

Could Chinese herbs accelerate the resolution of reversible bronchiectasis in adults?

A case report

Hai-yan Li, BM^a, Qi Guo, MD, PhD^{b,*}

Abstract

Rationale: The classic definition of bronchiectasis is of permanent bronchial dilatation. Therefore, bronchiectasis is generally considered irreversible in the adult population.

Patient concerns: A 27-year-old woman presented to an affiliated hospital with a 1-year history of productive cough.

Diagnosis: Bronchiectasis.

Interventions: The patient was treated with cephalosporin and a mucus clearance regimen for 6 days and then with Chinese herbs for 3 months.

Outcomes: Reversible bronchial dilatation was evidenced by sequential chest high-resolution computed tomography 6 months later.

Conclusion: The current report demonstrated that, although rare in adult, bronchial dilatation might resolve completely in such a short period if receiving adequate regimens, for example, Chinese herbs.

Abbreviations: g = gram, HRCT = high-resolution computed tomography, mL = milliliter.

Keywords: Chinese herbs, computed tomography, reversible bronchiectasis

1. Introduction

Bronchiectasis is defined permanent dilatation of the bronchi^[1,2] and is generally considered irreversible in the adult population, largely based on studies using bronchography in cases with a significant clinical history.^[3] Bronchiectasis is characterized by thickening of the bronchial wall, leading to increased sputum production and chronic cough.^[2] Diagnosis has been greatly facilitated by high-resolution computed tomography (HRCT).^[1,2] There had been several case reports^[4–6] of complete disappearance of bronchial dilatation in adults demonstrated by bronchography 50 years ago and a case report^[7] as evidenced by HRCT 5 years ago.

Editor: N/A.

H-yL and QG made substantial contributions to conception and design, were in charge of data collection, and wrote the manuscript, and are co-first authors of this article.

The authors report no conflicts of interest.

^a Department of Primary Care, ^b Department of Respiratory Medicine, The Eighth Affiliated Hospital (Shenzhen Futian), Sun Yat-sen University, Shenzhen, Guangdong, China.

* Correspondence: Qi Guo, Department of Respiratory Medicine, The Eighth Affiliated Hospital (Shenzhen Futian), Sun Yat-sen University, Shenzhen, Guangdong, China, 518033 (e-mail: qiguoo007@sina.com).

Copyright © 2017 the Author(s). Published by Wolters Kluwer Health, Inc. This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Medicine (2017) 96:50(e8883)

Received: 27 September 2017 / Received in final form: 28 October 2017 /

Accepted: 4 November 2017

<http://dx.doi.org/10.1097/MD.0000000000008883>

The shortest period reported for the reversal of bronchial dilatation in adults was 11 months. A different case was reported here. The patient took Chinese herbs, which might accelerate the resolution of reversible bronchiectasis, and was cured 6 months later.

2. Case report

In December 2016, a 27-year-old woman presented to the eighth affiliated hospital of Sun Yat-sen University with a 1-year history of productive cough. A physical examination showed crackles and wheezing rale at the lower lobes. Chest HRCT scan (Figs. 1A and 2A) showed bronchiectasis of the right upper lobe, the right middle lobe, and the lower lobes. White blood cell count and neutrophils were normal. A diagnostic workup did not reveal an underlying cause of bronchiectasis, such as pneumonia. She was treated with cephalosporin and a mucus clearance regimen for 6 days and noted gradual improvement of her symptom. Chinese herbs were administered for 3 months and then productive cough disappeared. There were not any adverse effects. Prescription A was named as modified daigesan decoction (composed of 8 Chinese herbal medicines: Indigo naturalis 9g, concha meretricis seu cyclinae 30g, radices paeoniae alba 12g, fritillaria 15g, radix bupleuri 15g, scutellaria baicalensis 10g, scrophularia ningpoensis 10g, and gardenia jasminoides ellis 10g. Immersing them in 1000 mL water, decoction of 300 mL, taking half dose orally, twice daily for 1 month) and then prescription B was administered (modified shengmaisan decoction. Components: Astragalus membranaceus 15g, codonopsis pilosula 15g, ophiopogon japonicus 12g, and schisandra chinensis 10g. Immersing them in 1000 mL water, decoction of 300 mL, taking half dose orally, twice daily for 2 months). A follow-up HRCT 6 months later (Figs. 1B and 2B) demonstrated complete resolution of bronchial dilatation.

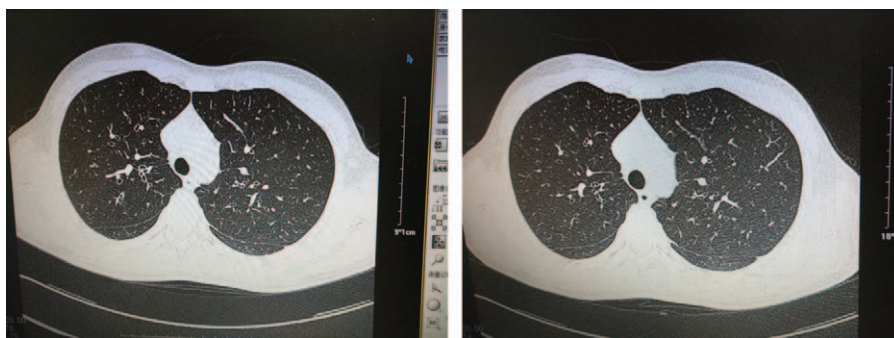


Figure 1. (A) Saccular bronchiectasis of the right upper lobe. (B) Reversal of bronchial dilatation of the right upper lobe.

3. Ethical approval

The study was approved by our institutional review board (Review Board of Sun Yat-sen University). Ethical approval from the regulation committee (Ethical Committee of Shenzhen) was granted for the study protocol. Informed consent was obtained in writing from the patient.

4. Discussion

Bronchiectasis is the common response of bronchi to many different insults. The majority of causes incorporate infections, congenital diseases, and bronchial obstruction. Insults cause impaired mucociliary clearance, leading to secretion stasis and infection with subsequent increased intrabronchial pressure, and eventually resulting in bronchial dilatation. Reversible bronchiectasis has been limited largely to the acute and subacute phases of the disease, most often following pneumonia. A case spending such a short period for the reversal and using Chinese herbs has not to our knowledge been the subject of report.

What are the mechanisms of the reversal of bronchiectasis? The prolonged treatment might have played a role, perhaps by eradicating infection and thus enabling regeneration of bronchial anatomy.^[8] In the study of surgical and postmortem specimens, it has been noted that the dilated bronchi were sometimes microscopically and grossly intact, except for inflammatory changes.^[5] Therefore, the possibility of a return to normal might occur if intensive medical therapy was successful.

Traditional Chinese medicine takes biological network regulation as the theoretical basis, and thus provides a new approach for disease treatment. Chinese herbal medicine prescription usually consists of several Chinese herbs to provide

a synergistic benefit on orchestrating complex regulatory functions, such as antibacterial activities, antiviral effects, anti-inflammatory activities, mucus clearance, and immunoregulation.^[9–14] There is not any study with the aim of investigating whether Chinese herbs could accelerate the resolution of reversible bronchiectasis in the NCBI database. The current case report sheds light on the question. It was not until 3 months after treatment that the patient received a follow-up chest HRCT scan. Had the HRCT been performed 3 months ahead of time, the real time period for the reversal of bronchial dilatation might have been shorter (perhaps 3 months, which were so fascinating). It is the purpose of this report to emphasize the fact that adequate regimens, such as Chinese herbs, should be administered as early as possible before the occurrence of destructive changes in the musculoelastic tissues of the bronchial wall while dealing with bronchiectasis in patients with a relatively shorter clinical history, particularly in young adults and children, to promote the reversal of bronchial dilatation if possible.

According to macroscopic morphology, 3 types, that is, cylindrical bronchiectasis, varicose bronchiectasis, and cystic bronchiectasis, have been described, which also represent a spectrum of severity (the severe form is of cystic bronchiectasis). According to 1 study on the relative prevalence of bronchiectatic changes, types of bronchiectasis were cylindrical in 47%, varicose in 9.9%, cystic in 45.1%, and multiple types in 24.3%.^[15] The current case demonstrated cystic bronchiectasis (the severe form). Therefore, were timely and adequate regimens, such as Chinese herbs, administered, perhaps bronchial dilatation might resolve completely in many more adult bronchiectasis patients with a relatively shorter medical history, especially those with cylindrical bronchiectasis (the mild form).

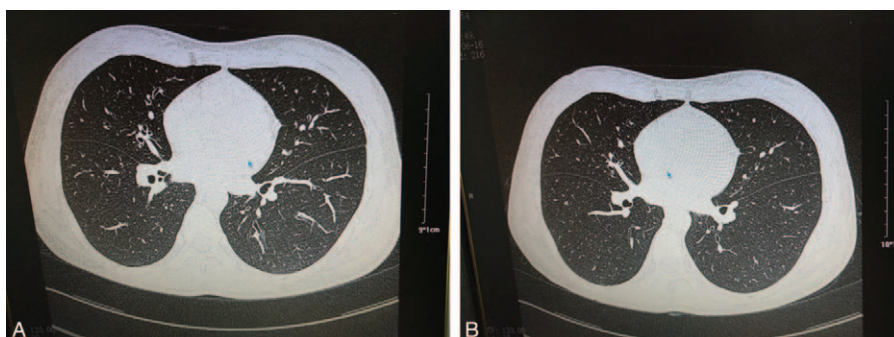


Figure 2. (A) Saccular bronchiectasis of the right middle lobe. (B) Reversal of bronchial dilatation of the right middle lobe.

5. Conclusion

Chinese herbs might accelerate the resolution of reversible bronchiectasis in adults.

References

- [1] Barker AF. Bronchiectasis. *N Engl J Med* 2002;346:1383–93.
- [2] Goeminne P, Dupont L. Non-cystic fibrosis bronchiectasis: diagnosis and management in 21st century. *Postgrad Med J* 2010;86:493–501.
- [3] Gaillard EA, Carty H, Heaf D, et al. Reversible bronchial dilatation in children: comparison of serial high-resolution computer tomography scans of the lungs. *Eur J Radiol* 2003;47:215–20.
- [4] Smith KR, Morris JF. Reversible bronchial dilatation. Report of a case. *Dis Chest* 1962;42:652–6.
- [5] Nelson SW, Christoforidis A. Reversible bronchiectasis. *Radiology* 1958;71:375–82.
- [6] Pontius JR, Jacobs LG. The reversal of advanced bronchiectasis. *Radiology* 1957;68:204–8.
- [7] Yap VL, Metersky ML. Reversible bronchiectasis in an adult: a case report. *J Bronchology Interv Pulmonol* 2012;19:336–7.
- [8] Crowley S, Matthews I. Resolution of extensive severe bronchiectasis in an infant. *Pediatr Pulmonol* 2010;45:717–20.
- [9] Wang C, Cao B, Liu QQ, et al. Oseltamivir compared with the Chinese traditional therapy maxingshigan-yinqiaosan in the treatment of H1N1 influenza: a randomized trial. *Ann Intern Med* 2011;155:217–25.
- [10] Liang W, Yew DT, Hon KL, et al. Indispensable value of clinical trials in the modernization of traditional Chinese medicine: 12 years' experience at CUHK and future perspectives. *Am J Chin Med* 2014;42:587–604.
- [11] Jiang L, Deng L, Wu T. Chinese medicinal herbs for influenza. *Cochrane Database Syst Rev* 2013;3:CD004559.
- [12] Fan SY, Zeng HW, Pei YH, et al. The anti-inflammatory activities of an extract and compounds isolated from *Platycladus orientalis* (Linnaeus) Franco in vitro and ex vivo. *J Ethnopharmacol* 2012;141:647–52.
- [13] Huang H, Yang P, Xue J, et al. Evaluating the individualized treatment of traditional Chinese medicine: a pilot study of N-of-1 trials. *Evid Based Complement Alternat Med* 2014;2014:148730.
- [14] Wang X, Liu Z. Prevention and treatment of viral respiratory infections by traditional Chinese herbs. *Chin Med J (Engl)* 2014;127:1344–50.
- [15] Habesoglu MA, Ugurlu AO, Eyuboglu FO. Clinical, radiologic, and functional evaluation of 304 patients with bronchiectasis. *Ann Thorac Med* 2011;6:131–6.