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A rare case of asthmatic patient with left Chilaiditi's syndrome

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Abstract

The purpose of this clinical case is to underline the rarity of the case in question, in which the diagnosis of left Chilaiditis syndrome was made in a woman with bronchial asthma. The Caucasian woman in question is 79 years old and was seen in our clinic in January 2023 for episodes of recurrent dyspnea, chest heaviness, wheezing, belching, dysphagia and epigastric abdominal pain associated with recurrent episodes of bronchitis. We used simple spirometry, which revealed a picture of moderate mixed ventilatory deficit with a decrease in small airway volume, a reduction in peak expiratory flow, and a negative bronchoreversibility test. At 3 months, the patient recurred with a chest X-ray showing marked elevation of the left hemidiaphragm, with rightward deviation of the cardiac shadow. We repeated spirometry, which showed marked improvement compared to the previous control, with a significant change in peak expiratory flow during inhalation of corticosteroids/long-acting and β2-agonists, indicating the presence of an underlying condition of bronchial asthma. The radiological picture was identified as left Chilaiditis syndrome as the patient presented gastrointestinal symptoms in addition to the respiratory symptoms associated with radiological evidence of the ascent of the viscera in the chest on the left. Therapy with proton pump inhibitors was established with new-generation alginates with the presence of hyaluronic acid and also melatonin with important effects on the gastroesophageal system reflux disease secondary to this herniation of the viscera in the thoracic cavity. The rarity is represented by the left localization of the diaphragmatic hernia pathology.

Introduction

Chilaiditi 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 this clinical case, we report the symptoms of a patient who came to our attention at the Outpatient Clinic of Pulmonology "La Madonnina", Reggio Calabria (Italy), with asthmatic respiratory symptoms associated with epigastric abdominal pain, belching, dysphagia. The diagnosis of Chilaiditi syndrome was made radiologically, the particularity of this case is represented by the left localization.

Case Report

A 79-year-old Caucasian woman came to our attention in January 2023 for reported episodes of dyspnea, chest heaviness,

wheezing, eructation, dysphagia, epigastric abdominal pain, and frequent episodes of bronchitis. Her history is as follows: non-smoker, allergic to tramadol and acetylsalicylic acid, hypothyroidism on levothyroxine therapy, arrhythmic heart disease on new oral anticoagulant therapy, folate deficiency, systemic arterial hypertension, hypercholesterolemia, hyperuricemia, obesity. At the first visit, we performed the asthma control test, which was equal to 10. Simple spirometry with a broncho-reversibility test was also performed (Table 1). On physical examination, the patient presented with a diffuse obstructive finding with bilateral expiratory wheeze and wheeze. The vital parameters were all normal, except for the oxygen saturation (SpO2) equal to 90% in ambient air. Therefore, an aerosol therapy was set up for the first 15 days with beclomethasone and ipatropium bromide performed three and twice a day, respectively, broad-spectrum antibiotic therapy with azithromycin for 6 days, oral corticosteroid for 8 days, gastric protector, then inhaled corticosteroid/long-acting β-agonist (ICS/LABA) twice beyond until the following check-up after 3 months. Following that, the patient repeated the control spirometry (Table 1), which revealed a significant improvement in peak expiratory flow and small airway volume, indicating the presence of an asthmatic component. The patient also had a chest X-ray, which revealed a marked elevation of the left diaphragm with the interposition of some thickened intestinal loops (Figure 1), which led to the diagnosis of left Chilaiditi syndrome. We treated the patient with ICS/LABA, proton pump inhibitors, and new generation alginate and, after 3 months, the results of the spirometry and the patient's clinical conditions were improved with an increase in peripheral SpO2 (=97%) in room air and clinical improvement of the previously reported symptoms. We await the patient for the new re-evaluation at 6 months to monitor her over time.

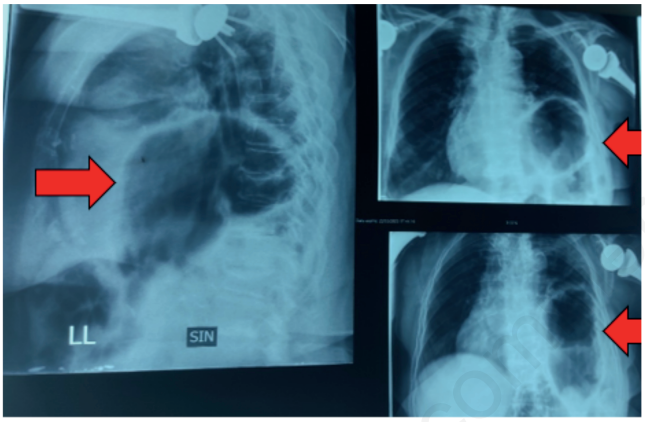

Figure 1. Chest X-ray in postero-anterior and lateral projections shows the interposition of the colon on the left side of the chest with the shift of the cardiac shadow to the right and a thickening of the colon in the lower scans (red arrows).

Discussion

The reported clinical case is very rare 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, and a diet rich in fiber [4]. As reported in 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 dolic colon 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 syndrome in a man with suspected intestinal perforation [10]. The reported clinical case is unique in that there are no cases reported in the literature of the association between asthmatic pathology and Chilaiditi syndrome.

Table 1. Simple spirometry at the baseline with broncho reversibility test and at 3 months after treatment with inhaled corticosteroid/long-acting β-agonist two inhalations twice a day. Noted the variability of peak of expiratory flow: +12% at 3 months.

Spirometry parameters	Results baseline	Results after salbutamol 400 mcg	Results 3 months
FVC%	44	43 (-1)	50 (+6)
FEV1%	45	44 (-1)	50 (+5)
FEV1/FVC%	97	102 (+5)	100 (-2)
$FEF_{25-75\%}$	39	49 (+27)	50 (+28)
PEF%	68	70 (+2)	80 (+10)
FET (sec)	7.33 sec.	7.14 sec.	7.70 sec.
$FEF_{25\%}$	47	63 (+34)	81 (+18)
$FEF_{50\%}$	22	32 (+47)	39 (+7)
$FEF_{75\%}$	63	77 (+22)	58 (-19)

FEV1, maximum expiratory volume at first second; FVC, forced vital capacity; FEV1%, percentage of predicted value of FEV1; FVC%, percentage of predicted value of FVC; FEV1/FVC%, Index of Tiffeneau; PEF, peak of expiratory flow; $FEF_{25-75\%}$, forced expiratory flow between 25 and 75% of FVC; FET, forced expiratory time.

Conclusions

The importance of knowing the Chilaiditi 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 asthmatic symptoms were aggravated and accentuated by this underlying situation. To date, there is little evidence in the literature regarding this topic, and there is only one clinical case in the literature of left localization of the disease. Further clinical studies are needed regarding this association between the two entities.

References

1. Shinha T. Chilaiditi syndrome. Intern Med 2017;56:1125-6.
2. Ali F, Srinivas S, Akbar Khan HM, Reddy D. Chilaiditi syndrome: a rare case of chest pain due to colonic interposition. Cureus 2020;12:e9288.
3. Hountis P, Chounti M. Chilaiditi sign or syndrome? Diagnostic question in two patients with concurrent cardiovascular diseases. Monaldi Arch Chest Dis 2017;87:775.
4. Karaman O, Kahyaoglu M, Alpay E, et al. Chilaiditi syndrome. Korean J Intern Med 2018;33:1255.
5. Moaven O, Hodin RA. Chilaiditi syndrome: a rare entity with important differential diagnoses. Gastroenterol Hepatol (N Y) 2012;8:276-8.
6. Saber AA, Boros MJ. Chilaiditi's syndrome: what should every surgeon know? Am Surg 2005;71:261-3.
7. Mishra A, Shrestha AL. Chilaiditi syndrome in a Nepalese girl - a potential mislead! Int J Surg Case Rep 2022;91:106808.
8. Sotiropoulos C, Sakka E, Diamantopoulou G, et al. Chilaiditi syndrome with a large colonic loop in a patient with autonomic nervous system dysfunction. Cureus 2021;13:e15877.
9. Evrengül H, Yüksel S, Orpak S, et al. Chilaiditi syndrome. J Pediatr 2016;173:260.
10. Rodríguez-Martínez JA. Síndrome de Chilaiditi izquierdo, un caso raro. Imagen Diagnóstica 2017;8:58-9.