Laryngeal Granulomatous Inflammation in a Patient with Crohn’s Disease: Tuberculosis or Extra-intestinal Crohn’s Disease

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Crohn’s disease and tuberculosis are both granulomatous inflammation in histology and are hardly distinguishable if there is neither caseous necrosis nor acid-fast bacilli. We presented a 31-year-old woman with stable Crohn’s disease complicated with culture-confirmed pulmonary tuberculosis. Histological examination of the laryngeal biopsy indicated granulomatous inflammation without caseous necrosis or acid-fast bacilli. After standard antituberculosis treatment, her laryngeal lesion recovered. *(Thorac Med 2014; 29: 189-193)*

Key words: acid-fast bacilli, caseous necrosis, Crohn’s disease, granulomatous inflammation, laryngeal tuberculosis

**Introduction**

Crohn’s disease is a chronic inflammatory bowel disease characterized by remittent chronic inflammation mainly affecting the gastrointestinal tract. Incidence of extra-intestinal manifestations of Crohn’s disease is around 25% [1]. However, the precise incidence of laryngeal involvement in Crohn’s disease remains uncertain. The prevalence of otolaryngologic involvement in Crohn’s disease ranges from 0.5% to 13%, and most cases affect the oral mucosa [2]. Bronchopulmonary involvement in even rarer; it has been reported to be, as low as 0.4% [3]. Histological examination of the gastrointestinal tract may reveal focal chronic inflammation, focal crypt irregularity and granulomas [4], but extra-intestinal involvement may show only non-caseous granulomas [5]. Granulomas can also be found in tuberculosis (TB). Laryngeal TB (less than 1% [6]) is a rare manifestation of TB that, for the most part, was considered to be secondary spread from pulmonary TB. Crohn’s disease and TB are difficult to differentiate histologically if there is a lack of caseous necrosis and acid-fast bacilli (AFB). Herein, we report a case of Crohn’s disease complicated with laryngeal TB.

**Case Report**

A 31-year-old woman was diagnosed as
having Crohn’s disease by intestinal biopsy in February 2007. Under the control of a non-steroid anti-inflammatory drug (mesalamine 1000 mg 3 times per day), she was in a remittent status as assessed by the Crohn’s disease activity index (CDAI) [7]. The latest colofibroscopy performed in May 2011 showed no lesion. She began experiencing sore throat, odynophagia and low-grade fever in July 2011. Laryngoscopy (Figure 1) showed granular change with multiple ulcers at the bilateral aryepiglottic folds, epiglottis and vocal cords. She was treated as having epiglottitis with oral empiric amoxycillin with clavulanate, naproxen and acetaminophen for 2 weeks. No steroid had been used before this episode. Biopsy of the laryngeal lesion showed granulomatous inflammation with ulceration, but there was neither caseous necrosis nor AFB. Chest radiography (Figure 2) was arranged and showed infiltrations in the right upper lung field. Computed tomography (CT) of the chest (Figure 3) revealed scattered nodular opacities and tree-in-bud patterns in the bilateral lung fields. Pulmonary TB was suspected. Though acid-fast smears for 3 sets of sputum samples in early August 2011 were negative, Mycobacterium tuberculosis was isolated on 20 August 2011, and was susceptible to all first-line anti-TB drugs. Beginning on 23 August 2011, she received standard anti-TB treatment consisting of isoniazid, rifampin, pyrazinamide, plus ethambutol for 2 months, followed by isoniazid plus rifampin for another 4 months. One week after commencing anti-TB treatment, her fever subsided and the sore throat and odynophagia improved; she recovered completely during the next 2 weeks. The follow-up chest radiography 2 months after starting anti-TB treatment showed clear lung fields. Follow-up laryngoscopy in March 2012 revealed complete recovery of the laryngeal le-
sions. During the whole disease course, she had no gastrointestinal symptoms and colofibroscopy located no lesions. Costicosteroids were never prescribed during this period. Laryngeal TB, rather than Crohn’s disease with laryngeal involvement, was favored.

Discussion

In the pre-antibiotic era, laryngeal TB occurred in 35-83% of patients with pulmonary TB and was associated with a high mortality rate (45-90%) [8]. Incidence decreased to less than 1% with the introduction of modern anti-TB treatment [6]. Laryngeal TB rarely developed without the accompaniment of active pulmonary TB [9], and could occur as a primary site of infection or as a result of hematogenous spread [10]. Increase in the number of immunocompromised host due to diseases (such as acquired immunodeficiency syndrome) or medications increased the incidence of atypical presentations of TB [8]. Definite diagnosis of laryngeal TB relies on tissue culture, and may require about 2 weeks on average to obtain a positive result [11]. The diagnosis can be made earlier if histological examination of laryngeal biopsy revealed granulomatous inflammation with caseous necrosis and presence of AFB [8].

Crohn’s disease is a non-infectious, lifelong disease arising from an interaction between genetic and environmental factors and is more common in developed countries [4]. The diagnosis of Crohn’s disease is established by a combination of clinical presentation, endoscopic appearance, radiology, histology, surgical findings and, more recently, serology [4]. Though there is no “gold standard”, colofibroscopy with multiple biopsy specimens is recommended as the first-line diagnostic procedure [12]. The typical histopathologic findings are focal chronic inflammation, focal crypt irregularity and granulomas [4]. Presence of non-caseating granulomas, small collections of epithelioid histiocytes and giant cells is not diagnostic for Crohn’s disease, because these can also be observed in infectious processes [4]. Extra-intestinal manifestation of Crohn’s disease is rare, but it has been reported to involve the nasal cavity, supraglottic structures, glottis, skin, and respiratory tract [13-14], and responds well to corticosteroids [1,3]. When Crohn’s disease involves the upper gastrointestinal tract, there is almost always concomitant disease in the small bowel or colon [15]. In addition, biopsies of buccal mucosa from patients with Crohn’s disease have been shown to have a correlation with disease activity [15]. Inflammatory bowel disease is now considered to result from an in-

![Chest CT revealed scattered nodular opacities and tree-in-bud patterns in the bilateral lung fields.](image)
appropriate inflammatory response to intestinal microbes in a genetically susceptible host [16], which implies that disease extension to some degree may be positively correlated with intestinal disease activity.

In clinical practice, the CDAI is used to assess the disease activity of Crohn’s disease [4]. The CDAI for our patient in June 2011 was 56 points (stool pattern: 14, fever: 20; weight: 22), which was considered to be a remittent status according to the evidence-based consensus of the European Crohn’s and Colitis Organization (ECCO) in 2010 [4].

In our case, TB, rather than Crohn’s disease was likely to be responsible for the laryngeal lesions, for the following reasons. First, the Crohn’s disease in this patient was in a remittent status, based on the CDAI score. Second, pulmonary TB was culture-confirmed and may reasonably involve the larynx by bronchogenic spread. Third, a therapeutic response was obvious after anti-TB treatment without using corticosteroids for Crohn’s disease. This case is a reminder that in TB-endemic areas, TB should still be considered a possibility when there is a histological finding of granuloma without caseous necrosis or AFB, even in patients with Crohn’s disease.

References

克隆氏症病人的喉頭肉芽性炎症：結核病或是克隆氏症之腸外侵犯

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克隆氏症和結核菌感染在病理檢查下同樣為肉芽腫炎症，若無發現乾酪性壞死或耐酸性桿菌，兩者難以區分。我們報告一例 31 歲女性患有病情穩定的克隆氏症，並新診斷肺結核，喉頭病灶切片顯示為肉芽腫性炎症，但是並未發現乾酪性壞死或是耐酸性桿菌，病人接受標準抗結核藥物治療後，喉頭病灶經追蹤也證實消失。( 胸腔醫學 2014; 29: 189-193)

關鍵詞：耐酸性桿菌，乾酪性壞死，克隆氏症，肉芽腫性炎症，喉頭結核