



Aortocaval Tunnel to the Superior Vena Cava: A Case Report

Rezvanieh Salehi¹, Bahman Rastkar¹, Abbas Afrasiabi², Leili Pourafkari^{1*}

¹Department of Cardiology, Tabriz University of Medical Sciences, Tabriz, Iran

²Department of Cardiac Surgery, Tabriz University of Medical Sciences, Tabriz, Iran

ARTICLE INFO

Article Type:
Case Report

Article History:

Received: 21 Feb 2011
Accepted: 9 March 2011
ePublished: 28 May 2011

Keywords:

Aortocaval
Superior Vena Cava
Tunnel

***Corresponding Author:**

Leili Pourafkari,
Tel: +98 (411) 3357767,
Fax: +98 (411) 3344021,
E-mail: leili.p@gmail.com

Copyright © 2011 by Tabriz University
of Medical Sciences

ABSTRACT

A 20-year old female with a rare anomaly of aortocaval tunnel to superior vena cava is presented. Rare cases of congenital communications between aorta and right sided of the heart has been reported previously. The patient underwent surgical repair and had uneventful recovery.

Case Report

A 20-years old female presented with dyspnea on exertion of the New York Heart Association (NYHA) functional class II for the past 2 years. On physical examination a transthoracic two-dimensional echocardiography (2-D) and color Doppler revealed an enlarged left atrium and left ventricle, global left ventricular ejection fraction (LVEF) was about 45-50 percent, less than moderate mitral regurgitation (MR) with continuous flow in left atrium apart from MR jet.

Contrast injection for ruling out of common pulmonary vein was performed which showed no right sided chambers visualization. On transesophageal echocardiography ostium of left coronary artery and right coronary artery were seen with an isolated large duct (with width of 3×5 cm) which extended from left coronary sinus to the left atrium. The patient was scheduled for cardiac catheterization. Oximetry during cardiac catheterization revealed an increased oxygen saturation of 88% at right atrial level. Injections in left

ventricle and aortic root clarified the proximal and distal ending of the fistula compatible with a large size fistula of ascending aorta to left atrium. Normal coronary arteries and intact inter ventricular septum were also noted. The patient was scheduled for surgery. During surgery a large size duct extending from left coronary sinus to posterior of aorta was identified with a large size pouch ($2 \times 5 \text{ cm}^2$) at top of left atrium with another orifice (5 mm) to SVC. Closure of fistula was performed via left coronary sinus with a $4 \times 5 \text{ mm}^2$ Gortex patch and mitral valve was also repaired.

Discussion

Communication between aorta and right side of the heart includes coronary artery fistula, ruptured sinus of valsalva, congenital tunnel to right ventricle or right atrium, aortocaval fistula, rupture of dissecting aneurysm of ascending aorta,¹ and pseudoaneurysm of the right coronary artery followed by formation of fistula between the aneurysm and right atrium. Aneurysmal aorto right atrial communication has been reported previously.^{2,3} Patients with this communication were asymptomatic. CT angiography and three-dimensional echocardiography now are key part in preoperative diagnosis. A congenital coronary artery fistula is abnormal direct communication between any coronary arteries and any cardiac chambers, as well as SVC, pulmonary artery, coronary sinus, and pulmonary veins.⁴ Although coronary artery fistulas commonly involve right heart chambers, drainage to SVC is rare. Congenital fistula with large aneurysmal sacculation draining in to the SVC from both coronary arteries has been reported.^{5,6} Selective coronary angiography has been defined the diagnosis. Surgical or trans catheter closure are therapeutic options.⁷ Aortocaval fistula is uncommon and can drain in to SVC or inferior vena cava. The other

causes of aorto caval fistula include dissecting aneurysm in Marfan syndrome¹ and trauma.⁸

Ethical issues: The study was approved by the Ethical Committee of the University.

Conflict of interests: No conflict of interest to be declared.

References

1. Toyoda Y, Yamashita C, Yoshida M, Nohara H, Okada K, Otaki Y, et al. Rupture of a dissecting aneurysm into the superior vena cava in Marfan's syndrome. *J Cardiovasc Surg (Torino)* 1997; 38: 411-413.
2. Coto EO, Caffarena TM, Such M, Marques JL. Aorta--right atrial communication. Report of an unusual case. *J Thorac Cardiovasc Surg* 1980; 80: 941-944.
3. Rosenberg H, Williams WG, Trusler GA, Smallhorn J, Rowe RD, Moes CA, et al. Congenital aortico-right atrial communications; the dilemma of differentiation from coronary artery fistula. *J Thorac Cardiovasc Surg* 1986; 91: 841-7.
4. Mavroudis C, Becker CI, Rocchini AP, Muster AJ, Gevitz M. Coronary artery fistula in infants and children, a surgical review and discussion on coil embolization. *Ann Thorac surg* 1997; 63: 1235-1242.
5. Ritter M, Duetwell S, Jenni R. [Rare association of a coronary fistula with a fusiform aneurysm of the superior vena cava: diagnosis via transesophageal echocardiography and MRI]. *Praxis (Bern 1994)* 1995; 84: 1068-1070.
6. Tada Y, Mori F, Okimi M, Miyamoto M, Fujimura Y, Esato K. [Congenital coronary artery fistula draining into the superior vena cava with giant saccular aneurysm--report of a case]. *Nihon Kyobu Geka Gakkai Zasshi* 1989; 11: 2378-2381.
7. Perry SB, Rome J, Keanne JF, Baim DS, Locke JE. Transcatheter closure of coronary artery fistulas. *J Am coll cardiol* 1992; 20: 205-209.
8. Theron HD, Otto AC, Van Aswegen A, Herbst CP, Kleynhans PH, Lötter MG, et al. Traumatic aorta-vena cava fistula detected with radionuclide angiocardiology. A case report. *S Afr Med J* 1985; 68: 489- 490.