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Educational Abstract

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Situs Inversus Totalis, The Twisting Mirror Anomaly, A Pitfall

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Learning objectives

To describe the characteristics of situs inversus totalis and its appearances on chest x-ray (CXR) in order to help clinicians to avoid mishaps in making diagnosis and further medical procedures, especially in emergency setting and limited radiology resources.

Background

Situs inversus, a rare congenital anomaly, characterized by transposition of abdominal organs and mostly the cardiac apex relative to normal (situs solitus). The incidence rate is 1 to 10,000 live births and generally, it was an incidental x-ray finding. Usually, CXR is the first-line imaging modalities that's mostly used in emergency setting and limited resources. On CXR findings, situs inversus totalis will show an opposite of the normal anatomical location of cardiac apex, aorta, abdominal organs and gastric gas.

Findings & Procedure details

Special attention was put on the x-ray marker position and anatomical location of cardiac apex, aorta (which was quite hard in pediatric patients), abdominal organs and gastric gas on CXR. We reported five cases with CXR findings of situs inversus totalis from August 2017 to August 2018. Three of them established an accompanying congenital malformation and while the rest were incidental findings.

Conclusion

Using CXR study solely with focusing on the x-ray marker position and anatomical location of cardiac apex, aorta, abdominal organs and gastric gas, may help clinicians to avoid mishaps in making diagnosis and further medical procedure.