



## Hybrid Procedure in Thoracic Aortic Diseases

Orhan Gokalp\* and Koksal Donmez

Department of Cardiovascular Surgery, Katip Celebi University, Turkey

### Editorial

The conventional method for treating thoracic aortic arch aneurysms is open surgery involving interposition grafting [1]. However, even though this method is commonly practiced, it is still associated with high surgical morbidity and mortality, especially in the patients with several comorbidities [1-5]. As a result, technologies were developed to address the problems of open surgery, and surgeons currently tend to prefer alternative, less invasive treatment options [1,2,5]. Currently, the leading alternative is a hybrid treatment involving the use of both open surgery and endovascular methods at the same or different sessions. Endovascular repair is a less invasive treatment option for many aortic lesions, but endoprosthesis might not be possible in the event of an aneurysm. This is because it may be necessary to close one or some of the arch vessels so that the aneurysm and adequate proximal or distal fixation of the endograft can be ostracized. Consequently, there is a need for hybrid treatments for thoracic aortic aneurysms, including those of the aortic arch.

There are two conflicts on this situation. First one is performing the operation in same session or in a separate session. General practice is performing this procedure in different sessions because hybrid operating rooms are not widespread. Although, if the hybrid procedure is carried out in the same session there are some handicaps like prolonged operation time, more blood loss, and contrast material load [6,7]; its psychological protective effect on the patient during a single anesthesia session and chance of surgical intervention to any complications of endovascular treatment cannot be ignored. For this reason, the issue of whether the procedure should be performed in same session or in separate sessions seems to be a controversial subject.

Second conflict is about alternative ways of hybrid intervention if the intervention is performed in the same session. In this technique endovascular access can be achieved in two ways. The first method is antegrade route using an extra graft directly sutured to ascending aorta or from the ascending aorta. The second method is retrograde access through the femoral or iliac artery.

Performing this procedure by antegrade route provides such advantages as avoiding complications likely to develop in the iliofemoral artery used as the site of access during the procedure and ensuring sufficient length in order for the endograft carrier systems to reach the attachment sites [1,2]. Moreover, presence of shorter carrier systems in the antegrade approach will cause delivery of less rotational power, thus providing maximum precision in the placement of the graft. Another advantage is that antegrade approach permits manual manipulations of the endograft in order to fit it to a desired position in the aortic arch, thanks to the open sternum [1,2]. Apart from that, there appears to be a risk of entering the false lumen in the femoral or iliac arteries upon using the retrograde route especially in dissection cases.

Undoubtedly, hybrid procedure, which is a relatively new procedure according to the conventional method, becomes widespread and the clinical experience in this field increases, the debate on these topics will also decrease. As a result, until the end of the learning period, it seems that the most appropriate protocol is to apply the method that the clinicians themselves are most comfortable with.

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#### \*Correspondence:

Orhan Gokalp, Department of Cardiovascular Surgery, Katip Celebi University, Turkey, Tel: 905052168813;

Fax: 902322431530;

E-mail: gokalporhan@yahoo.com

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