tang) by avoiding raw and cold food, meat, flour, spicy food, liquor and fermented food.

Patients with rhinopathy should avoid, cold food and beverages, fruit from refrigerator, bread, bun, deep-fried food, chilies, pepper and other spicy foods.

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