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Case Report / Olgu sunumu

Chilaiditi Syndrome in a Pediatric Patient: An Undiagnosed Case in Recurrent Respiratory Symptoms

Pediatrik Bir Hastada Chilaiditi Sendromu: Tekrarlayan Solunum Semptomlarında Tanı Konulamayan Bir Olgu

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Abstract

Chilaiditi Syndrome is a rare anatomical condition characterized by the interposition of the bowel between the liver and diaphragm, often presenting with non-specific respiratory and gastrointestinal symptoms. This report aims to highlight the diagnostic challenges of Chilaiditi Syndrome in pediatric patients and emphasize the importance of radiographic evaluation in cases of recurrent, unexplained symptoms. We present a 5-year-old male patient with recurrent respiratory and abdominal symptoms who had been treated for extended periods with diagnoses of asthma, allergic rhinitis, and pneumonia. Despite receiving bronchodilators, corticosteroids, antihistamines, and antibiotics, the patient's symptoms persisted. Comprehensive imaging studies, including chest and abdominal radiographs and ultrasonography, were performed to identify potential anatomical abnormalities. Although rare, Chilaiditi syndrome should be considered in the differential diagnosis of children presenting with recurrent and unexplained respiratory or abdominal symptoms. Radiological assessment plays a critical role in achieving accurate diagnosis and preventing unnecessary treatments. This case underscores the importance of raising clinical awareness and not overlooking rare anatomical conditions in the pediatric population.

Keywords: Chilaiditi syndrome, Aerophagia, Asthma, Recurrent respiratory symptoms, Pneumonia

Öz

Chilaiditi Sendromu, bağırsakların karaciğer ile diyafram arasında yer değiştirmesiyle karakterize edilen nadir bir anatomik durumdur ve sıklıkla özgül olmayan solunum ve gastrointestinal semptomlarla kendini gösterir. Bu olgu, pediatrik hastalarda Chilaiditi Sendromu'nun tanısal zorluklarını vurgulamayı ve tekrarlayan, açıklanamayan semptomlarda radyolojik değerlendirmenin önemini ortaya koymayı amaçlamaktadır. Olgu: Bu yazıda, tekrarlayan solunum ve karın semptomları nedeniyle astım, alerjik rinit ve pnömoni tanıları alarak üzün süre tedavi almış 5 yaşındaki erkek bir hasta sunulmuştur. Bronkodilatör, kortikosteroid, antihistaminik ve antibiyotik tedavileri alan hastanın bu tedavilere rağmen semptomları devam etmiştir. Potansiyel anatomik anormallikleri belirlemek amacıyla göğüs ve karın röntgenleri ile ultrason dahil detaylı görüntüleme çalışmaları yapılmıştır. Tartışma/Sonuç: Chilaiditi Sendromu nadir görülse de, tekrarlayan ve açıklanamayan solunum veya abdominal semptomları olan çocuklarda mutlaka ayırıcı tanıda düşünülmelidir. Radyolojik değerlendirme tanıya ulaşmada kritik öneme sahiptir ve gereksiz tedavilerin önlenmesine yardımcı olur. Bu vaka, pediatrik hastalarda klinik farkındalığın artırılmasının ve nadir anatomik durumların göz ardı edilmemesinin önemini ortaya koymaktadır.

Anahtar Kelimeler: Chilaiditi sendromu, aerofaji, astım, tekrarlayan respiratuvar semptomlar, pnömoni

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INTRODUCTION

Recurrent respiratory and asthma-like symptoms in children are commonly attributed to infectious, viral, or allergic etiologies, often leading to corresponding treatments.[1] However, underlying anatomical anomalies, such as Chilaiditi Syndrome, may contribute to respiratory and gastrointestinal symptoms.

Chilaiditi Syndrome, a rare condition involving interposition of the bowel, typically the transverse colon, between the liver and diaphragm, has an estimated global morbidity rate of 0.025% - 0.28%.[2] First described by Demetrius Chilaiditi in 1910, this condition is often under-recognized.[3] Lack of awareness often leads to misdiagnosis and delayed care. Early radiographic evaluation in such cases can reduce the misuse of antibiotics and corticosteroids, minimizing unnecessary treatments. We present a case of a pediatric patient whose recurrent respiratory complaints were ultimately attributed to Chilaiditi Syndrome, emphasizing the importance of imaging in the diagnostic process and the need to maintain a broad differential diagnosis for recurrent respiratory symptoms.

CASE REPORT

A 5-year-old male presented with recurrent episodes of nasal congestion, wheezing, non-productive cough, and intermittently abdominal discomfort that persisted for several months. The initial onset of symptoms began around the age of 3, occurring intermittently. However, approximately 7 months prior to presentation, his symptoms significantly worsened, with increased abdominal distension, persistent wheezing, and shortness of breath, particularly during exertion. He was previously diagnosed with allergic rhinitis and asthma and treated with salbutamol, deflazacort, and montelukast. Skin prick tests for allergy were negative.

He was born via cesarean with a birth weight of 3300 gram. breastfeded until 18 months, with no comorbidities or family consanguinity.

Upon presentation, the patient had temperature of 36°C, and his pulse oxygen saturation, measured by pulse oximetry, was 98%. He had nasal congestion and respiratory symptoms. Physical examination revealed mild expiratory wheezing and normal breath sounds without rales or crackles. The respiratory rate was within normal limits. Abdominal examination showed slight distension in the right side of the abdomen, with vague and intermittent discomfort on deep palpation in the right upper quadrant. Bowel sounds were normal, and there was no guarding, rebound, or organomegaly. Blood tests showed no abnormality.

A respiratory function test was performed in our clinic and found to be normal (**Figure 1**). A chest X-ray and direct abdominal X-ray (**Figure 2**) previously performed revealed a characteristic finding of Chilaiditi Syndrome: the intestines were displaced to the right side of the abdomen, with visible gas in the right abdominal region between the liver and diaphragm. This condition was observed consistently in repeated previous radiographic images. The initial X-ray showed colonic gas on both the right and left sides, with a particular emphasis on the presence beneath the right diaphragm, which necessitated further evaluation with Doppler and standard ultrasound to rule out congenital bowel malformations and confirm the diagnosis. These were reported as normal by the pediatric radiologist. Based on the patient's clinical presentation and radiographic findings, a diagnosis of Chilaiditi Syndrome was confirmed.

The patient was advised to avoid aerophagia, refrain from consuming liquid meals before bedtime, and discontinue the intake of carbonated beverages. At the three-month follow-up, no additional clinical findings were observed within the gas suggesting that it is within the bowel and not free.

Ethical approval for this case report was obtained from the Yüksek İhtisas University Health Sciences Research Ethics Committee (Decision No: 289, Date: 19.02.2025). This study was conducted in accordance with the ethical standards of the Declaration of Helsinki.

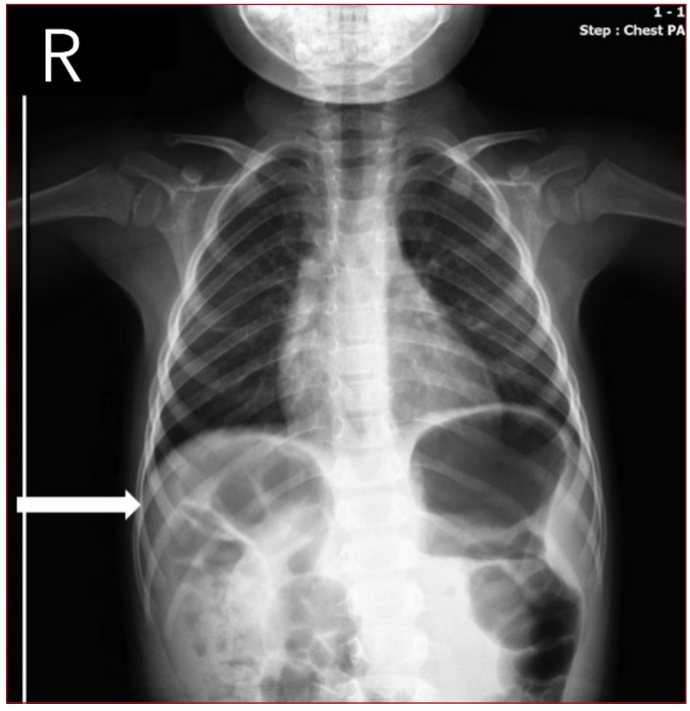
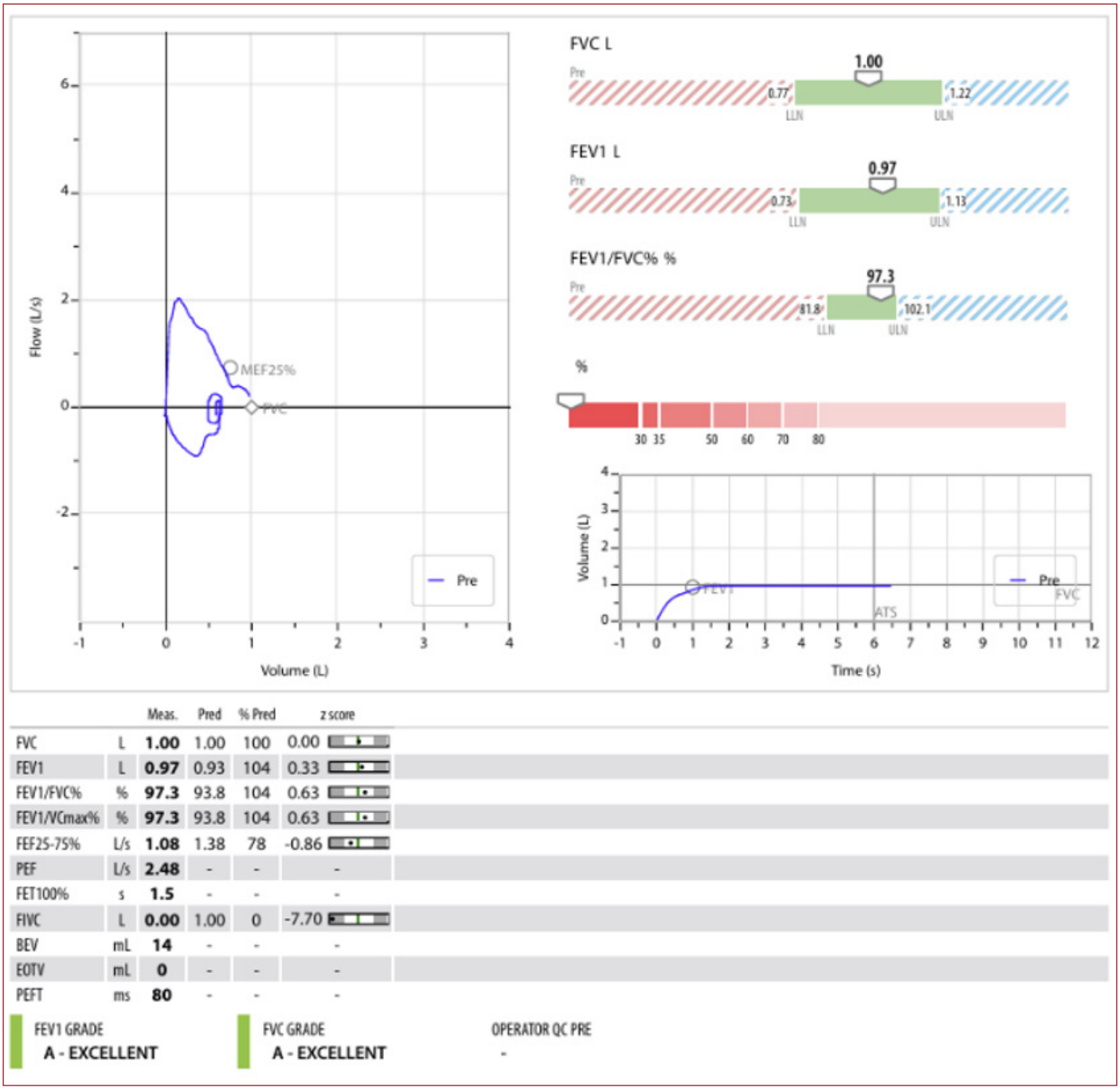


Figure 2. Arrow on X-ray highlights gas between the liver and diaphragm and haustra

DISCUSSION

Chilaiditi Syndrome can be asymptomatic or may be accompanied by a variety of symptoms, including respiratory and gastrointestinal complaints. These symptoms can often be mistaken for more common conditions. The lack of awareness about Chilaiditi Syndrome and the tendency to focus on more prevalent diagnoses frequently lead to misdiagnosis and unnecessary treatments.[4] Chilaiditi Syndrome is not covered in major pediatric texts like the Nelson Textbook, highlighting an awareness gap.



		Meas.	Pred	% Pred	z score
FVC	L	**1.00**	1.00	100	0.00
FEV1	L	**0.97**	0.93	104	0.33
FEV1/FVC%	%	**97.3**	93.8	104	0.63
FEV1/VCmax%	%	**97.3**	93.8	104	0.63
FEF25-75%	L/s	**1.08**	1.38	78	-0.86
PEF	L/s	**2.48**	-	-	-
FET100%	s	**1.5**	-	-	-
FIVC	L	**0.00**	1.00	0	-7.70
BEV	mL	**14**	-	-	-
EOTV	mL	**0**	-	-	-
PEFT	ms	**80**	-	-	-

FEV1 GRADE
A - EXCELLENT

FVC GRADE
A - EXCELLENT

OPERATOR QC PRE
-

Figure 1. Respiratory Function Test showing normal results.

Though its pathophysiology is unknown, Chilaiditi Syndrome may result from congenital or acquired factors. Colonic tension seen in Chilaiditi Syndrome, caused by air aerophagia, is shown as one of the most important causes in children.[5] This can be observed in children sucking empty baby bottles.[6] Infants and young children have smaller airways, which require minimal obstruction to produce respiratory symptoms.[7] In this case, the patient presented with recurrent respiratory symptoms from around age 3, initially diagnosed as allergic rhinitis and asthma. Despite treatment, symptoms worsened over the last 7 months, prompting further investigation. Allergy tests were negative, and there was no relevant family history. Persistent symptoms and abdominal discomfort led to the diagnosis of Chilaiditi Syndrome. A Radiographic imaging is essential in the diagnosis of Chilaiditi Syndrome.[8] For a definitive diagnosis, specific radiological criteria must be met. These include displacement of the right hemidiaphragm superiorly above the liver due to the interposition of the intestine, the presence of a pseudo-pneumoperitoneum caused by air within the bowel, and the positioning of the superior margin of the liver below the level of the left hemidiaphragm.[9] These findings distinguish

Chilaiditi Syndrome from conditions like pneumonia. In our case, there was a delay of one year in establishing the diagnosis. This highlights the importance of accurate radiographic interpretation.

While typically manageable, unrecognized cases can lead to serious complications such as bowel obstruction, volvulus, ischemia, and respiratory distress.[10] Similar cases in the literature emphasize the value of early and accurate diagnosis. Conservative treatment in the pediatric age is always preferable.[8] In our case, the patient was advised to avoid aerophagia, refrain from consuming liquid meals before bedtime, and discontinue the intake of carbonated beverages, which aligns with this non-invasive approach.

CONCLUSION

Chilaiditi Syndrome, though rare, should be included in the differential diagnosis of pediatric patients presenting with recurrent, unexplained respiratory or abdominal symptoms, particularly when conventional treatments are ineffective. The role of radiographic imaging is critical for early diagnosis, which can prevent inappropriate treatment and minimize the risk of complications. Physicians should maintain awareness of this condition and consider imaging as a diagnostic tool when clinical presentations do not align with more common diagnoses. Early recognition and accurate diagnosis through imaging can lead to improved management, reduce unneeded treatments, and promote better patient care.

ETHICAL DECLARATIONS

Informed Consent: The patient signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

REFERENCES

1. de Benedictis FM, Bush A. Recurrent lower respiratory tract infections in children. BMJ. 2018;362:k2698.
2. Moaven O, Hodin RA. Chilaiditi syndrome: a rare entity with important differential diagnoses. Gastroenterol Hepatol (NY). 2012;8(4):276.
3. Chilaiditi D. Zur Frage der Hepatoptose und Ptose im Allgemeinen im Anschluss an drei Fälle von temporärer, partieller Leberverlagerung. Fortschr Geb Rontgenstr Nuklearmed Erganzungsband. 1911;16:173–208.
4. Hountis P, Chounti M. Chilaiditi's sign or syndrome? Diagnostic question in two patients with concurrent cardiovascular diseases. Monaldi Arch Chest Dis. 2017;87(2):66–8.
5. Pite H, Gaspar A, Morais-Almeida M. Preschool-age wheezing phenotypes and asthma persistence in adolescents. Allergy Asthma Proc. 2016;37(3):231–41.
6. Bostancı İ, Üner Ç, Erdoğan D. In the differential diagnosis of wheezy infant, Chilaiditi syndrome caused by empty bottle absorption. J Contemp Med. 2019;9(4):410–1.
7. Muglia C, Oppenheimer J. Wheezing in infancy: an overview of recent literature. Curr Allergy Asthma Rep. 2017;17(10):70.
8. Evrengül H, Yüksel S, Orpak S, Özhan B, Ağladıoğlu K. Chilaiditi Syndrome. J Pediatr. 2016;173:260.
9. Kang D, Pan AS, Lopez MA, Buicko JL, Lopez-Viego M. Acute abdominal pain secondary to Chilaiditi syndrome. Case Rep Surg. 2013;2013:1–3.
10. Touati MD, Ben Othmane MR, Khefacha F, Belhadj A, Saidani A, Chebbi F. An exceptional cause of dyspnea: the uncommon case report of the association between Chilaiditi syndrome and diaphragmatic eventration. Int J Surg Case Rep. 2023;112:108217.