



RARE ISOLATED PARTIAL ANOMALOUS PULMONARY VENOUS RETURN TO CORONARY SINUS

Aso Salih* and Talal Alsaedy**

Submitted: 17/7/2014; Accepted: 17/9/2014; Published: 1/12/2014

ABSTRACT

A 6-years-old female was referred to our clinic for evaluation of symptomatic tachypnea, exertional dyspnea and previous echo finding of unexplained right side heart enlargement. An isolated anomalous pulmonary venous return of both right pulmonary veins to the coronary sinus vein was diagnosed after echocardiographic and CT angiogram evaluation. Adequate choice of surgical approach was done.

Keywords: Partial anomalous pulmonary venous return, Isolated, Coronary sinus

INTRODUCTION

Abnormal development of the pulmonary veins may result in either partial or complete anomalous drainage into the systemic venous return ⁽¹⁾. The following case report presents a rare anatomical type of isolated partial anomalous pulmonary venous return (PAPVR).

CASE PRESENTATION

A 6-years-old female was refer to our clinic for evaluation of pulmonary hypertension and right side enlargement of the heart. The patient complained of exertional dyspnoea (NYHA class II), normal weight but had no other relevant findings on physical examination.

ECG showed sinus rhythm with incomplete right bundle branch (figure 1). Previously performed transthoracic echocardiogram with a bad acoustic window revealed moderate dilatation of right atrium

and ventricle (RV diastolic diameter 43 mm; LV diastolic diameter 38 mm). Systolic pressure of the pulmonary artery (PAP) estimated, as 35 mm Hg. Intracardiac shunts excluded, namely atrial septal defect.

An abnormal non restrictive flow through tunnel seen from right upper pulmonary veins vertically in to coronary sinus eventually drains in to RA

A CT performed and PAPVR of both right pulmonary veins to the Coronary sinus vein in which the diagnosis was confirmed (figures 2 A and B). Cardiac catheterization not performed.

The patient underwent corrective surgery and post operatively he had nodal rhythm with 1:2 and 1:3 block, the heart rate was around 70 beat / min, eventually after 14th days post-operatively an intracardiac device single chamber type was inserted.

* Department of Paediatrics, School of Medicine, Faculty of Medical Sciences, University of Sulaimani.

Correspondence: asofaek@hotmail.com

** Department of Surgery, Sulaimani Cardiac Centre, Sulaimani. Kurdistan, Iraq.

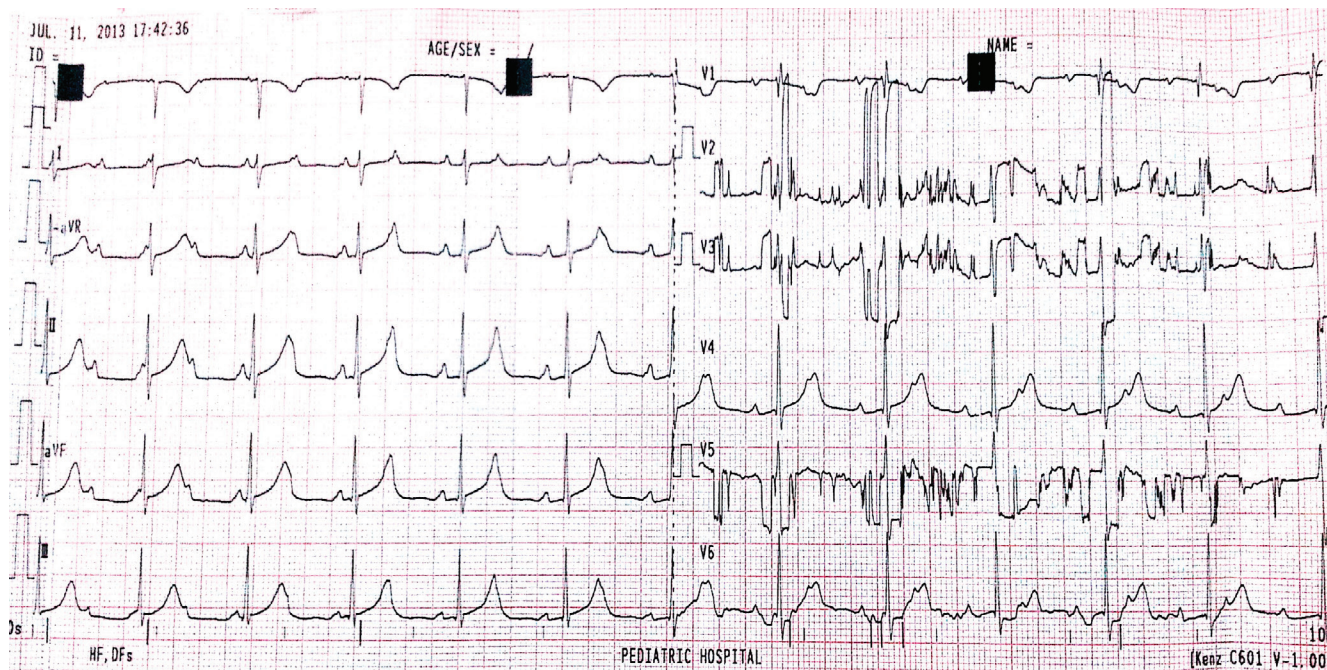


Figure 1. ECG showing sinus rhythm with incomplete right bundle branch.

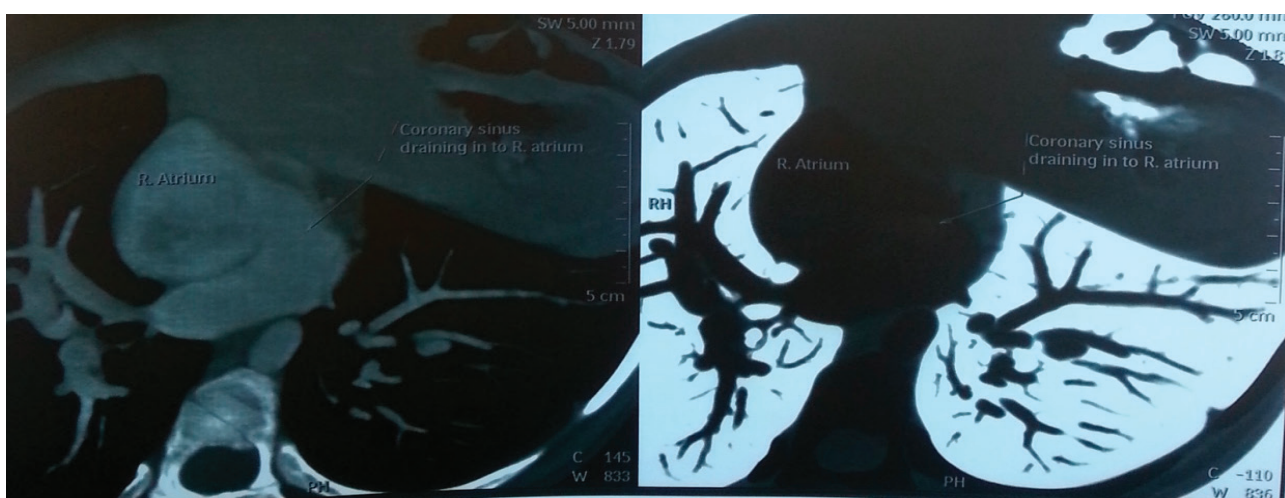
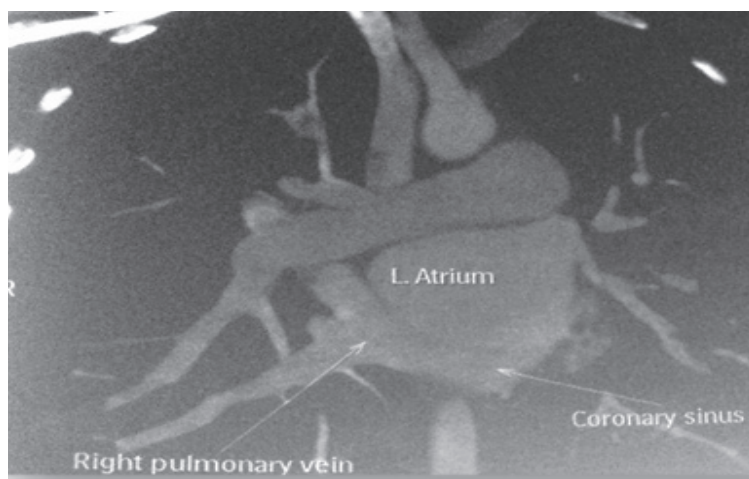


Figure 2. CT Angiogram showing PAPVR of both right pulmonary veins to the coronary sinus vein.

DISCUSSION

The authors report a rare anatomical type of isolated PAPVR in a symptomatic patient with high pulmonary pressure. PAPVR occurs when one or more (but not all) pulmonary veins abnormally connected to the right atrium, directly or indirectly, via the superior or inferior vena cava. This entity is found in 0.4–0.7% in autopsy series of patients with congenital heart disease ⁽²⁾.

Even though involvement of the right pulmonary veins seems to be more common (from 2 to 10 times more frequent) ⁽³⁾.

There have been some recent contradicting studies showing similar prevalence in a series assessed by multi-detector CT ⁽⁴⁾. Simultaneous cardiac involvement (frequently atrial septal defect of sinus venosus type) found in 90% of patients ⁽⁵⁾ but in our case, no ASD association found.

PAPVR with intact septum (isolated PAPVR) is rare and commonly involves anomalous drainage of the right upper pulmonary vein into the superior vena cava. Drainage from the left lung into the innominate vein is extremely rare (only 3% of patients) but in our case it is normally drained. PAPVR can be easily missed in routine echocardiography if a high level of suspicion is not undertaken.

Careful assessment of the pulmonary veins recommended in every patient with pulmonary hypertension and/ or right side heart enlargement.

The drainage of both right pulmonary veins into the coronary sinus has to be considered in differential diagnosis when we note a dilated coronary sinus with dilated right side of the heart. Contrast CT scan can non-invasively confirm the diagnosis and provide precise anatomical details of the PAPVR in order to plan corrective surgery.

REFERENCES

1. Bernstein D. Total anomalous pulmonary venous return. In: Kliegman RM, Stanton BF, Schor NF, St. Geme JW and Behrman RE. Nelson Textbook of Pediatrics, 19th Edition. 2011; Elsevier, Saunders; Philadelphia. pp. 1589
2. Zwetsch B, Wicky S, Meuli R, et al. Three-dimensional image reconstruction of partial anomalous pulmonary venous return to the superior vena cava. *Chest* 1995; 108: 1743 – 5.
3. Snellen HA, van Ingen HC, Hoefsmit EC. Patterns of anomalous pulmonary venous drainage. *Circulation* 1968; 38: 45 – 63.
4. Ho ML, Balla S, Bierhals A, et al. MDCT of partial anomalous pulmonary venous return (PAPVR) in adults. *J Thorac Imaging* 2009; 24: 89 – 95.
5. SHUMACKER HB Jr, JUDD D. Partial anomalous pulmonary venous return with reference to drainage into the inferior vena cava and to an intact atrial septum. *J Cardiovasc Surg (Torino)* 1964 ;5 : 271 – 8 .