

Case Report

DEXTROCARDIA WITH SITUS INVERSUS TOTALIS IN A TANZANIAN MALE CADAVER: A RARE VARIATION

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ABSTRACT

Dextrocardia with Situs Inversus is a rare heart condition characterized by not only variant positioning of the heart, but also the mirror-image reversal of the organs in the chest and abdominal cavity. Dextrocardia with Situs inversus totalis was detected incidentally in a 30-35-year-old male cadaver in our daily routine dissection for undergraduate medical students. We found that the right lung was bi-lobed and had a cardiac notch while the left lung had three lobes. The liver and gallbladder were positioned on left and the spleen on the right. The arch of aorta passed posteriorly to the right and azygous vein arched on the left bronchus to enter the superior vena cava on the left side. Situs inversus, though rare condition, is dangerous if not diagnosed prior to surgery.

KEY WORDS: Dextrocardia, Situs Inversus, Situs Inversus Totalis, transposition of great vessels.

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INTRODUCTION

Dextrocardia is a congenital defect in which the heart is pointed towards the right side of the chest instead of normally pointing to the left [1]. Situs inversus is a short form of the Latin phrase "Situs inversus Viscerum" meaning "inverted position of the internal organs, as first described by Marco Severino in 1643 [2]. The anomaly is said to have a genetic background, following an autosomal recessive pattern of inheritance. It is usually associated with congenital heart disease like transposition of the great vessels [3]. People with the condition are said to experience no symptoms until they seek medical attention for unrelated conditions. However, it has been revealed that in some of the cases, the syndrome coexists with Kartagener syndrome, which is characterized by chronic sinusitis, bronchiectasis and susceptibility to infections [4].

CASE REPORT

In our daily routine dissection for undergraduate medical students at Hubert Kairuki Memorial University, Dextrocardia with Situs Inversus was detected incidentally in male cadaver aged between 30 to 35 years. The cadaver was one out of 16 cadavers (15 male and 1 female) dissected as part of medical training program in human anatomy. We found that the right lung was bi-lobed and had a cardiac notch while the left lung had three lobes. In this case the liver and gallbladder were positioned on left side, the stomach and spleen were found on right side (Figure 1).

The arch of aorta passed posteriorly to the right and azygous vein arched the left bronchus to enter the superior vena cava on the left side. One branch and a trunk were observed to arise

from the right arched aorta, the right subclavian artery, and the common trunk divided into the right common carotid artery and Right brachiocephalic trunk which in turn divided into the left common carotid and left subclavian arteries (Figure 2). Further observations revealed mal-rotation of intestinal loops and thereby lodging ascending colon, cecum and appendix on left side; sigmoid colon on the right (Figure 3).

Fig. 1: A right arched aorta; RAA: the right subclavian artery; RSA: right common carotid artery; RCCA: Right brachiocephalic trunk; RBT: A Common trunk (Red star*).

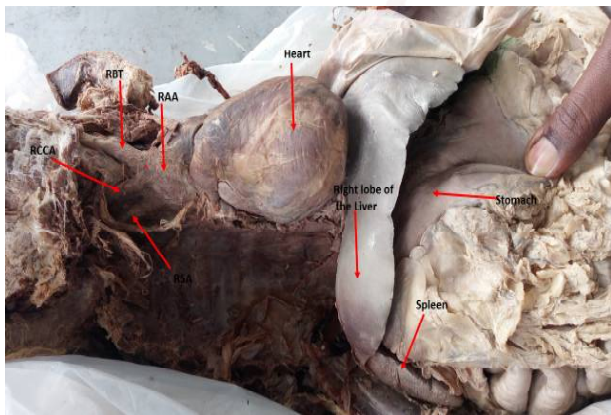


Fig. 2: A right arched Arc of aorta; AoA: the left brachiocephalic trunk; LBCT: right common carotid artery; RCCA: left common carotid Artery; LCCA: Right common carotid Artery; RCCA.

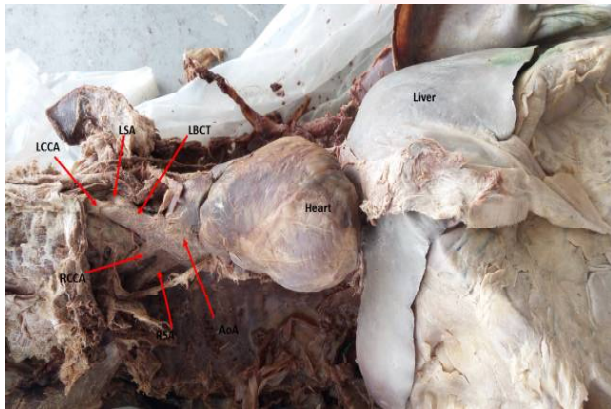


Fig 3: Left Common Iliac Artery (Red star*).



DISCUSSION

Dextrocardia with situs inversus totalis is a rare congenital condition in which the organs of the chest and abdomen are arranged in a perfect mirror image reversal of the normal positioning. Situs inversus totalis is a rare condition occurring in about 1:10,000 live people [2]. A few cases of situs inversus totalis have been described in the literature. Radhika D. et al. (2011) in their case report on Dextrocardia with Situs inversus found that the visceral organs such as stomach and spleen were located on the right side, while the liver and gallbladder were located on the left side. They also observed that the right and left lung were bi-lobed [5]. On the other hand, Kumar A. et al. (2014) reported on the case of a 7-month-old Indo-Aryan baby girl who had dextrocardia with situs inversus totalis. Using electrocardiogram and echocardiography they confirmed that her heart was located in the right hemi-thorax and by using an abdominal sonogram revealed that her liver and gall bladder were in the midline of her abdomen whereas her stomach was located more towards the right side, surprisingly, her spleen was absent [6]. Das D.K. and Shukla S. (2015) also reported dextrocardia with situs inversus in two identical twins. In case 1 the stomach was on right side and liver on left side of abdomen, however, in case of 2nd twin heart position was found to be in a normal position but there was transposition of abdominal organs [7]. Most people with situs inversus have no medical symptoms or complications resulting from the condition except difficulty in diagnosing appendicitis, auscultating heart sounds and palpation of liver etc. during routine clinical examination. However, some common congenital cardiac defects have been reported including transposition of the great arteries and ventricular septal defects [5]. Complete Situs Inversus may also be associated chronic sinusitis (Kartagener syndrome) which represent 20-25% cases and adenoid hypertrophy [5,8].

Situs inversus, though rare condition, is dangerous if not diagnosed prior to surgery. Failure to recognize situs inversus before performing a surgical procedure may result in intervention on the incorrect side in the patient, particularly in cases of appendicitis, cholecys-

-titis and other abdominal organ lacerations. Therefore, surgeons and radiologists should be conscious of this variation, during preoperative and surgical management. Encourage routine premedical examination helps the patient aware of his condition, thereby preventing wrong diagnosis possibly death due to delay in surgical management.

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Conflicts of Interests: None

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