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Bronchial Dilatations and IBD: Prevalence and Management.

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ABSTRACT

The most frequent extra-intestinal manifestations of IBD are articular, ocular and cutaneous, whereas respiratory involvement in IBD is rare and only recently identified [1]. The true incidence of respiratory involvement is poorly understood, and is estimated at 0.2% [2]. Airway inflammation is the most common manifestation of inflammatory bowel disease in the lungs [3].Some patients may develop chronic symptoms, particularly those who develop irreversible processes such as bronchiectasis [4]. Bronchial dilatation (BD) is the other most frequent pulmonary manifestation of IBD, with an estimated frequency of 22.6% [5].The aim of our work is to evaluate the prevalence of bronchiectasis and its management in IBD patients.

Introduction

The most frequent extra-intestinal manifestations of IBD are articular, ocular and cutaneous, whereas respiratory involvement in IBD is rare and only recently identified [1]. The true incidence of respiratory involvement is poorly understood, and is estimated at 0.2% [2]. Airway inflammation is the most common manifestation of inflammatory bowel disease in the lungs [3].

Some patients may develop chronic symptoms, particularly those who develop irreversible processes such as bronchiectasis [4]. Bronchial dilatation (BD) is the other most frequent pulmonary manifestation of IBD, with an estimated frequency of 22.6% [5].

The aim of our work is to evaluate the prevalence of bronchial dilatation as well as its management in IBD patients.

Materials and methods

Retrospective study from January 2002 to December 2020 including 1156 patients followed for IBD of whom 04 patients presented with BD. These patients underwent a thoracic CT scan, functional respiratory exploration (EFR) and specialist opinion.

Results

Of 1156 IBD cases, four patients had bronchial dilatation (2.9%). The mean age was 42 years, and all our patients were female. We included three patients with Crohn's disease (CD) on combotherapy and one patient with the pancolitic form of ulcerative colitis (UC) on Aminosalicylates. The CD was pancolitic with ano-perineal lesions (APL) in two cases, and ileo-colic with stenosing APL with ano-vaginal fistula. Our patients had no history of smoking or recurrent pulmonary infections.

The average delay between the diagnosis of IBD and the onset of BD was 12 years (11-13 years). Clinical symptoms included mucopurulent expectorations with exertional dyspnea in two patients and hemoptysis in the other two. Chest CT scans revealed BD in all patients, in the left basal area in one patient (moniliform type) and in both basal areas in the other three (cystic type) (*Figure 1*). EFR showed an obstructive syndrome in all patients. The infectious work-up, in particular the BK test, was negative.

The patient with UC was treated with inhaled corticosteroids, bronchodilators, antihistamines, mucolytics and respiratory physiotherapy, while the other three patients required oral corticosteroids. Improvement was noted in all our patients, with a clear reduction in bronchorrhea and exertional dyspnea, and disappearance of hemoptysis. Plethysmographic control improved markedly in all four patients, with : FEV1 at 99%, FEV1/CV at 109%, DEM25 at 76%, DEM50 at 105%, DEM75 at 77%, RVA at 73% and RV at 178% (Figure 2).

Discussion

Bronchopulmonary involvement during inflammatory colitis was first described by Kraft et al. in 1976 [6]. They reported six patients with IBD who presented with abundant, unexplained bronchial secretions, with or without bronchiectasis. Since then, a number of small case series have described a broad spectrum of respiratory involvement, including large airway stenosis, bronchiolitis obliterans with organized pneumonia and alveolitis [6-7]. It has been suggested that pulmonary function may be subclinically impaired in 40-60% of IBD patients. BD is one of the most frequent pulmonary manifestations of IBD, with an estimated frequency of 22.6% [5]. In our patients, the frequency is estimated at 2.9%.

Airway involvement usually develops months to years after the initial presentation of inflammatory bowel disease, and often occurs when gastrointestinal disease is quiescent [8]. Involvement is more frequent in large airways than in small ones [4]. It is generally more common in patients with ulcerative colitis than Crohn's disease, and is predominantly female [4].

The mechanism of bronchial dilatation in IBD is poorly understood. At present, the embryological hypothesis is accepted,which explains respiratory involvement by the common origin of the bronchial tree and the intestine,

and notes the endoscopic and histological analogy between colonic and bronchial lesions. However, the deposition of circulating immune complexes and complement should also be considered as the cause of all the extra-intestinal manifestations of inflammatory colitis [9]. Indeed, inflammatory bowel disease has been recognized as an association (albeit a rare one) with bronchiectasis. Could the associations of intestinal and pulmonary disease be related to a common immunity between the two systems, to the fact that the epithelial lining of both organs is exposed to common antigens in the environment, or to the fact that epithelial antigens show similarities in both sites? [10].

Clinically, the most frequent symptom is chronic bronchorrhea with an insidious onset [11], sometimes accompanied by stridor, dyspnea, fever or chest pain.

The causal relationship between bronchiectasis and IBD is always difficult to prove; in favour of this relationship, we should mention: the late onset of bronchiectasis in adulthood, its appearance after the discovery of ulcerative colitis and, above all, after colectomy, the absence of a history of smoking or respiratory infections, and the evolution of the two conditions in parallel flare-ups. Bronchial fibroscopy usually shows an inflammatory aspect of the mucosa, sometimes associated with bronchial stenoses secondary to edema and inflammation [12]. Bronchial biopsies reveal histological lesions reminiscent of intestinal lesions, with a very dense cellular infiltrate of the bronchial chorion (lymphocytes, plasma cells) [1-13]. One of the cardinal features of the disease on CT is thickening of the bronchial wall, which can occur in other pathologies where edema of the airway wall is observed [10].

Respiratory involvement generally tends to follow the onset of IBD, but in some cases may precede intestinal disease by several years [14]. It may also appear in the aftermath of colectomy, classic in UC, has also been described in a case of Crohn's disease. When bronchiectasis is present in the context of IBD, it appears to be more severe and progresses more rapidly than other forms of the disease. IBD-associated lung disease often shows a significant response to corticosteroids, suggesting that an inflammatory process may underlie the pathogenesis [14]. High-dose inhaled corticosteroids are the first-line treatment; if this fails, oral corticosteroids at a dose of 1-2 mg/ kg/d prednisone are recommended. Cases of bronchial lavage with a corticosteroid solution with a good response have been reported [11]. In our patients, the evolution of inhaled corticosteroids was favorable, as evidenced by the marked reduction in bronchorrhea and exertional dyspnea.

In the absence or ineffectiveness of treatment, irreversible and disabling bronchial dilatation may occur. To date, immunosuppressive drugs have not been shown to be effective in these forms [15].

The use of biotherapy based on anti-TNF alpha drugs such as infliximab, adalimumab and certolizumab has represented a significant advance in the treatment of IBD in recent years [16-17]. However, serious side effects occur, requiring careful monitoring of treatment [18], such as pulmonary infections [19].

Conclusion

The pulmonary manifestations of IBD are increasingly recognized. Involvement of the respiratory system in IBD can range from the trachea to the bronchioles [19].

Early identification of latent pulmonary involvement is important to prevent future, more severe respiratory impairment.

Pulmonary manifestations vary and often present a confusing diagnostic problem. It is imperative to look for them in the presence of any respiratory symptomatology in IBD, in order to institute appropriate treatment at an early stage and avoid further complications and morbidity in IBD patients. Steroids are effective in the majority of cases.

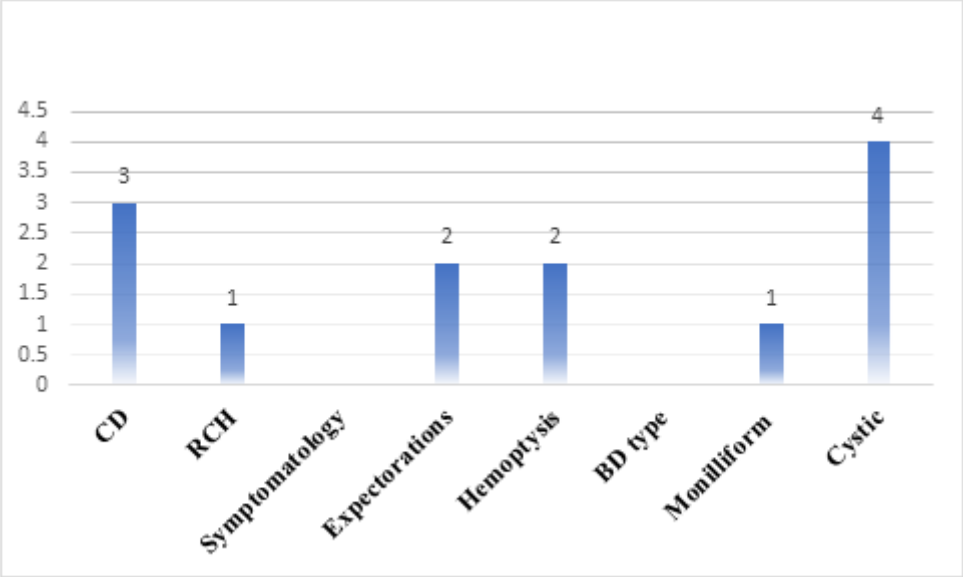

Figure 1.Distribution of patients according to disease type, symptomatology and type of BD

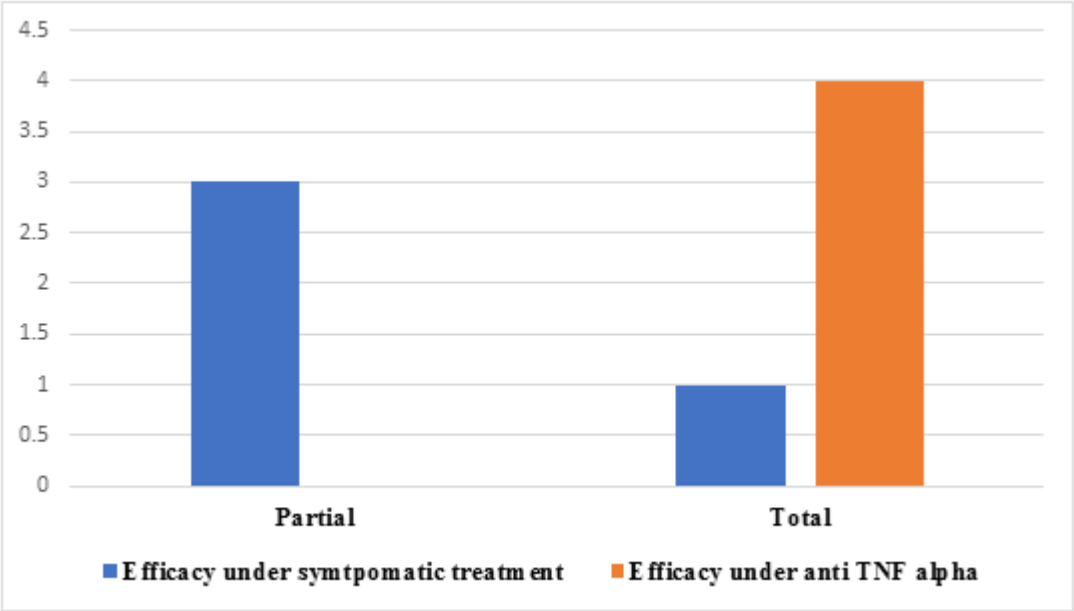

Figure 2. Clinical and plethysmographic evolution under symptomatic treatment and anti TNF alpha

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