

A Unusual and Very Rare Case of Patient with Overlap Syndrome and Left Chilaiditi's Syndrome

Marco Umberto Scaramozzino^{1*}, Ubaldo Romeo Plastina², Veronica Nassisi³, Giovanni Sapone⁴

¹Director Ambulatory of Pulmonology “La Madonnina” Reggio Calabria (RC), Head of thoracic endoscopy Villa Aurora Hospital Reggio Calabria (RC), Italy

²Radiologist in ECORAD radiology and ultrasound study, Reggio Calabria (RC), Italy

³Department of clinical and Experimental Medicine, University of Messina, Italy

⁴Department of Cardiology, Italy

Citation: Marco Umberto Scaramozzino, Ubaldo Romeo Plastina, Veronica Nassisi, Giovanni Sapone. A Unusual and Very Rare Case of Patient with Overlap Syndrome And Left Chilaiditi's Syndrome. *Int Jour Gastro Hepat.* 2023;2(1):1-6. DOI: <https://doi.org/10.5281/zenodo.8276715>

Received Date: 20 Aug, 2023; **Accepted Date:** 23 Aug, 2023; **Published Date:** 23 Aug, 2023

***Corresponding author:** Marco Umberto Scaramozzino, Director Ambulatory of Pulmonology “La Madonnina” Reggio Calabria (RC), Head of thoracic endoscopy Villa Aurora Hospital Reggio Calabria (RC), Italy

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ABSTRACT

The following case report aims to highlight the rarity of the case in question, in which there is left Chilaiditi syndrome in a patient with overlap syndrome (asthma and COPD). The patient is a 64-year-old man who arrived in August 2023 at my facility for episodes of recurrent dyspnea, chest heaviness, wheezing, eructation, dysphagia, epigastric abdominal pain associated with frequent episodes of bronchitis (two in the past year). He performed global spirometry with bronchoreversibility test which showed mixed moderate ventilatory deficit with reduction of small airway volumes, reduced peak expiratory flow and positive response at broncho-reversibility tests for asthma. He also performed six-minute walking test, with documented mild latent respiratory failure on exertion. At 1 month, the patient returned to my attention with a CT-scan that showing marked elevation of the left hemidiaphragm with interposition of left colic angle on spleen and phenomena of compressive atelectasis at the inferior left lobe. He repeated the spirometry which resulted in a clear improvement compared to the previous control with an important variation of the peak respiratory flow during ICS/LABA, this confirms the evidence of overlap syndrome (asthma and COPD). The radiological picture was identified by me, and radiologist as Left sided Chilaiditi Syndrome, as the patient had gastrointestinal symptoms which accompanied the procession of respiratory symptoms.

Keywords: Chilaiditi syndrome; Overlap syndrome (ACO); Asthma; COPD; Case report; Left side

INTRODUCTION

Chilaiditi's syndrome was first described in 1910 by a radiologist of Greek origin. It is a pathology that has an incidence in the world that varies from 0.025 to 0.28% [1], with a prevalence in males (4:1) [2]. In the clinical case reported, we report the symptomatology of a patient who came to our attention at the 'La Madonnina' clinic

in Reggio Calabria, with respiratory symptoms characterised by a poorly productive cough, a sense of weight in the chest, dyspnoea, associated with epigastric abdominal pain, belching, dysphagia. The diagnosis of Chilaiditi's syndrome was made radiologically; the peculiarity of this case is represented by the localisation on the left and the co-presence of overlap syndrome (asthma plus COPD) diagnosed at the bronchoreversibility test carried out at the first visit.

CASE PRESENTATION

The clinical case described is about a 64-year-old Caucasian man, who came to our attention in August 2023 for reported episodes of dyspnea, chest heaviness, breathlessness, belching, epigastric abdominal pain, frequent episodes of bronchitis. Medical history: smoker of 20 cigarettes/day, non-drug allergy, former carpenter, occupational exposure to brick dust, cement. Previous resection of bladder polyp with histologic examination documenting presence of papillary urothelial carcinoma infiltrating the lamina propria of mucosal tonaca, syncopal episodes in 2019, hypercholesterolemia, carotid atheromasia, previous appendectomy, mild mitral and tricuspid insufficiency. At the first visit we performed the ACT score (asthma control test) which was twelve (ACT >20 is a normal score with good control of symptoms), global spirometry with bronchus-reversibility test documenting a moderate-grade mixed deficit with positive response after administration of 400mcg salbutamol; and the six-minute walk test, the latter documenting mild latent respiratory failure deserving of low-flow oxygen therapy. (See Table 1). On physical examination, the patient had a diffuse obstructive finding during forced exhalation and velcro crepitations prevalent at the bases. Vital parameters were all normal, with SpO₂ of 96% in room air. I then set up triple therapy because of the severity of obstructive pathology documented on spirometry. Subsequently, the patient returned to repeat clinical control and spirometry after one month: the ACT score improves from twelve to twenty and the spirometry documented a marked increase in lung volumes with the presence on chest CT brought to me in vision of areas of right apical panlobular emphysema, elevation of left diaphragm, colic loops interposition at the splenic flexure with basal atelectatic phenomena, and the presence of seven millimeters(7mm) intraparenchymal lymph node at the lateral segment of the middle lobe. (Table 1 and Figure 1: Panels A-L); those features made me formulate the diagnosis of left Chilaiditi syndrome with overlap syndrome (ACO: asthma and COPD). We treated the patient with ICS/LABA plus LAMA, low-flow oxygen therapy, proton pump inhibitors, new generation alginate and we await the patient for the new re-evaluation at three months to monitor his over time.

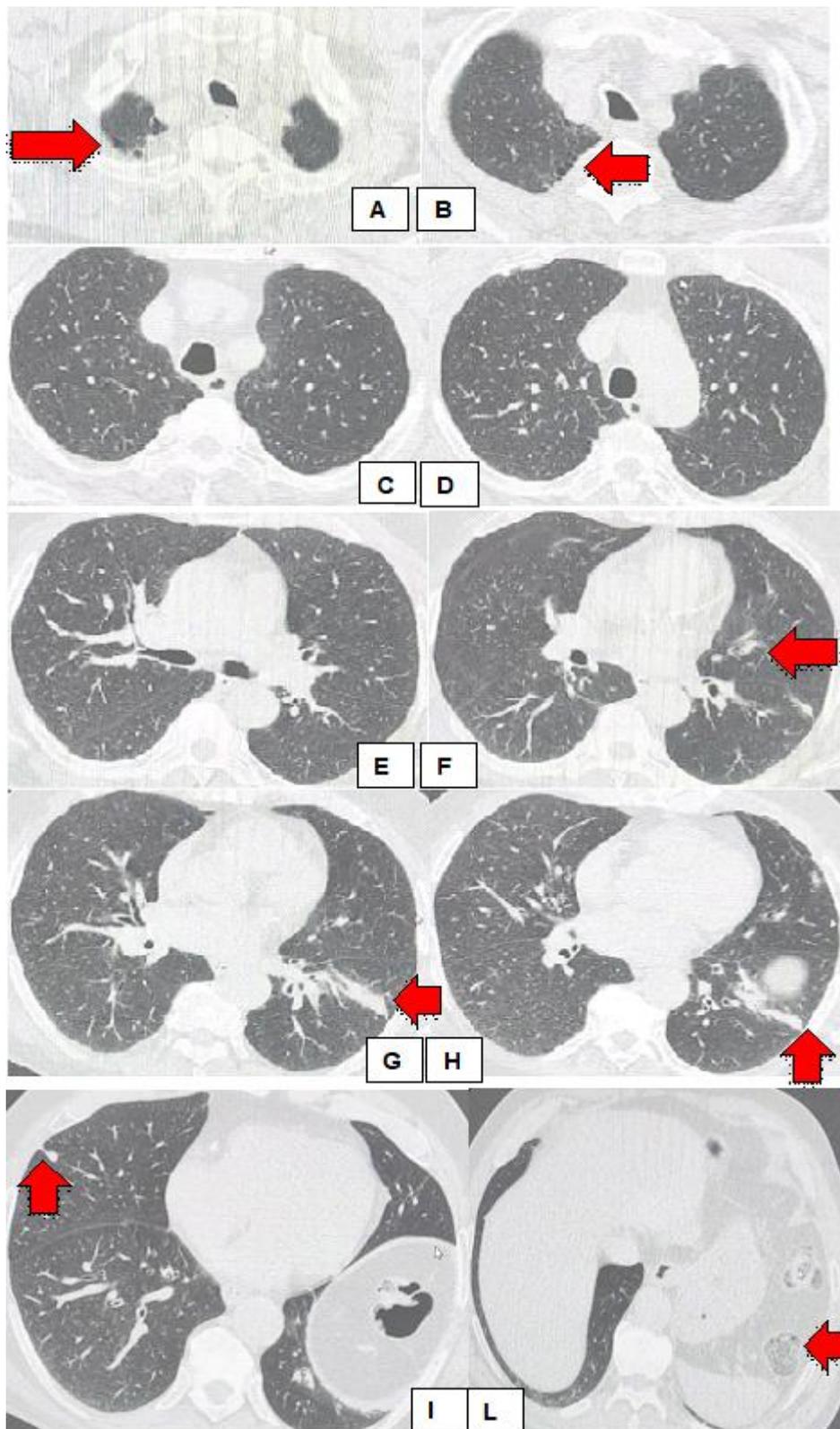


Figure 1 (Panels from A to L): Chest CT-scan in axial sections, shows areas of right apical panlobular emphysema, elevation of left diaphragm, colic loops interposition at the splenic flexure with basal atelectatic phenomena, and the presence of 7mm intraparenchymal lymph node at the lateral segment of the middle lobe as you can see with red arrows.

Table 1: Global spirometry at the baseline with broncho reversibility test and at one month after treatment with ICS/LABA plus LAMA. Noted the Variability all parameters.

Global Spirometry parameters	Results at baseline	Results after Salbutamol 400mcg	Results one month post ICS/LABA + LAMA therapies
FVC%	40%	52% (+29%)	58%
FEV1%	34%	45% (+35%)	49%
FEV1/FVC%	83%	87% (+69%)	85%
FEF _{25-75%}	19%	31% (+27%)	30%
PEF%	63%	64% (+2%)	69%
FET (sec)	7 sec.	7,14 sec.	8 sec.
FEF _{25%}	34%	38% (+11%)	60%
FEF _{50%}	14%	23% (+60%)	20%
FEF _{75%}	35%	38% (+8%)	36%
RV%	136%	/	100%
TLC%	71%	/	74%
RV/TLC%	196%	/	180%

Legends:

FEV1%: Percentage of predicted value of FEV1

FVC%: Percentage of predicted value of FVC

FEV1: Maximum Expiratory Volume at first second

FEV1/FVC%: Index of Tiffeneau

FVC: Forced vital capacity.

PEF: Peak of expiratory flow

FEF25-75%: Forced expiratory flow between 25 and 75% of FVC.

FET: Forced expiratory time.

RV%: residual volume in percentage of predicted value.

TLC%: total lung capacity in percentage of predicted value.

ICS: inhaled corticosteroid

LABA: long acting beta2 agonist

LAMA: long acting muscarinic antagonist

DISCUSSION

The reported clinical case is a very rare case in the literature, which in recent years has seen an increase in the incidence of these diagnoses in obese patients. The sign of Chilaiditi is an incidental finding that can be seen on the chest radiograph and is associated with abdominal or thoracic symptoms [3]. Treatment of the pathology is usually non-surgical with bed rest, fluid supplementation, nasogastric decompression, diet rich in fiber [4]. As reported on a review of the literature, usually variations of the normal anatomy of the diaphragm can lead to the pathological interposition of the colon. These anatomical variations may include the absence, laxity or lengthening of the suspensory ligaments of the transverse colon or the falciform ligament such as dolichocolon or congenital malpositions [5]. In a study conducted by American surgeons, it is underlined that there is an important distinction between the Chilaiditi sign, which is found in asymptomatic patients, and the Chilaiditi syndrome, which produces symptoms associated with intestinal interposition [6]. It can often be described in

adults but sometimes also in children as indicated in a case report of a 4-year-old Nepalese girl [7]. In the most serious cases, associated with anomalies of the autonomic nervous system, intestinal decompression can be performed with gradual resolution of the symptoms [8]. Conservative treatment in pediatric age is always preferable as indicated by a case report in the literature [9]. There is a single rare case in the literature of left Chilaiditi's syndrome in a man with suspected intestinal perforation [10]. Our clinic has already reported in the literature cases of left chylaidites syndrome associated with bronchial asthma, which are characterized by an increased incidence of asthma exacerbations during the year; closely correlating asthma control test (ACT score) and reduction of lung volumes associated with increased bronchitic exacerbations. [11]. Also, our group of studies, carried out a clinical study called GERDAS in which gastro-esophageal reflux symptoms were correlated to obstructive respiratory diseases, evaluating how the ACT score, FEV1% and FVC% are closely related in terms of specificity and sensitivity through statistical analysis with ROC curves [12]. The reported clinical case is unique because there are no cases reported in the literature of the association between overlap syndrome (ACO: asthma and COPD) and left Chilaiditi syndrome.

CONCLUSION

The importance of knowing the left Chilaiditi's syndrome radiologically through images of the interposition of intestinal loops inside the thoracic cavity is fundamental in the diagnosis, furthermore in the reported clinical case, the respiratory symptoms were aggravated and accentuated by this underlying situation. To date, there is little evidence in the literature regarding this topic and there is poor evidence and clinical cases in the literature of left localization of the disease. Further clinical studies are needed regarding this association with respiratory diseases.

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