

## Directly ventricular septal defect closure without using arteriovenous wire loop: Our adult case series using transarterial retrograde approach

We read with great interest the article by Pekel et al. (1) titled "Directly ventricular septal defect closure without using arteriovenous wire loop: our adult case series using transarterial retrograde approach" published in the *Anatolian Journal of Cardiology* in this issue.

Ongoing progress in the interventional techniques has now made the transcatheter closure of anatomically selected ventricular septal defects (VSDs) feasible with satisfactory results and low morbidity and mortality rates (2–5). The procedure is routinely performed by passing a guidewire through the defect to the right heart chambers and snaring of the device out of the venous access (the arteriovenous looping or antegrade approach). Subsequently, the delivery system and device are advanced and deployed through the venous site (2). In their study, Pekel et al. (1) presented their experience of the transcatheter VSD closure without using the standard AV loop and have suggested a transarterial approach. However, the approach was used in a limited number of patients with favorable anatomy and therefore cannot be generalized to all VSD closure procedures. Few previous studies have reported successful results with retrograde VSD closure in children using symmetrical VSD occluder devices (2, 4). It should be considered that further limitations might be encountered in adult populations. Firstly, the retrograde approach seems to be less practical in patients with large body sizes and borderline anatomies because of the limited availability of long delivery sheath. Secondly, in the majority of cases, only symmetrical devices can be used. Passing a long delivery sheath through the aortic valve might lead to variable degrees of aortic valve injury or, perhaps theoretically, to hemodynamic consequences of acute aortic regurgitation in case of a prolonged procedure time (4). Further, this approach appears to be associated with less control in avoiding the entrapment of the tricuspid valve chordal apparatus and a higher risk of tricuspid injury in difficult cases with multiple attempts for device deployment than the conventional approach. As the procedure is performed with the delivery sheath in the left heart system, the risks of long ma-

nipulation times in the arterial side should be carefully studied.

On the other hand, this approach could offer short fluoroscopic and procedural times (5). The retrograde approach is also useful in patients with venous anomalies, such as interrupted inferior vena cava. It has been suggested that the transaortic approach causes a lower incidence of complete heart block than the arteriovenous looping approach (4). In summary, we believe that the retrograde approach should be studied in more number of adult patients with long follow-ups before recommending in a larger number of it in routine clinical practice longer.

**Sedigheh Saedi, Tahereh Saedi\***

**Departments of Adult Congenital Heart Disease, \*Cardiology, Rajaie Cardiovascular, Medical and Research Center, Iran University of Medical Sciences; Tehran-Iran**

### References

1. Pekel N, Ercan E, Özpelit ME, Özyurtlu F, Yılmaz A, Topaloğlu C, et al. Directly ventricular septal defect closure without using arteriovenous wire loop: Our adult case series using transarterial retrograde approach. *Anatol J Cardiol* 2017; 17: 461-9.
2. Jameel AA, Arfi AM, Arif H, Amjad K, Omar GM. Retrograde approach for device closure of muscular ventricular septal defects in children and adolescents, using the Amplatzer muscular ventricular septal defect occluder. *Pediatr Cardiol* 2006; 27: 720-8. [CrossRef]
3. Saurav A, Kaushik M, Mahesh Alla V, White MD, Satpathy R, Lanspa T, et al. Comparison of percutaneous device closure versus surgical closure of peri-membranous ventricular septal defects: A systematic review and meta-analysis. *Catheter Cardiovasc Interv* 2015; 86: 1048-56. [CrossRef]
4. Muthusamy K. Retrograde closure of perimembranous ventricular septal defect using muscular ventricular septal occluder: a single-center experience of a novel technique. *Pediatr Cardiol* 2015; 36: 106-10. [CrossRef]
5. Carminati M, Butera G, Chessa M, De Giovanni J, Fisher G, Gewilling M, et al. Transcatheter closure of congenital ventricular septal defects: results of the European Registry. *Eur Heart J* 2007; 28: 2361-8. [CrossRef]

**Address for correspondence:** Sedigheh Saedi, MD, Rajaie Cardiovascular Medical and Research Center  
Niayesh Highway, adjacent to Mellat Park, Tehran-Iran  
E-mail: sedsaedi@gmail.com

**Accepted Date:** 28.02.2017 **Available Online Date:** 09.05.2017

©Copyright 2017 by Turkish Society of Cardiology - Available online at [www.anatoljcardiol.com](http://www.anatoljcardiol.com)  
DOI:10.14744/AnatolJCardiol.2017.24608

