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Case Report

Internal Medicine Section

Acute Ischaemic Stroke Associated with Chilaiditi Syndrome Pilot Complexities: A Case Report

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ABSTRACT

In the clinical setting, the concurrent occurrence of Acute Ischaemic Stroke (AIS) and an uncommon gastrointestinal disorder such as Chilaiditi Syndrome demonstrates the intricacies of diagnosing and treating more than one medical condition. Such a situation requires a concerted, multidisciplinary effort to achieve successful treatment and better patient outcomes. This specific case involves a 54-year-old male who presented to the doctor complaining of an acute onset of giddiness, dyspnoea, and shortness of breath. An urgent diagnostic workup through Magnetic Resonance Imaging (MRI) confirmed the AIS, calling for immediate intervention to prevent further neurological damage. Concurrently, routine chest X-rays uncovered Chilaiditi Syndrome, which is defined by the improper placement of the colon between the liver and diaphragm. While this syndrome may be asymptomatic and incidental, its existence complicates the overall medical picture, particularly when gastrointestinal symptoms overlap or interfere with stroke treatment. The patient's management plan was meticulously crafted, with close monitoring of blood pressure and the use of antiplatelet drugs to treat the stroke. At the same time, the gastrointestinal manifestations of Chilaiditi Syndrome were medically managed. This coordinated care, made possible by a team of experts including neurologists and gastroenterologists, highlights the value of holistic care. The case emphasises the importance of identifying and managing concurrent conditions through teamwork. Medical professionals must address both urgent and ancillary medical issues to maximise patient care and improve recovery potential in complicated clinical situations.

Keywords: Comprehensive care, Multidisciplinary approach, Pneumoperitoneum, Thrombosis

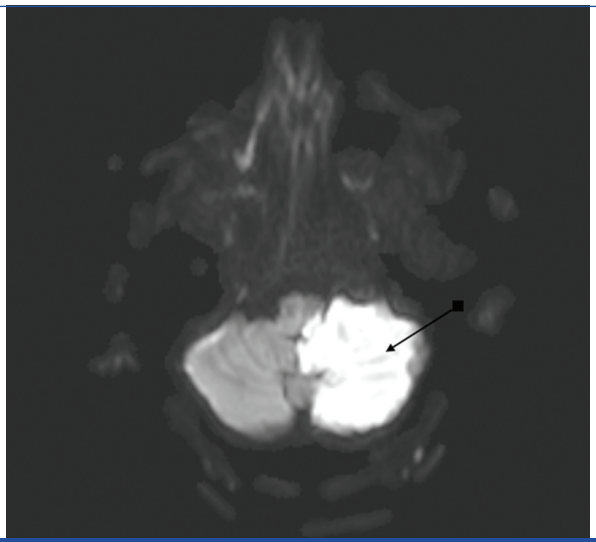
CASE REPORT

A 54-year-old male patient arrived at the Emergency Department (ED) complaining of acute onset of giddiness, dyspnoea, and shortness of breath for the past 24 hours {modified Medical Research Council (mMRC) grade 2}. The patient did not disclose any recent trauma or similar occurrences. His medical history was noteworthy for the use of oral antihypertensive Telmisartan, 40 mg once a day, to treat his hypertension for the past two years. He had no known allergies, and his family history was unremarkable. All routine investigations are listed in [Table/Fig-1].

Investigation	Observe value	Reference range
Haemoglobin (gm%)	10.8	13-17
Platelet (mm^3)	380,000	150000-410000
White Blood Cells (WBCs) (mm^3)	13,600	4000-10000
Serum Glutamic-Pyruvic Transaminase (SGPT) (U/L)	50	<50
Serum Glutamic-Oxaloacetic Transaminase (SGOT) (U/L)	26	17-59
Total bilirubin (mg/dL)	0.8	0.2-1.3
Bilirubin conjugated (mg/dL)	0.3	0.0-0.3
Urea (mg/dL)	23	43
Creatinine (mg/dL)	0.9	0.66-1.25
Sodium (mmol/L)	141	145
Potassium (mmol/L)	4.6	3.5-5.1
Human Immunodeficiency Virus (HIV) (surface antigen)	Negative	Negative
Hepatitis B Virus (HBV) (surface antigen)	Negative	Negative

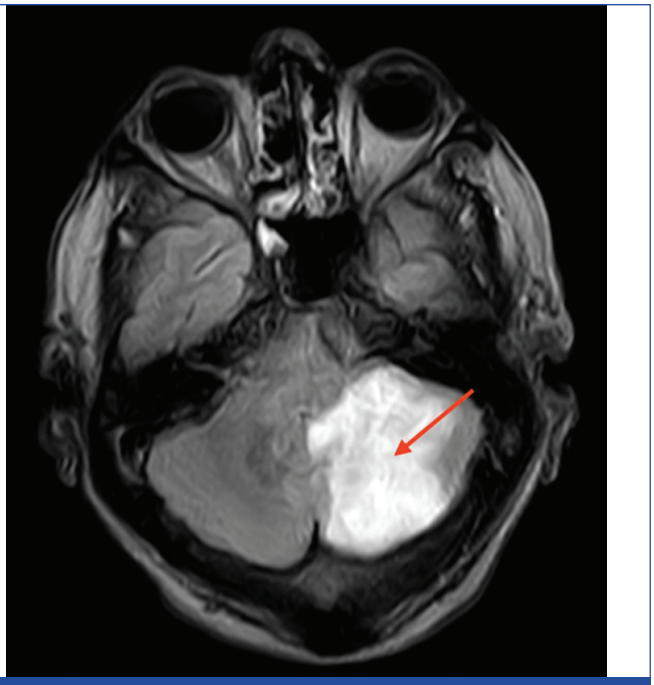
[Table/Fig-1]: Routine laboratory investigations.

On physical examination, the patient was alert and oriented, but his gait was noticeably unsteady, making it impossible for him to walk without assistance. A neurological evaluation revealed a positive Romberg's sign and poor coordination. The cardiovascular and respiratory systems did not show signs of acute distress. An urgent MRI of the brain was performed, revealing an area of altered signal intensity in the left cerebellar hemisphere and medulla. It appeared hypointense on T1-weighted images, hyperintense on T2/FLAIR images, and showed diffusion restriction, corresponding to an acute infarct [Table/Fig-2,3]. Surprisingly, a routine chest X-ray revealed a significant elevation of the left diaphragmatic cupola, meeting the criteria for Chilaiditi Syndrome, with several interposed gas-filled colonic loops between the elevated diaphragm [Table/Fig-4].

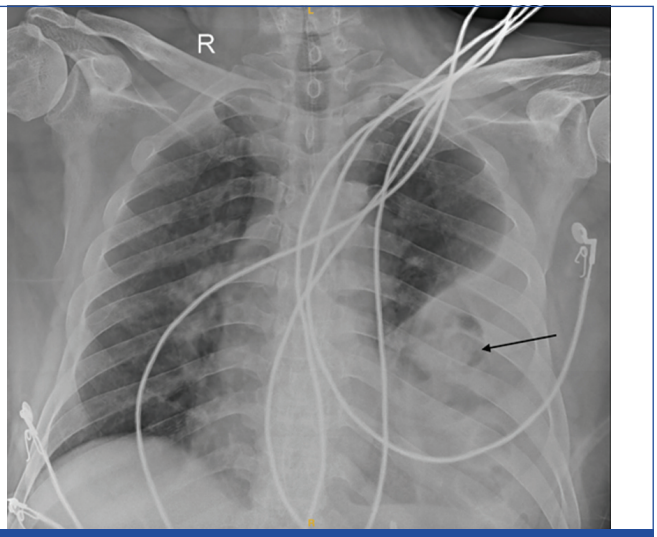


[Table/Fig-2]: Diffusion Weighted Imaging (DWI) image showing altered signal intensity in the left cerebellar hemisphere and medulla (black arrow).

There was no obvious free air, which could indicate intestinal perforation or pneumoperitoneum. A transverse colon segment was identified on a High-Resolution Computed Tomography (HRCT)

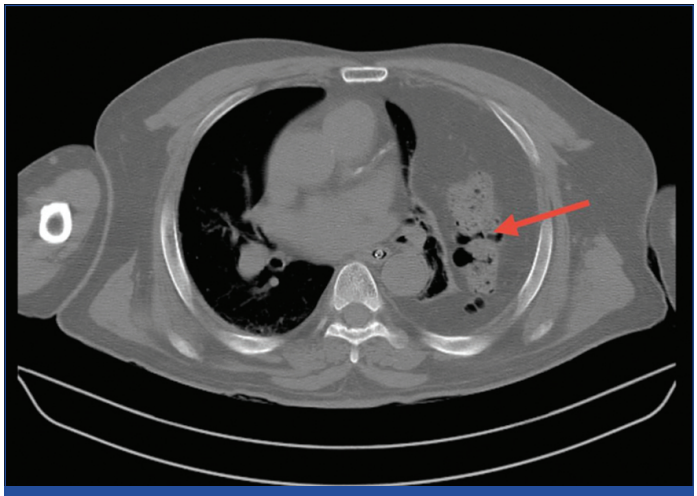


[Table/Fig-3]: FLAIR images, showed diffusion restriction, corresponding to an acute infarct in left cerebellum (red arrow).



[Table/Fig-4]: X-ray chest showing loop of colon in diaphragm (black arrow).

[Table/Fig-5] scan of the thorax and abdomen with contrast. No symptoms of volvulus, intestinal blockage, free air, or accumulation of abdominal fluid were present, which could indicate further problems resulting from the anatomical defect. Based on the HRCT findings and the clinical symptoms, the final diagnosis is most likely Chilaiditi Syndrome.



[Table/Fig-5]: HRCT showing loop of colon (Red arrow).

The patient was managed in the stroke unit where strict pressure control was maintained, and he was given antiplatelet medication with aspirin and clopidogrel. Due to breathing difficulties, the patient required oxygen at 6 liters per minute. In addressing the possibility of developing respiratory compromise due to Chilaiditi Syndrome, the respiratory physician faced strict protocols when assessing the breathing difficulties experienced by the patient.

The patient's dietary regimen was modified to enhance ease of consumption and avoid exacerbating existing digestive issues. To prevent any possible constipation due to colonic displacement, intravenous fluids and stool softeners were administered. Given the cerebral involvement, the patient was recommended for several physiotherapy consultations focused on gait training and balance. The patient also received controlled blood pressure management and anticoagulant medication, which stabilised the neurological condition, but the respiratory symptoms were challenging to treat.

Recurrent abdominopelvic imaging was performed to exclude complications, which is important for the frequent assessment of the stability of Chilaiditi Syndrome, such as strangulation or intestinal fistula. After seven days of strict medical treatment and physiotherapy, the patient's neurological state improved significantly, the amount of ataxia was reduced, and coordination had improved. The level of breathlessness was also reduced with supportive care, and the patient was later transferred to the general ward for further management and recovery.

To closely monitor recovery from the stroke as well as any digestive symptoms, follow-up consultations with gastroenterology, neurology, and physiotherapy were arranged. While not causing acute abdominal symptoms, the condition posed a risk of potential bowel obstruction. Consequently, preventive measures were taken. The interdisciplinary team, considering the patient's stroke, opted for laparoscopic surgical intervention, such as colopexy, to secure the colon in place. However, they decided against immediate surgery. The gastrointestinal team recommended regular follow-up for three months and educated the patient on symptoms that necessitate immediate attention, including severe abdominal pain, nausea, or alterations in bowel habits.

DISCUSSION

Worldwide, AIS has long been one of the primary causes of illness and death [1]. It usually presents as a sudden decrease in cerebral blood flow that leads to neurological dysfunction if not treated. The cerebellum is essential for balance, coordination, and fine motor function of our body, which frequently makes cerebellar strokes devastating, even though they are relatively less common [2]. In cases of unusual presentations and complicated illnesses, it is imperative to understand the coexistence of various disorders or, rather, the relationship between the diseases.

Chilaiditi Syndrome is a rare condition described as the placement of a segment of the colon between the diaphragm and the liver. It can sometimes manifest in various ways, ranging from a dull ache to severe issues in the respiratory and digestive systems [3]. Acute stroke and Chilaiditi Syndrome demonstrate implications in the form of minimal overlap between these two comorbid diseases, making clinical care and diagnosis extremely challenging.

This case report aims to elucidate the intricate correlations between an acute cerebellar stroke and the incidental findings of Chilaiditi Syndrome in a 54-year-old man who presented with giddiness and dyspnoea. Common forms of stroke can be defined as a blockage in the blood circulatory system in the brain, with many different causes. In most cases, this occurs as a result of systemic hypoperfusion, embolism, or thrombosis, which can lead to thrombosis or any other form of infarction zone [4]. The nature of the neurological deficit depends primarily on the damaged structures of the brain. Decreased blood flow, mainly from the posterior circulation to the cerebellum, disrupts coordination and causes abnormal giddiness and difficulties in walking [5]. On the other hand, Chilaiditi Syndrome, which was

named after the Greek radiologist Demetrius Chilaiditi, often has no symptoms and is diagnosed incidentally during imaging [6].

On the other hand, patients may suffer from respiratory distress, constipation, abdominal pain, or, in occasional cases, bowel obstruction when symptomatic [7]. Chilaiditi Syndrome complicates the diagnosis and management of neurological events associated with the condition. This is why this patient's case, which presents with cerebellar signs and dyspnoea, highlights the need for a comprehensive view and conceptual approach to the chest diseases that can potentially manifest with a multimodal symptomatic overlap. Even today, the correlation between AIS and Chilaiditi Syndrome has not been reported frequently, although diagnostic imaging procedures and other treatment modalities have continued to evolve [8].

This is why case investigations require significant attention to ensure they are conducted properly. Identifying these correlations, understanding how their biochemical and anatomical activities interplay, and documenting these management strategies can provide valuable information to the medical community and possibly contribute to improving the quality of patient treatment in the future.

In order to shed light on the unusual co-occurrence of an acute cerebellar stroke in a patient with Chilaiditi Syndrome, we aim to clarify the diagnostic complexities, treatment obstacles, and clinical course management regarding this intersection in this report [9]. This will broaden our understanding of these uncommon pathologies and their potential interactions.

Ischaemic strokes require prompt and established therapy to enhance prognosis, especially in the cerebellar region [10,11]. Ataxia, vertigo, dysmetria, and visual abnormalities are typical symptoms of cerebellar involvement, which underscores the importance of thorough neurological examinations and prompt imaging to confirm the infarct [12]. This subgroup is usually associated with a high degree of functional deficits and, if left untreated, could lead to potentially lethal conditions such as brainstem compression or hydrocephalus. Understanding the etiological factors of the dual pathology of acute cerebellar ischaemic stroke, particularly in conjunction with Chilaiditi Syndrome, facilitates the uncovering of significant etiological implications.

Vertebral, basilar, or posterior inferior cerebellar arteries are the primary sources of occlusive disease that lead to cerebellar strokes [13]. The following are all recognised risk factors: atrial fibrillation, hypercholesterolaemia, atherosclerosis, and hypertension [14]. As discussed above, the patient falls into these risk groups due to a history of hypertension. Conversely, because of the interposed bowel segment, Chilaiditi Syndrome is often benign if the patient has no symptoms, but it can be significantly aggravated by positional dyspnoea, abdominal discomfort, and gastrointestinal symptoms [15]. It has been suggested that the mechanism behind the development of colonic interposition is not well understood due to various factors, including hepatic atrophy, congenital elongation of the mesocolon, or laxity of the suspensory ligament [16].

When these variables are combined, a potentially unstable physiological interaction results. Reductions in peritoneal volume, as seen in ascites or congestive heart failure, may amplify temporary colonic transpositions, as observed in the symptomatic exacerbation of this patient, adding a respiratory load to an ongoing cerebrovascular episode. Multi-modal imaging was utilised to obtain clear diagnostic images. Through the use of MRI, the cerebellar stroke was ultimately determined to be the cause of the patient's neurological symptoms [17]. Simultaneously, the chest X-ray revealed an unexpected anatomical variation: a diaphragm that rides high and is burdened by interposed colonic loops. These results were corroborated by HRCT, which demonstrated colon segments in the left sub-diaphragmatic area without obstruction, thus establishing the Chilaiditi phenomenon. This illustrates how state-of-the-art non-invasive imaging studies can significantly aid in diagnosing complex clinical disorders where plain radiography may be suboptimal [18,19].

In addition to the use of antiplatelet medications, blood pressure was closely monitored, which played an important role in improving outcomes and preventing the spread of ischemia. Supplemental oxygen was another essential element that provided support. Particularly, the primary focus of treatment was not the strategy for managing Chilaiditi Syndrome; rather, it was to ensure adequate supportive care. We required semi-solids, liquids, and other foods that could prevent constipation and alleviate gastrointestinal issues. The patient was medicated and provided with supplemental oxygen, and, on a few occasions, BiPAP non-invasive ventilation was used for dyspnoeic episodes until colonic correction or transfer was performed. Thanks largely to the interdisciplinary approach, both conditions were stabilised.

Furthermore, it was necessary to undergo a comprehensive physiotherapy programme due to the enhanced clinical changes observed in the patient's physiological parameters, indicating the need for muscle strength rehabilitation and coordination exercises. Follow-up neurological assessments for patients on long-term stroke treatment were deemed to be of paramount importance in ongoing care. Gastroenterological evaluations were performed to ensure that recurrent symptomatic colonic interposition did not occur. The overall treatment and rehabilitation course were highly sensitive to the quality of comprehensive care, which involved both human-related treatments and medical management.

CONCLUSION(S)

This case highlights the utmost significance of maintaining a wide differential diagnosis in emergency care, particularly in instances where patients present with convoluted overlapping symptoms. While acute cerebellar strokes require prompt recognition and early treatment to prevent permanent neurological impairment, identifying comorbid conditions like Chilaiditi Syndrome is crucial. Although this syndrome is usually benign, it can complicate the clinical presentation and treatment plan. Therefore, this case underscores the need for a coordinated, multidisciplinary approach to care to provide thorough assessments and maximise patient management. It reminds us of the varied presentations possible in medical emergencies and the importance of meticulous diagnostic imaging and evaluations. Prompt detection and management of coexistent conditions not only enhance patient outcomes but also illustrate the value of cooperative care by professionals across all specialties.

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