

# Dextrocardia with Situs in Versus: A Case Report

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**Abstract:** *Dextrocardia with situs inversus is a rare congenital anomaly, which is characterized by right-sided heart apex and inversely rotated visceral organs of the abdomen. We report a case of 18 year old girl who was admitted with possible acute viral hepatitis. As part of routine evaluation her ECG, CXR and USG abdomen were done and she was found to have dextrocardia and situs inversus. Physicians should look out for this anomaly primarily because it may be associated with other conditions like primary ciliary dyskinesia so appropriate interventions are offered to reduce morbidities and mortality. Common abdominal complaints like cholecystitis, appendicitis etc can also pose significant diagnostic confusion due to atypical pain sites.*

**Keywords:** BaDextrocardia, situs inversus, congenital abnormality, USG abdomen, ECGnk, Client, Benefits, Hadoop, Commitment, Svm algorithm, profit

## 1. Introduction

‘Situs’ means the position of heart i.e. the cardiac atria and viscera. When there is occurrence of mirror image it is termed as ‘*Situs inversus*’ i.e. mirror image of as that suppos on the normal position. Dextrocardia is a term used exclusively for defining the positioning of heart i.e. the tip of heart points to the right side. A very few cases of *situs inversus totalis* has been described in literature i.e. Dextrocardia with *Situs inversus*.

Dextrocardia with situs inversus (*situs inversus totalis*) is a very rare congenital defect characterized by reversal of the position of the heart to the right side of the thoracic cavity along with all inversely rotated visceral organs (mirror image) [1, 2]. It is a rare anomaly with incidence rate of 1/10,000 livebirths [1, 3]. The exact cause of dextrocardia is also unknown. However, it has been linked with a number of factors which include autosomal recessive gene inheritance, maternal diabetes, cocaine use and conjoined twinning along with equal ratio seen in both gender [4–6]. Individuals with situs inversus are unaware of their unusual congenital anomaly until they seek medical attention for totally unrelated conditions [7]. Individuals with dextrocardia and situs inversus may have associated congenital heart malformations, primary ciliary dyskinesia, or splenic malformations [8, 9].

## 2. Case Report

An 18 year old girl came to hospital with complaints of vomiting for 2 days associated with loss of appetite and pain abdomen. There was history of fever 5 days ago. Patient was admitted in view of recurrent vomitings and dehydration. Clinical evaluation revealed icterus. Systemic examination was normal except for the presence of presence sounds heard more loudly and clearly on right side of chest. Routine investigations suggested conjugated hyperbilirubinemia and raised liver enzymes. Chest X-RAY PA view suggested dextrocardia with base to apex axis pointing towards right ,lung fields were clear.

Routine ECG again supported findings of dextrocardia with normal sinus rhythm, inverted P wave in lead 1 and avl, reversed R wave progression in chest leads, low voltage QRS in V4 to V6, inverted T waves in lead 1 and avl and R.>S in V1.

Patient was subjected to routine USG abdomen which suggested reversed positioning of abdominal organs with liver and gall bladder on left side and spleen on right side. Figure 3to 5.

Patient was managed conservatively and improved symptomatically .Patient was planned for CT abdomen for better visualisation of situs inversus and for viral markers to confirm viral hepatitis but attendents denied for these investigation due to financial constraints and family issues.

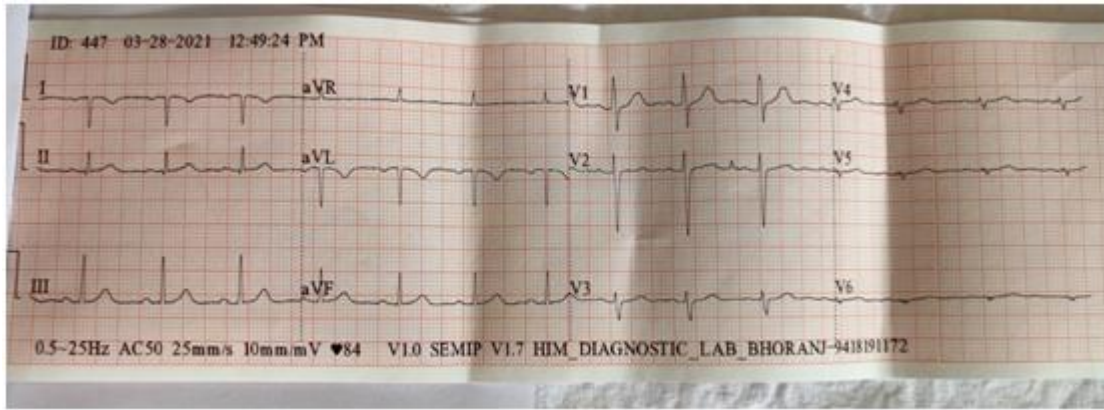


**Figure 1:** CXR suggestive of dextrocardia with base to apex pointing towards right.

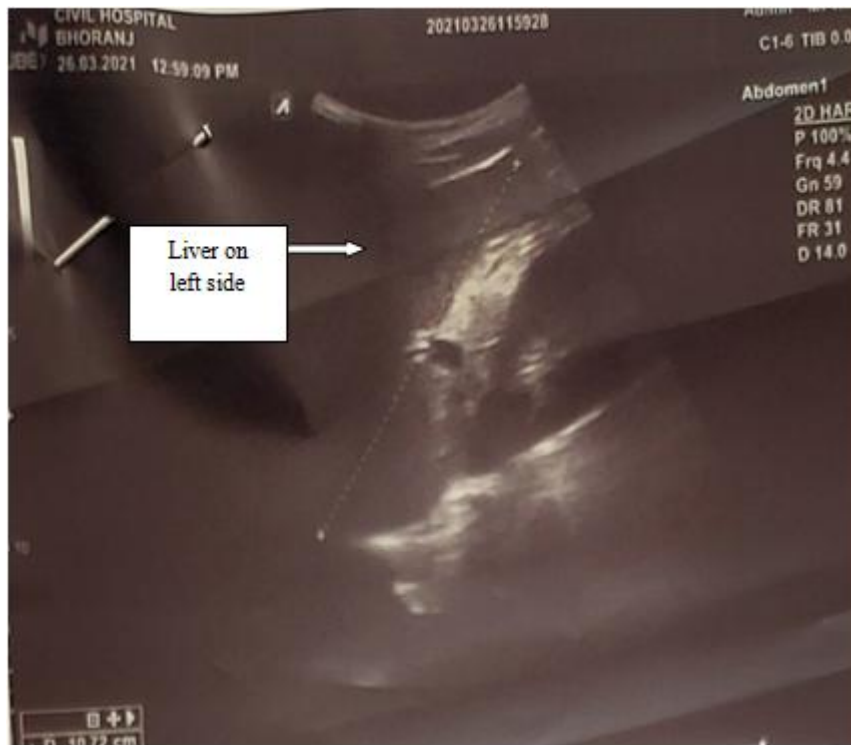
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**Figure 2:** ECG suggestive of typical change of dextrocardia with T inversion in lead 1 and avlR>S in lead V1 with reversed R wave progression in precordial leads, low voltage QRS complex in V4to V6.



**Figure 3:** USG suggestive of liver being on left side



**Figure 4:** Spleen on right side in USG

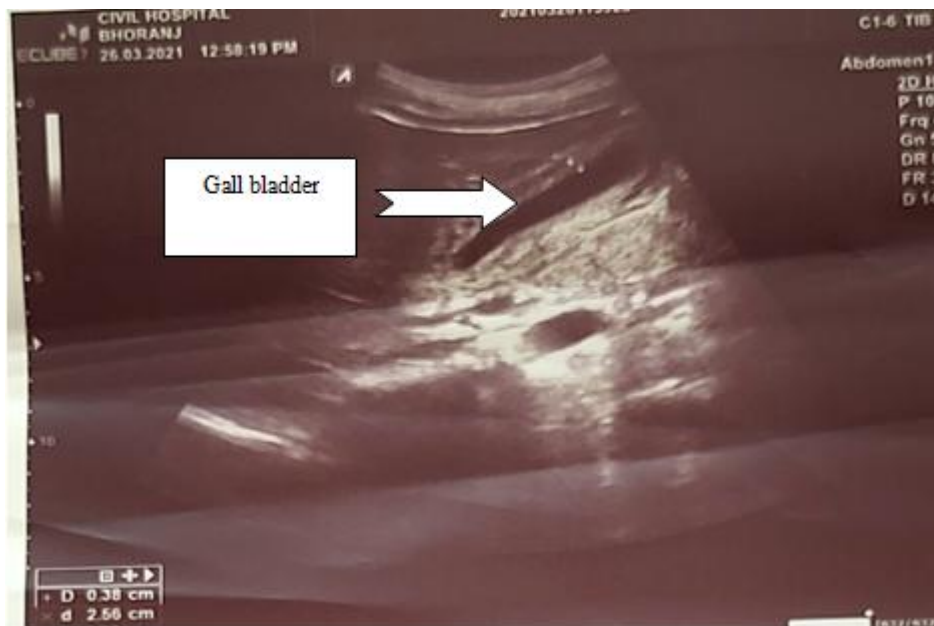


Figure 5: Gall bladder on left side

### 3. Discussion

Situs inversus totalis is a rare congenital anomaly. There is no known cause of dextrocardia, but maternal diabetes mellitus and cocaine use by the mother have been implicated. Genetic factors are also suspected, with an increased incidence seen in conjoined twins. Situs inversus totalis shows no racial and sex predilection [4–6]. Dextrocardia with situs inversus poses a considerable danger as it remains asymptomatic and normally remains undiagnosed unless diagnosed incidentally while investigating for another ailment.

Typically, persons having *situs inversus* with dextrocardia without other congenital anomaly have a normal life expectancy and have a similar risk of getting acquired disease as that of other person of same age and sex group. In the rare instances of cardiac anomalies, life expectancy is reduced, depending on the severity of the defect. [1]

About 25% of individuals with situs inversus have an association with primary ciliary dyskinesia. Situs inversus totalis with primary ciliary dyskinesia together known as Kartagener's syndrome characterized by the triad of situs inversus, chronic sinusitis, and bronchiectasis [12]. However in this case, the patient was well without any history of sinusitis, chronic cough, and his chest was clinically clear.

Computer tomography (CT) remains the best imaging procedure for the definitive diagnosis of dextrocardia with situs inversus as CT scan provides an excellent anatomic detail. Magnetic resonance imaging (MRI) is reserved for patients with associated cardiac abnormalities [13, 14]. Electrocardiogram can however, confirm the medical diagnosis of the two forms of dextrocardia and also can show inversion of the electrical waves. This is considered one of the best diagnostic test options.

### 4. Conclusion

The individuals with situs inversus are phenotypically unimpaired, and can lead normal healthy lives, without any complications related to their medical condition. Many people with situs inversus totalis are unaware of their unusual anatomy until they seek medical attention for an unrelated condition. A well-interpreted ECG is a useful tool in the diagnosis of dextrocardia with situs inversus. Hence, analysis of this relatively simple and non invasive diagnostic tool allows for a suspicion of a cardiovascular anomaly in a resource limited setting like ours.

### References

- [1] C. M. Bohun, J. E. Potts, B. M. Casey, and G. G. Sandor, "A population-based study of cardiac malformations and outcomes associated with dextrocardia," *The American Journal of Cardiology*, vol. 100, no. 2, pp. 305–309, 2007.
- [2] Wadhwa L. Deepika, C. Shekhar, J. Saini, and M. Chetani, "Successful obstetric outcome in dextrocardia with situs inversus and moderate pulmonary hypertension—rare case," *Journal of Clinical and Diagnostic Research*, vol. 10, no. 10, p. Qd08QD10, 2016.
- [3] G. Supriya, S. Saritha, and S. Madan, "Situs inversus totalis—a case report," *IOSR International Journal of Applied Physics*, vol. 3, no. 6, pp. 2278–4861, 2013.
- [4] M. Agirbasli, R. Hamid, H. S. Jennings3rd, and G. E. Tiller, "Situs inversus with hypertrophic cardiomyopathy in identical twins," *American Journal of Medical Genetics*, vol. 91, no. 5, pp. 327–330, 2000.
- [5] G. Distefano, M. G. Romeo, S. Grasso et al., "Dextrocardia with and without situs viscerum inversus in two sibs," *American Journal of Medical Genetics*, vol. 27, no. 4, pp. 929–934, 1987.
- [6] M. Tayeb, F. M. Khan, and F. Rauf, "Situs inversus totalis with perforated duodenal ulcer: a case report," *Journal of Medical Case Reports*, vol. 5, no. 1, 2011.

- [7] I. F. Tabry, J. Calabrese, H. Zammar et al., "Case report: offpump total myocardial revascularization for dextrocardia and situs inversus," *The Heart Surgery Forum*, vol. 4, no. 3, pp. 251–253, 2001.
- [8] P. Chib, D. N. Grover, and B. N. Shahi, "Unusual occurrence of dextrocardia with situs inversus in succeeding generations of a family," *Journal of Medical Genetics*, vol. 14, no. 1, pp. 30–32, 1977.
- [9] A. Nawaz, H. Matta, M. Hamchou, A. Jacobez, O. Trad, and A. H. Al Salem, "Situs inversus abdominus in association with congenital duodenal obstruction: a report of two cases and review of the literature," *Pediatric Surgery International*, vol. 21, no. 7, pp. 589–592, 2005.
- [10] A. S. Dabhi, S. R. Chaudhari, P. B. \_roat et al., "Kartagner syndrome: a triad of bronchieatasis, situsinversus and chronic sinusitis," *Journal, Indian Academy of Clinical Medicine*, vol. 6, no. 3, pp. 241–243, 2005.
- [11] I. L. Tonkin and A. K. Tonkin, "Visceroatrial situs abnormalities: sonographic and computed tomographic appearance," *American Journal of Roentgenology*, vol. 138, no. 3, pp. 509–515, 1982.
- [12] S. J. Yoo, Y. M. Kim, and Y. H. Choe, "Magnetic resonance imaging of complex congenital heart disease," *International Journal of Cardiac Imaging*, vol. 15, no. 2, pp. 151–160, 1999.