suggestive of pulmonary venous obstruction. This was confirmed on transoesophageal echocardiography. Patient was posted for percutaneous balloon angioplasty of pulmonary veins. After right femoral venous puncture, the wire did not cross the IVC. Hence check angiography was done through right femoral venous sheath which showed total occlusion of IVC in lower abdomen with reformation of IVC in the upper abdomen through tortuous collaterals arising from left common iliac vein. There was no channel through which the wire could reach the RA safely. Hence the procedure was abandoned and the patient was posted for surgical correction of pulmonary vein stenosis. After the surgical reconstruction, patient developed sudden right heart failure and subsequent cardiogenic shock, renal failure, and sepsis. The patient was intubated and kept on mechanical ventilator, managed with ionotropic support, intravenous antibiotics and three cycles of hemodialysis. The patient was discharged after 10 days of surgical correction.

The pulmonary hypertension crisis at the time of presentation led to hypoxemia that triggered an increase in pulmonary vascular resistance, increased hydrostatic pressure, and worsened pulmonary edema. Given the extent of the baseline pulmonary hypertension in our patient, pulmonary vascular recruitment was likely limited, which explained the inability of the pulmonary circulation to accommodate an acute increase in pulmonary pressures. The latter, in combination with the underlying broncho-pulmonary dysplasia, may account for the patient's cardiorespiratory failure despite unilateral disease. In the small group of patients with diffusely hypoplastic pulmonary veins, the term ''primary'' pulmonary vein stenosis is preferred. The reason for this difference in terminology is that it is becoming more apparent that the disease is often progressive and may not even be evident at birth.

Percutaneous balloon valvuloplasty with inoue balloon catheter technique for pulmonary valve stenosis in adolescents and adults

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Background: Percutaneous balloon valvuloplasty (PBV) is the procedure of choice for uncomplicated severe or symptomatic pulmonary stenosis. Current approaches utilize various fixed size balloon catheters using a single or double balloon technique. The present report describes our experience in BPV using the inoue balloon catheter in adolescent and adult patients.

Aim: To assess the immediate and mid-term outcomes of PBV for pulmonary stenosis with a single inoue balloon catheter in adolescent and adult patients.

Methods and results: Between June 2010 and July 2015, we performed percutaneous pulmonic valvuloplasty with a single inoue balloon catheter in 32 adolescent or adult patients (19 females and 13 males) aged 8–54 years (23.6 ± 11.5). Majority of patients presented with exertional dyspnea (87.5%) while 3 patients had pedal edema and 2 complained of syncope. Pulmonary annulus on catheterization was (18.8 ± 2.2 mm) and balloon-pulmonary annulus ratio was (1.31 ± 0.16). The mean right ventricular systolic pressure and the pulmonary valvular peak-to-peak systolic gradient decreased from (121.6 ± 42.4 to 61.19 ± 24.5 mmHg) and (100.9 ± 43.3 to 36.4 ± 22.5 mmHg), respectively, following PBV. Post procedure, reactive right ventricular outflow tract stenosis was seen in 5 patients and mild pulmonary regurgitation was detected in 10 patients. Clinical and Doppler echocardiographic follow-up studies were performed 0.2–5 years after the procedure in 17 patients. All patients were asymptomatic at follow up. Right ventricular outflow tract stenosis was attenuated in all 5 patients on follow-up. There was no increase in grade of pulmonary regurgitation. There was no restenosis in the followed-up patients with maintenance of good RV function [RV-PA gradient and TAPSE on echocardiography (19.94 ± 8.46 mmHg) and (22.7 ± 1.49), respectively].

Conclusions: Patients with congenital pulmonic stenosis who present in adolescence or adult life can be treated with PBV using inoue technique with excellent short- and intermediate-term results.

Congenital heart disease: Spectrum and distribution at a tertiary health care centre in western India

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Background: Changing pattern and incidence of congenital heart diseases (CHD) have been observed in various geographical locations.

Aim: To study the frequency, age-wise distribution, and spectrum of CHD at a tertiary health care centre in Ajmer, Rajasthan.

Methods: A retrospective analysis of case records of 8641 patients in the age group of 0–18 years from January 2008 to July 2015 was done to ascertain the spectrum and distribution of CHDs. Clinical examination, electrocardiography, chest X ray, and transthoracic echocardiography were used as diagnostic tools.

Results: Out of 8641 patients, 2052 (23.75%) were found to have CHD. Male preponderance was observed (male to female ratio = 1.43). Study group comprised of 12.62% neonates, 39.38% infants, and 47.81% of more than 1-year age. A total of 1742 (84.89%) were acyanotics, and 310 (15.11%) suffered from cyanotic heart disease. Among the acyanotic heart diseases, ventricular septal defect (VSD) was the most frequent lesion seen in 700 (40.18%), followed by atrial septal defect (ASD) in 370 (21.24%) children. Among the cyanotic heart diseases, tetralogy of Fallot (TOF) was the most frequent cyanotic heart disease seen in 196 (63.23%) patients.

Conclusion: The frequency of CHD at a tertiary care centre in western India was 23.75%. VSD and ASD were the most common acyanotic while TOF was the commonest cyanotic congenital heart defect observed. TTE plays a major role in the diagnosis of CHD. When clinical evidences lead to suspicion of congenital heart defect, an echocardiography should be performed.

Overall distribution			
Acyanotic (*n* = 1742, 84.89%)		Cyanotic (*n* = 310, 15.11%)	
VSD	700 (40.18%)	TOF	196 (63.23%)
ASD	370 (21.24%)	TGA	32 (10.32%)
PDA	163 (9.36%)	DORV	18 (5.81%)
PS	134 (7.69%)	AVSD	20 (6.45%)
AS	33 (1.89%)	Single ventricle	10 (3.22%)
Others	342 (19.64%)	Others	34 (10.44%)