

## Situs Inversus with Dextrocardia

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### ABSTRACT

Situs inversus totalis or situs inversus-dextrocardia is a rare congenital anomaly which is characterized by reverse position of abdominal and thoracic viscera. This anomaly was detected in an eight-month-old female baby after a barium enema examination which showed reversed position of colonic frame. The sigmoid and descending colons were located in the right side of abdomen and ascending colon and cecum in the left side. Plain chest x-ray and abdominal ultrasonography confirmed the anomaly by evidence of right side cardiac position and reversed location of abdominal organs, respectively.

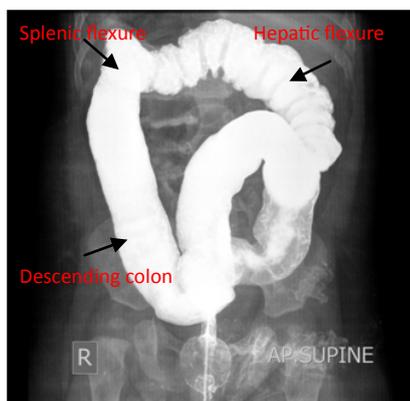
### KEYWORDS

Situs Inversus Totalis; Situs Inversus; Dextrocardia.

### CASE REPORT

An-eight-month- female baby was referred to radiology department of French Medical Institute for Children (FMIC) for barium enema examination due to chronic constipation.

During the barium enema examination, reversed position of colonic frame was detected which showed almost normal caliber and haustrations of bowel loops. The sigmoid colon, descending colon and splenic flexure were located in the right side of abdomen while the hepatic flexure and ascending colon were observed in the left side of abdomen (Figure 1).



**Figure 1:** Abdominal x-ray in anterior posterior supine position shows reversed position of colonic frame.

For evaluation of cardiac position and axis, chest x-ray was performed which demonstrated right side position of the heart (dextrocardia) with the location of liver in the left side and stomach in the right side of abdomen (Figure 2) also in trans-abdominal ultrasound spleen was seen in the right upper abdomen (Figure 3) and liver in the left upper abdomen (Figure 4) confirming presence of situs inversus dextrocardia.



**Figure 2:** Chest x-ray demonstrates right side position of heart (dextrocardia) with reversed position of abdominal organs, liver in the left side of abdomen and stomach in the right side of abdomen.



**Figure 3:** Abdominal ultrasound shows right side position of spleen.



**Figure 4:** Ultrasound of left upper abdomen demonstrates liver and gall bladder (reversed position).

## DISCUSSION

Situs inversus is a term used when internal organs of the body have reversed position or when mirror image of normal internal organ is existed. The total transposition of all thoracic and abdominal viscera is called situs inversus totalis [1]. Dextrocardia is a term used for the reversed position of the heart. This occurs when the heart base to apex orientation is pointed toward the right side of the chest rather than left side (normal position) [2]. Situs inversus dextrocardia is a rare congenital condition which is also called situs inversus totalis. The occurrence of this congenital problem has been variously expressed from 1/6000 to 1/ 35000 of live births [3]. This is an autosomal recessive genetic disorder which the defect occurs in chromosome 14. The primitive loop during embryonic developmental process traverses into the opposite direction of normal position resulting to organ displacement [4]. In situs inversus totalis morphologically left atrium is located in the right side and morphologically right atrium is in the left side, also the lungs have changed their positions, as left lung has three lobes and right lung contains two lobes [2]. Abdominal organs demonstrate reversed position, liver, gall bladder, ligament of Treitz, ileum and ascending colon are in the left side and spleen, stomach, jejunum and descending colon locate in the right side [2]. This congenital anomaly affects both males and females equally. The affected individuals usually have an asymptomatic life but in 3-5% of cases congenital heart diseases can occur. The atrioventricular discordance and trans-

position of great vessels are the commonest associated abnormalities while the right sided aortic arch occurs in about 80% of cases [5]. Some people with situs inversus suffer from chronic sinusitis, bronchiectasis and nasal polyposis making a syndrome called kartagener syndrome [6]. A very rare type of situs inversus is accompanied with normal left side cardiac position, called situs inversus with levocardia. This anomaly is highly seen with congenital heart diseases which make about 95% of cases. The affected population with Situs inversus dextrocardia usually does not need any specific treatment except when they are symptomatic or whenever any treatable congenital heart anomaly is present. However the recognition of this congenital condition is essential when any interventional procedure or emergency surgery is going to be done in order to avoid any mishaps [7].

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