

Symptom-based treatment with Traditional Chinese Medicine in bronchiectasis patients with hemoptysis

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Bronchiectasis is a debilitating disease which arises from the vicious cycle of chronic airway infection, inflammation and structural damage (1,2). Hemoptysis, a prominent symptom associated with anxiety and depression (3), has been reportedly common, possibly because of the chronic airway inflammation and/or structural damage (4,5). Unfortunately, effective treatment remains scant, particularly for recurrent hemoptysis. Adjunct therapy which targets at ameliorating or preventing from hemoptysis would lead to an improved quality-of-life in patients with bronchiectasis.

Traditional Chinese Medicine (TCM) comprises various therapeutic regimens and experience that are complementary to western medicine (6). Theoretically, bronchiectasis arises from the invasion of evils (e.g., dampness, heat and wind, which conceptually resemble pathogens infection in western medicine) that leads to the accumulation of phlegm-heat in the lung, which is susceptible to abrupt changes in climate, diet, and mood (7). This has been partially supported by the female preponderance, prior severe lung infections, surgery and/or injury, and suboptimal psyche in a considerable proportion of bronchiectasis patients. Following the insults of evils, heat-toxicity and phlegm accumulation readily result in bronchial necrosis, and the stagnated *Qi* may lead to retention of body fluids in all meridians and collaterals, which would impede the normal return of blood. Therefore, the blood would have to be expectorated along with sputum, which clinically manifests as hemoptysis (7-9). Based on the theorem “management for the primary causes” (10), hemoptysis should be treated by expelling the wind evils

and ameliorating lung-heat (clearance of pathogens) and promoting sputum expectoration (mucolytic therapy), which would normalize the circulation of *Qi* and body fluids, thereby directing the aberrant blood flow back to the meridians and collaterals (preventing further onset of hemoptysis).

To clarify the concepts above, two cases of bronchiectasis with hemoptysis who achieved improved outcomes following managed with TCM as adjunct treatment with TCM are presented below.

Case 1: a 62-year-old female presented with cough, chest distress, dyspnea and recurrent hemoptysis for two years, during which she had been repetitively hospitalized because of hemoptysis. She appeared emaciated with significant anxiety. Hemoptysis (~80 mL/d for two days) was accompanied by poor circulation of extremities, lusterless facial complexion, major sweating, constipation and insomnia. Apart from reddish tongue body with whitish thick coating, the pulses appeared deep and soft. The symptom differentiation prompted the treatment for expelling wind evils, dredging the meridians and collaterals, and dispersing the *Qi* to reduce turbidity. The treatment (mainly consisting of *Schizonepeta tenuifolia*, *Agastache rugosus*, *Fructus gardeniae*, *Rheum officinale*, and sodium nitrate) abrogated hemoptysis, ameliorated constipation and improved *Qi* circulation. Upon reassessment, hemoptysis relapsed with a loss of appetite, chest distress, poor *Qi* circulation, and nocturnal insomnia. Subtraction of *Radix bupleuri* and *Agastache rugosus* (for clearing heat) and supplementation with *Fructus gardeniae* 10 g (for clearing wind evil) led to ameliorated hemoptysis and chest distress,

and improved overall well-being and peripheral circulation at day 1, and diminished hemoptysis (~10 mL daily) following administration for ~60 decoctions (for mitigating *Qi*, dissolving phlegm and reducing lung turbidity).

Case 2: a 57-year-old female admitted for recurrent cough, non-purulent sputum production and intermittent hemoptysis which developed three decades ago. Bronchiectasis progressed with multiple episodes of major hemoptysis despite hemostatic and anti-infection therapy. Major hemoptysis recurred three days previously (~100 mL/d) following ingestion of foods, which prompted emergency room admission that failed to improve symptoms despite hemostatic treatment with *Agkistrodon* hemocoagulase. She appeared emaciated with facial flushing and major anxiety. Apart from major sweating, she complained of constipation, discharge of concentrated urine, and dreaminess. Upon physical examination, her tongue body was fat with yellowish coatings. Her pulses were soft. Previous treatment was reportedly non-effective. Symptom-based treatment with five decoctions (mainly consisting of *Agastache rugosus*, *Scutellaria baicalensis*, gypsum, *Rheum officinale*, sodium nitrate, and *Folium sennae*) for dispelling the wind, dredging the meridians, clearing the heat and phlegm, and promoting blood *Qi* circulation to reduce lung turbidity led to major diarrhea which was accompanied by significantly ameliorated dry mouth at day 1, and diminished hemoptysis, improved well-being, reduced tongue coatings and improved *Qi* circulation at day 2 and onward. Following discharge from hospital, some additional decoctions were prescribed. No recurrent hemoptysis was reported thereafter.

Hemoptysis may arise from multiple underlying causes, and frequently results in anxiety and/or depression that may directly impact on the quality-of-life (3,4,11). Unfortunately, few therapeutic approaches are available for management of particularly major, hemoptysis. Hemoptysis has been associated with exaggerated inflammatory responses or vascular deformation secondary to airway destruction. However, hemoptysis could have resulted from stagnated wind evils, particularly in patients with frailty (12-14). In case 1, wind and dampness (the pathogenetic causes) stagnated in the lungs following surgery, resulting in recurrent coughing and hemoptysis. Accordingly, treatment should be simultaneously targeting at dispersing the lung turbidity (symptoms) and expelling the wind evils (the root causes). Importantly, hemoptysis is susceptible to abrupt changes in climate, diet and mood. Major surgery readily results in invasion of evils which may persistently

stagnate within the body. In case 2, the prolonged courses of bronchiectasis, coupled with evil stagnation and frailty, have rendered a substantial loss of primordial *Qi* and blood (the drivers of circulation). Therefore, we initially ameliorated symptoms by dredging the *Yangming* meridians, followed by replenishing the psyche (management of root causes). In case of evil stagnation, seeking and managing the underlying causes is recommended (12-15).

Because of different combinations of symptoms and disease severity, we could not control for the doses and component of other medications, which might have biased efficacy assessment. Symptom inquiry is inevitably prone to recall bias and subjective reporting.

We have proposed two critical principles, from the perspective of TCM, for simultaneous management of symptoms and underlying causes of hemoptysis in bronchiectasis. The evils of wind, heat and dampness should be promptly expelled out of the body in bronchiectasis patients who have a prolonged duration of symptoms. Factors provoking hemoptysis should be vigilantly identified to initiate targeted therapy (e.g., TCM). In fact, this is comparable to the principles of western medicine, which include the concomitant treatment with antibiotics, mucolytics and immunomodulatory medications. Therefore, TCM is complementary to western medicine for the management of bronchiectasis with hemoptysis.

In summary, there is a rationale for conducting multicenter randomized trials which would determine the efficacy and safety of adjunct TCM therapy in bronchiectasis patients with recurrent hemoptysis.

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Footnote

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