Clinically the jugular venous pressure was difficult to interpret because of tricuspid incompetence, and pulsus paradoxus was not documented; the characteristic hemodynamic features of constrictive pericarditis were masked by the obstruction to right ventricular outflow. It may be that in our case, where there was severe right ventricular failure with pulsus alternans, the left ventricular output remained constant, and pulsus paradoxus was, therefore, absent. Similarly, the electrocardiogram was misleading; occasionally, tracings are normal, but in the majority, there is low voltage with T wave flattening or inversion, and the QRS axis is characteristically normal. Only rarely is there evidence of right axis deviation and right ventricular hypertrophy.

In the reported cases of pericardial disease simulating infundibular pulmonic stenosis, the calcific band was readily resectable or divisible at surgery. In the case described by Weglicki et al., the pressures in the right ventricle were recorded before and after lifting the band off the outflow tract. Our case posed a more formidable surgical problem, because the fibrous tissue was deeply embedded and incorporated into the myocardium, and resection resulted in severe myocardial damage.

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Mirror-Image Dextrocardia with Thoracic-Abdominal Discordance and Normal Spleen


Mirror-image dextrocardia is usually associated with situs inversus. We present the case of a 36-year-old man in whom mirror-image dextrocardia without any intracardiac anomaly was associated with thoracic-abdominal discordance and a normal spleen. The abdominal organs were in the normal position. This case represents a rare type of specific anomaly of visceral position characterized by complete thoracic-abdominal discordance.

Mirror-image dextrocardia in an adult is normally associated with situs inversus. Whenever the visceral position and the atrial position do not correspond (ie, situs solitus of the viscera with situs inversus of the atria), the situation suggests splenic dysgenesis (asplenia or polysplenia) characterized by major intracardiac malformations, visceral heterotaxia, isomerism, and absence of the inferior vena cava. However, described three cases of isolated abdominal or thoracic situs inversus with a normal spleen and a normal heart or relatively mild cardiac malformations. We have come across a case of discordant positions of the thoracic and abdominal viscera in an asymptomatic 36-year-old man with mirror-image dextrocardia and situs solitus of the abdominal organs. The case exemplifies a rare type of specific anomaly of discordant visceral-atrial positions in the absence of asplenia or polysplenia.

**CASE REPORT**

A 36-year-old man who worked for 18 years in the army was referred for investigation of dextrocardia. The patient was asymptomatic with normal effort tolerance. Except for dextrocardia, the physical examination was unremarkable. A chest roentgenogram showed dextrocardia, a stomach bubble on the left side, and normal pulmonary fields.

An electrocardiogram showed inverted P waves in leads I, aVL, and V2 to V3; an upright P wave in lead aVR; and normal QRS progression from leads V2 to V6. The electrocardiographic findings were consistent with mirror-image dextrocardia. Barium-meal studies revealed the stomach on the left side and the cecum on the right side of the midline (Fig 1). A choledochoagram showed a normal gallbladder on the right side. A bronchogram (Fig 2) revealed situs inversus thoracis with the left lung trilobate and the right lung bilobate. The left lung showed a normal

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upper lobar pattern for a trilobate lung, but the origin of the middle lobar bronchus was very close to the upper lobar bronchus (normal, about 1½ inches away). The right lung had the bronchial distribution of the left lung.

An isolated liver scan (Fig 3A) was performed using radioactive 131iodine-labelled rose bengal. The scan showed bilateral symmetry, as the right and left lobes were almost equal in size. A liver and spleen scan (Fig 3B) was performed after an intravenous injection of radioactive 99mtechnetium phytate. Anteroposterior and right lateral views were obtained with a scintillation camera. The appearance of the liver was essentially the same as seen with the 131iodine-labelled rose bengal scan. The spleen was of normal shape and size and was situated in the left hypochondrium somewhat lower than normal because of the overlying left lobe of the liver. Cardiac catheterization and angiographic studies confirmed mirror-image dextrocardia (Fig 4).

The final diagnosis was atrial inversion, with concordant ventricles (l-loop) and normally related arteries in the inverse position, the inferior vena cava draining into a left-sided right atrium, normal position of the abdominal organs, and situs inversus thoracis.

**DISCUSSION**

Van Praagh and associates classified dextrocardia into eight anatomic types—three types of situs solitus (normally related great arteries, d-transposition, and l-transposition), three types of situs inversus (inversely related great arteries, l-transposition, and d-transposition), and asplenia or polysplenia (d-transposition and l-transposition). The present case has normal position of the abdominal organs, mirror-image dextrocardia, situs inversus thoracis, and a normal spleen; so it does not fit into any of these eight types.

In a postmortem series of 41 cases of dextrocardia, Lev et al reported two cases of discordant thoracic-abdominal position unaccompanied by any splenic abnormality. These investigators classified cases of mirror-image dextrocardia as "true" or "presumptive," according to the morphology of the atrial septum. The two cases of discordant positions in the series of Lev et al had "true" mirror-image dextrocardia, while all cases of "presumptive" mirror-image dextrocardia had either asplenia, a bilobate spleen, or polysplenia. Thus, it seems that a normal spleen is associated with definite morphologic right and left atria. In our case, it was difficult to identify the septal morphology from the angiograms, but the angiocardiographic outlines of the chambers make it certain that they are "true" right and left atria in the mirror-image position.

In the report of Lev et al, one of the two cases with discordant positions had "true" mirror-image dextrocardia with associated tetralogy of Fallot, situs solitus abdominalis, and bilobate lungs bilaterally. The second case had "true" mirror-image dextrocardia with complete inverted transposition and a right-sided patent ductus arteriosus, situs inversus abdominalis, and situs solitus thoracis. The present case is similar to case 3 of Has treiter and Coronel. In both cases, mirror-image dextrocardia with discordant positions was not accompanied by any intracardiac anomaly. The cases with visceral heterotaxia and asplenia or polysplenia have usually severe cardiac malformations, such as conotruncal anomalies, endocardial cushion defect, septal defects, and
anomalies of the pulmonary or systemic venous return.

The present case shows thoracic-abdominal discordance with mirror-image dextrocardia, but no intracardiac abnormality, and a normal spleen. This is a specific type of rare anomaly that should be kept in mind when dealing with dextrocardia. To our knowledge, this anomaly has not been previously reported in a patient so late in life.

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Nonparoxysmal Atrioventricular Junctional Tachycardia and Sinus Rhythm with Complete Heart Block Distal to the His Bundle*

A Case with Isohythmic Atrial-His Dissociation

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Nonparoxysmal junctional tachycardia, concealed to surface electrocardiographic studies, was found by His bundle recording in a patient with complete heart block distal to the His bundle. The His bundle deflection shortly followed, merged with, or shortly preceded the atrial depolarization (isorythmic atrial-His dissociation). Intact anterograde and retrograde atrial-His conduction patterns were present. Whenever one pacemaker would slow or speed its rate in relation to the other, the faster pacemaker would capture the atria. During anterograde capture, the spontaneous atrio-His (A-H) interval was fixed

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