Right Sided Heart: Seeing Beyond the Chest Radiograph

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Fig. 1: Chest radiograph of female patient showing right sided heart with reduced right lung volume and pleural thickening at right apex with fibrotic opacities right upper lobe

Fig. 2: Posterior coronal volume rendered reconstruction showing thirteen pair of ribs bilaterally (white arrows)

Fig. 3: CECT chest sagittal oblique MIP image showing right pulmonary vein (black arrow) draining into superior vena cava (white arrow)

Fig. 4: CECT chest axial mediastinal window showing tortuous right pulmonary artery with reduced calibre (black arrow)

A 5 year old female presented to the Department of Pulmonary Medicine, Government Medical College and Hospital, Chandigarh, with history of shortness of breath since childhood with seasonal variation of symptoms. Chest examination revealed bilateral ronchi. Cardiac sounds, though normal, but were heard on right side. Spirometry showed reversible airflow limitation consistent with bronchial asthma. Chest radiograph showed cardiac shadow on the right side (Figure 1). Since the patient had bronchial asthma and right sided heart, keeping the possibility of Kartagener syndrome and/or allergic bronchopulmonary aspergillosis (ABPA) in mind, she was specifically investigated for any situs inversus/bronchiectasis. Contrast enhanced computed tomography (CECT) with high resolution cuts of chest showed thirteen pair of ribs bilaterally (Figure 2). There was collapse of right upper lobe, right pulmonary vein was seen draining into superior vena cava, the course of right pulmonary artery was tortuous with reduced calibre (10.8 mm) and there was dextropositioning of heart (Figures 3 and 4). Thus Partial anomalous pulmonary venous connection (PAPVC) was incidentally diagnosed. Suspecting an associated atrial septal defect with PAPVC, echocardiography was done which was found to be normal. Patient was reassured and treatment of asthma was optimised. As per the literature, such isolated PAPVC may be complicated with pulmonary hypertension and right heart failure in future hence close monitoring is required.¹ Patients need to be treated only when they develop these complications. Since PAPVC was asymptomatic in our patient, hence she was kept on close follow up.

A right sided cardiac impulse (during examination) with right sided heart on chest radiography should not be taken as confirmatory for dextrocardia. Since India is a high burden country for Tuberculosis, a right sided heart can just be a sequelae subsequent to the disease/effective treatment.² Collapse of the right lung, secondary to fibrosis or due to intraluminal occlusion (malignancy/foreign body) may give clinical impression of dextrocardia. Such causes can easily be clinched on detailed history, physical examination and other supportive radiographic features. However, further detailed work up of a right sided heart may still be required to differentiate various entities like dextropositioning, dextrocardia, dextrocardia with situs inversus and dextrocardia with situs inversus totalis.³,⁴ Because of the association of a right sided heart with various cardiac and pulmonary anomalies, they should be thoroughly looked for, before reaching the final diagnosis. Adequate recognition of the pathology will facilitate in providing better and timely care, as was our patient where detailed work up of a right sided heart revealed it to be a mere dextropositioning rather than dextrocardia and an unknown

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Received: 02.02.2018; Accepted: 20.11.2018
extremely rare isolated PAPVC was clinched along with, guiding us to manage the patient in totality and follow her up in future.

References