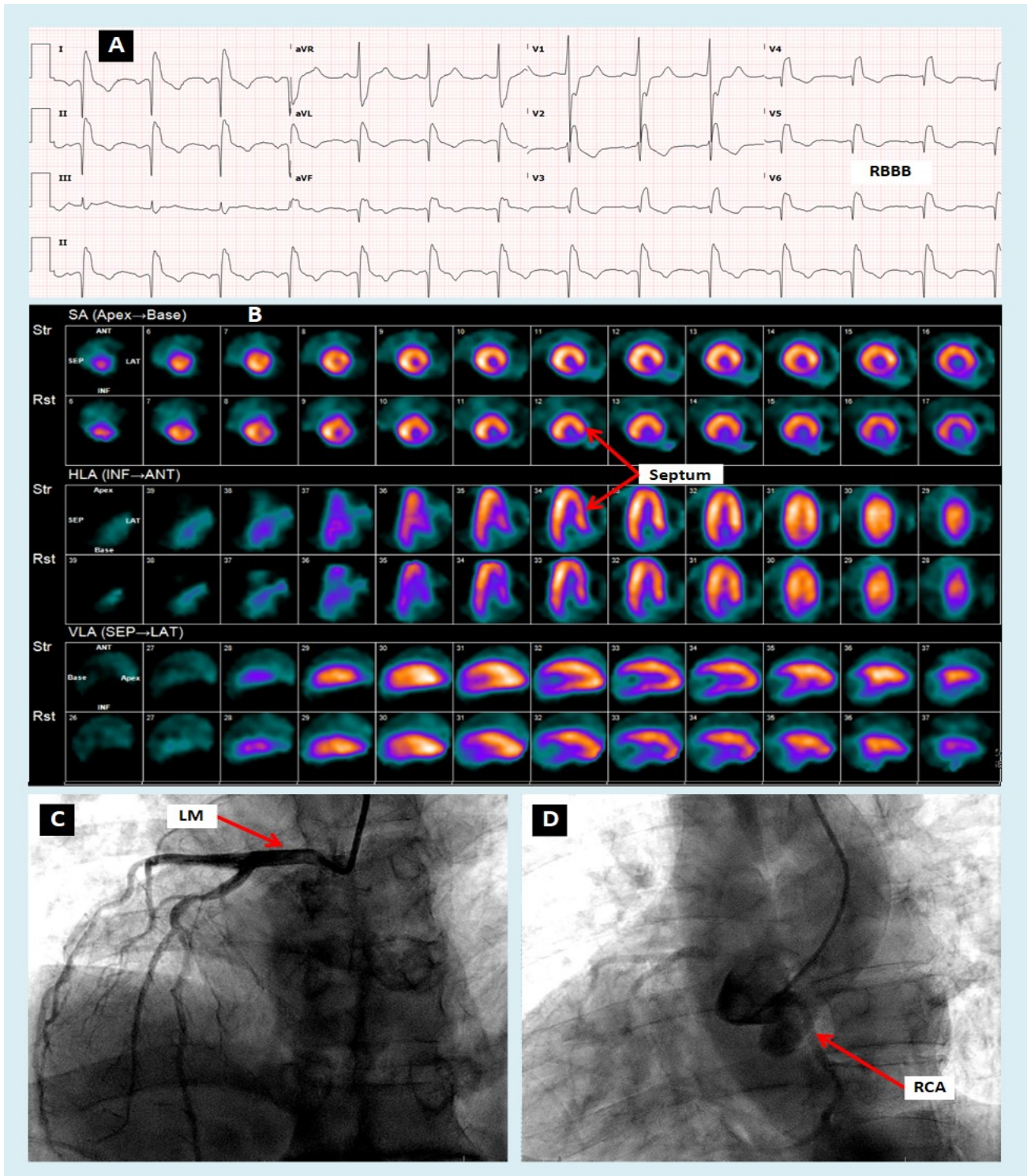


Dextrocardia Imaging Challenges: *Dextrocardiodiagnostics!*

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Description

The above images illustrate some of the challenges in interpreting cardiac tests of patients with dextrocardia. Panel A shows an electrocardiogram (ECG) with right bundle branch block (RBBB) where the RSR' pattern is inverse and is seen starting in lead V6 progressing towards lead V1. Panel B shows the nuclear results of a Lexiscan (regadenoson) Sestamibi pharmacologic stress test, with the septum appearing laterally in the short axis and horizontal long axis planes. Panel C reveals an angiogram with selective injection of the left main (LM) coronary artery which is anatomically rightward coursing towards the left ventricle. Panel D reveals a root injection with nonselective opacification of the right coronary artery (RCA) after unsuccessful attempts at engaging the right coronary ostium.

Discussion

Dextrocardia is a rare form of congenital heart disease reported in approximately 0.22% of the population [1]. It can be isolated, or associated with other congenital anomalies such as persistent right superior vena cava [2]. The association of dextrocardia with RBBB has also been reported previously [3].

When interpreting diagnostic testing in patients with dextrocardia, it is important to recognize the inverse orientation of structures. As in the above example, myocardial perfusion imaging in dextrocardia patients may lead to erroneous assumption of decreased uptake in the lateral wall if it is not recognized that what is being examined is actually the septal wall, which happens to be normally shorter with less basal perfusion [4].

Coronary angiography [5] and angioplasty [6] have been reported and can be more challenging in dextrocardia patients. The left transradial approach appears to be safe [7], and has been successfully utilized in the setting of myocardial infarction [8].

The unfamiliar right-sided (opposite) view of the coronaries can be confusing to the angiographer and can be compensated for by image double-inversion technique to adjust for the inverse and

angulated views [9]. This technique has also been employed in multi-vessel percutaneous coronary intervention [10] and in primary coronary intervention in dextrocardia [11].

Conclusion

Dextrocardia is a rare congenital anomaly and presents challenges in diagnosis and treatment, mandating special approaches in imaging [12] and coronary angiography [13], often unfamiliar to practitioners. The concomitant presence of other congenital anomalies further complicates the diagnostic approach and nomenclature of such associated conditions in dextrocardia [14]. Efforts at illustrating dextrocardia using pictorial presentations are helpful in simplifying the understanding of the condition [15]. It may be worthwhile combining published innovative diagnostic approaches in patients with dextrocardia and other associated conditions in one field of dextrocardiodiagnostics.

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