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Case Report: A Case Report on Dextrocardia with Situs Inversus Totalis

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Abstract

Background: Dextrocardia with situs inversus totalis is a rare congenital anomaly characterized by mirror-image transposition of thoracic and abdominal organs. Most individuals remain asymptomatic and are diagnosed incidentally during evaluation for unrelated conditions. Its association with accelerated hypertension is uncommon.

Case Presentation:

An 84-year-old male presented with dizziness, headache, generalized weakness, and abdominal discomfort. He had a recent history of hypertension with poor medication adherence. On examination, his blood pressure was 210/100 mmHg, consistent with accelerated hypertension. Electrocardiography and chest radiography revealed dextrocardia with situs inversus totalis, demonstrated by a right-sided cardiac apex, mirror-image mediastinal structures, and transposed abdominal viscera. The condition had remained undiagnosed throughout his life and was identified incidentally during evaluation. Initial anti-hypertensive therapy was revised to a Telmisartan with Amlodipine combination, resulting in improved blood pressure control.

Conclusion: This case emphasizes the importance of recognizing dextrocardia with situs inversus, particularly in elderly patients, to prevent diagnostic errors. Careful interpretation of imaging and ECG findings is essential, especially when managing cardiovascular emergencies such as accelerated hypertension.

Keywords: Dextrocardia, Situs inversus totalis, Accelerated hypertension, ECG, Case report

INTRODUCTION

Dextrocardia with situs inversus, also known as situs inversus totalis, is a rare congenital anomaly in which the thoracic and abdominal organs are positioned as a mirror image of their normal locations. This condition occurs in approximately 0.01% in 1000 individuals and is more commonly observed in males[1]. Many affected individuals remain asymptomatic and are diagnosed incidentally when medical evaluation is performed for unrelated reasons. Diagnosis of Dextrocardia and Situs inversus can be established using basic modalities such as chest radiography and electrocardiography (ECG). Advanced imaging techniques, including echocardiography and magnetic resonance imaging (MRI), provide further confirmation and help evaluate associated structural abnormalities[2].Accelerated hypertension is characterized by a marked elevation in systolic blood pressure (≥180 mmHg) and diastolic blood pressure (≥130 mmHg) and may result from conditions such as renal artery stenosis, aortic narrowing, poor adherence to anti-hypertensive therapy, pre- eclampsia, and autoimmune disorders[3].Here, we report the case of an 84-year-old man with Dextrocardia and situs inversus who also presented with accelerated

hypertension.

CASE REPORT

An 84-year-old male presented to the outpatient department at Basaveshawara Medical College and Hospital with a three- month history of dizziness and abdominal discomfort persisting for the last 15 days. The patient described that dizziness was sudden in onset and gradually progressive in nature, manifesting in multiple episodes accompanied by cephalgia (headache). Additionally, he reported sudden-onset generalized asthenia (weakness) that persisted even during rest. His medical history was significant for hypertension, diagnosed six months prior, however, he reported non-adherence to his prescribed medication regimen.

Upon physical examination, the patient exhibited severe hypertension with a blood pressure reading of 210/100 mmHg, leading to a diagnosis of accelerated hypertension. He was subsequently admitted to the General Medicine ward for comprehensive evaluation.

Diagnostic assessment included an electrocardiogram (ECG), chest radiography. Imaging revealed a complete transposition of the thoracic and abdominal viscera, the cardiac apex was oriented toward the right hemithorax, and the stomach and spleen were visualized in the right abdominal quadrant, while the liver and gallbladder were situated in the left quadrant. These findings are pathognomonic for Dextrocardia with Situs Inversus Totalis.

Initial pharmacological management commenced with Amlodipine 5 mg twice daily and Cilnidipine 10 mg twice daily. This regimen failed to yield the desired hemodynamic response and was discontinued. The treatment protocol was subsequently modified to a fixed-dose combination of Telmisartan (40 mg) and Amlodipine (5 mg) administered once daily. Following this adjustment, a modest improvement in blood pressure was observed, stabilizing at 150/90 mmHg.

DISCUSSION

The precise etiology of situs inversus has not been definitively established however, the pathogenesis is widely attributed to mutations in genes regulating left-right asymmetry, altered gene expression, ciliary dyskinesia (dysfunction of motor cilia), and aberrant visceral rotation of embryo during development. Remarkably, the patient in this case had remained undiagnosed throughout his life. The presence of Dextrocardia with Situs Inversus was identified as an incidental finding upon admission and was subsequently confirmed by electrocardiogram and radiographic studies.

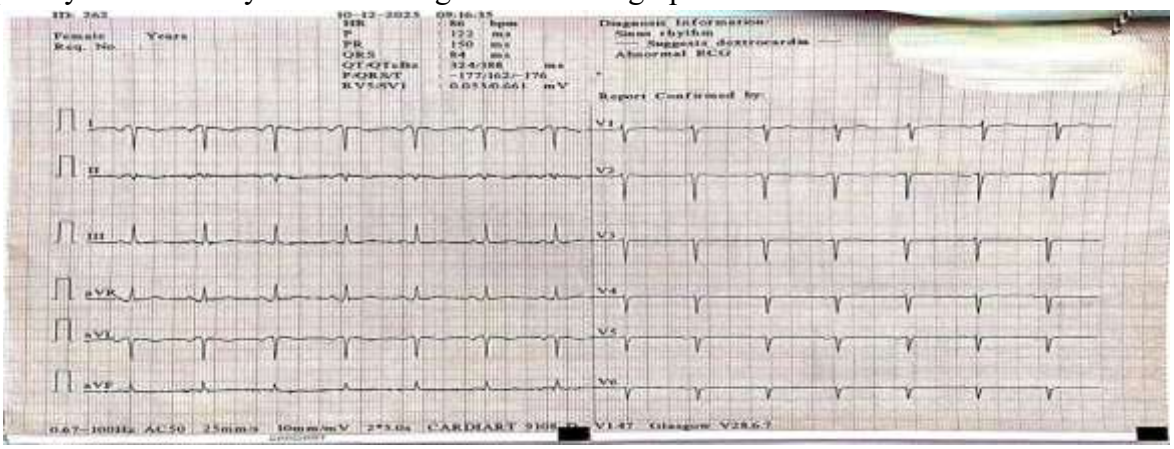

Figure 1 : The ECG demonstrating T-wave Lead I was upright and the T wave in Lead V1,taken over the cardiac apex on the right side, was inverted

The interesting feature of the electrocardiogram was that the T wave in Lead I was upright and the T wave in Lead V1,taken over the cardiac apex on the right side, was inverted, indicating that this was picture of left ventricular strain superimposed upon that of Dextrocardia.

Figure 2 : Frontal chest radiography which shows the cardiac silhouette predominant located in the right hemithorax. The mediastinal demonstrate a mirror image arrangement, including right sided aortic arch.

The chest radiography revels the cardiac silhouette predominantly located in the right hemithorax, with the cardiac apex directed to the right, consistent with Dextrocardia. The mediastinal structural demonstrate a mirror image arrangement, including a right side aortic arch, without mediastinal shift or widening. The lung fields shows transportation of normal anatomical features, with no focal consolidation, plural effusion or pneumothorax. The gastric air bubble is visualized beneath the right hemidiagram,and the hepatic shadow is noted on lest side conforming the situs inversus totalis. Overall, the findings are consistent with congenital Dextrocardia with situs inversus.

In general, patients with situs inversus do not show changes in the structure, and without special symptoms.

CONCLUSION

Dextrocardia with situs inversus is uncommon condition in which the body's internal organ are mirrored from their normal location. The exact cause is still unknown. These condition are often undiagnosed unless it is incidentally discover during investigations for other medical condition.

Imagine is essential in the diagnosis of DEXTROCARDIA with SITUS INVERSUS TOTALIS. Doctor should encourage routine medical physical examination for patient, which could help identified this anomaly, there by preventing wrong diagnosis.

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