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Case report

Post-infective bronchiectasis by measles prior infection – A case report

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ABSTRACT

Bronchiectasis (BE) refers to an abnormal and irreversible dilatation of the bronchi. Post-infectious etiology still remains an important and frequent cause. Associated the anti-vaccine movement, measles resurfaces and with all the outcomes that comes from the disease. The present case illustrates one of the possible complication of measles - BE, underlining the importance of vaccination.

1. Introduction

The term BE is used to describe an irreversible pathological dilatation of the bronchi [1]. Cystic fibrosis (CF) is the most common hereditary cause, but there are other causes such as post-infectious etiology (e.g. post-pneumonia, *B. pertussis* infection, *Mycobacterium* infection …), connective tissue diseases, allergic bronchopulmonary aspergillosis, immunodeficiencies, autoimmune diseases, primary ciliary dyskinesia or aspiration of foreign bodies. In 26–53% of cases BE are idiopathic. If the etiology is not CF, they are called non-cystic fibrosis BE (NCFB) [1,2]. Measles is indicated as a cause of NCFB as it induces transitory immunosuppression with secondary bacterial infection, it is believed to predispose to subsequent infections up to 3 years after primo-infection [3]. With vaccination and appropriate treatment of respiratory infections, post-infectious NCFB decreased their prevalence [4,5]. However, with anti-vaccine movements, diseases such as measles aren't just a disease developing countries [3,6]. The following case demonstrates one of the possible outcomes that may increase with this new reality.

2. Case report

A 30-year-old male was observed at the emergency room (ER) in 2017 for an exacerbation of allergic asthma, in this episode it was performed a chest X-ray (Fig. 1) showing changes compatible with BE. Given severe hypoxemia, difficult to treat, it was done a computed tomography (Fig. 2) that demonstrated saccular BE, mostly located in the middle lobe.

At ER discharge, it was provided access to a pneumology consultation, where he describes repetitive infections in childhood with multiple hospitalizations. His usual medication was budesonide 360 μg + formoterol 9 μg 2id. He was allergic to clonixin. He was a smoker 16 UMA, no expositional risks.

The etiological investigation was carried out by consulting the paediatric patient's file: hospital admission from 16/02/1989 to 8/03/1989 at 13 months age (he hadn't previously received measles vaccine for an earlier laryngotracheobronchitis) diagnosis of post-measles pneumonia was made, with serological confirmation. In the same year he had 3 other hospitalizations for pneumonia. They performed an etiologic study at this point: negative sweat test and IgG with levels within normal ranges. Until 1995, there was at least one hospitalization per year due to pneumonia and/or exacerbation of allergic asthma. From 1995 to the present episode, he was clinically stable.

New etiological study was performed: sweat test, analytical control with Ig and subclasses IgG, protein electrophoresis, autoimmune study and serological tests of HIV HBV and HCV where normal. Functional respiratory study showed irreversible obstruction (Figs. 3 and 4).

At this moment he as at least one hospitalization per year and he already done antibiotic therapy *Nocardia* infection (isolated only once at 11/2017) and *P. aeruginosa* (first isolation to 06/2018).

Taking into account repetitive infections he was proposed for thoracic surgery, awaiting stabilization to be able to perform surgery.

3. Discussion

The most frequent etiology of NCFB is post-infectious, with a prevalence of 10–32% this variability range is due to the higher prevalence in developing countries. Diseases such as pulmonary tuberculosis, measles and whooping cough are strongly associated with this pathology [7]. Measles is one of the most contagious infectious diseases in the world and is one of the leading preventable causes of death among children. Low vaccine coverage in developing regions associated with high population mobility and the reduction of group immunity facilitates the spread of the disease and increases the possibility of outbreaks

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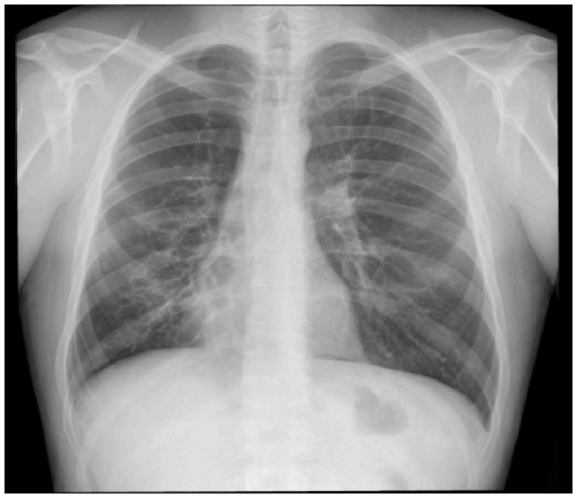

Fig. 1. Chest X-ray.

[3,8]. The scientific community believes in the eradication of measles, but in order to do so, vaccination must be carried out as it is safe and effective method [3]. However outbreaks as the one that happened in 2014 in the USA in two Disney theme parks are rising. According to Centers for Disease Control, 125 cases were related to this outbreak, 110 where California resident's 45% weren't vaccinated and 43% didn't know if they were vaccinated [9]. It is important to emphasize the possibility of increased complication associated with this infectious disease, this case report demonstrate a possible future in increasing number of this type of BE due to measles outbreaks associated whit loss of group immunity.

A disclosure/conflict of interest statement

None of the authors of this paper has a financial or personal relationship with other people or organizations that could inappropriately influence or bias the content of the paper.

It is to specifically state that “No Competing interests are at stake and there is No Conflict of Interest” with other people or organizations that could inappropriately influence or bias the content of the paper.

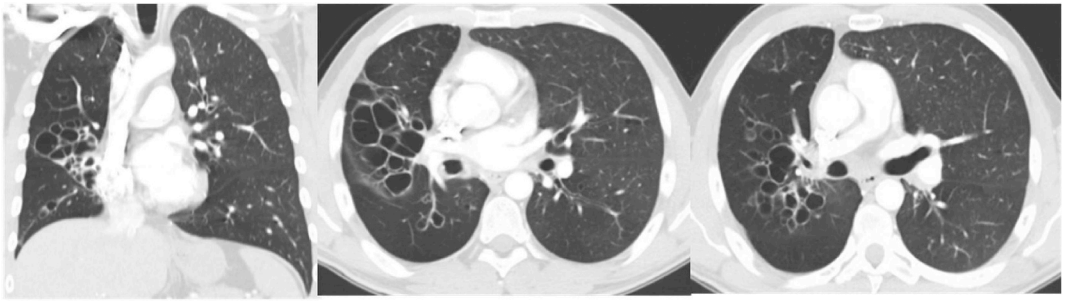

Fig. 2. Computed tomography.

		Ref	Pré	Pré%Ref	Pós	Pós%Ref	D%(Pós/Pré)	LLN
FVC	L	4.75	3.59	75.5	3.44	72.4	-4.1	3.83
FEV 1	L	3.96	2.04	51.7	2.08	52.7	1.9	3.16
FEV1% VC MAX	%	83.55	57.00	68.2	60.60	72.5	6.3	72.50
FEV1% FVC	%	83.55	57.00	68.2	60.60	72.5	6.3	72.50
MEF 75	L/s	7.83	2.64	33.7	3.11	39.7	18.0	5.02
MEF 50	L/s	4.15	1.03	24.9	1.22	29.4	18.1	2.58
MEF 25	L/s	1.70	0.28	16.8	0.38	22.3	33.0	0.89
MMEF 75/25	L/s	4.15	0.79	18.9	1.00	24.1	27.6	2.58
PEF	L/s	9.18	6.25	68.1	6.06	66.0	-3.0	7.18
FVC IN	L	4.76	3.34	70.2	3.22	67.7	-3.5	3.84
VC IN	L	4.76	3.34	70.2	3.22	67.7	-3.5	3.84
VC EX	L	4.76	3.59	75.4	3.44	72.3	-4.1	3.84
VC MAX	L	4.75	3.59	75.5	3.44	72.4	-4.1	3.83
FIV1	L		3.01		2.82		-6.2	
FIV 1 % FVC	%		90.06		87.50		-2.8	
Erro ATS ERS 05			500		500		0.0	

Fig. 3. Functional respiratory study.

		Ref	Pré	Pré%Ref	LLN
VC_max	L	4.75	3.56	74.8	3.83
TLC	L	6.34	5.33	84.0	5.19
RV	L	1.63	1.77	108.5	0.96
RV%TLC	%	25.66	33.22	129.5	16.68
FRC-He	L	3.11	3.07	98.7	2.12
ERV	L	1.48	1.30	87.9	1.48
CI	L	3.28	2.26	68.8	3.28

Fig. 4. Functional respiratory study.

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