Delay Two Stage Hybrid management for thoracic aorta Pseudoaneurysm in polytrauma

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ABSTRACT

We successfully managed a traumatic thoracic pseudoaneurysm by delay two stage hybrid approach in polytrauma

KEYWORDS: Pseudoaneurysm, Hybrid, Thoracic aorta

CASE

A 19-year-old man who suffered a motorcycle accident in the backseat. was transferred from regional hospital to our trauma center for management of thoracic aortic injury. A Chest Computer tomography (CT) revealed a pseudoaneurysm at proximal descending thoracic aorta with mediastinal hematoma. Pseudoaneurysm was located near the origin of left subclavian artery (Fig. 1). And abdominoplevic CT was revealed concomitant severe hepatic laceration (Grade IV) (Fig. 2). He was admitted in trauma intensive care unit (ICU) and managed pursuant to treat aortic dissection. Next day, prophylactic embolization at both hepatic arteries was performed because of aggravating abdominal distension. So, We planned delayed two-stage hybrid approach for pseudoaneurysm. After 9th day, we performed the arch debranching with 8mm Artificial graft (Hemashield®) (left common carotid artery(LCA) and left subclavian artery(LSA) (Fig. 3) in operating room. After three days from debranching, Thoracic endovascular aortic repair (TEVAR) was performed using 26mm-110mm Seal stent graft (S&G biotech, Seongnam, Korea) in intervention room (Fig. 4). Dysarthria was presented after TEVAR. The evaluation of brain CT angiography and consultation for neurologist revealed the occlusion of right superior cerebellar artery (SCA) due to embolus. Anticoagulation was started and symptom was improved. He was discharged
without complications on 25th day from admission.

Figure 1. Traumatic pseudoaneurysm at near Lt Subclavian artery origin

Figure 2. Hepatic laceration (Gr4)

Figure 3. Debranching CCA and SCA

Figure 4. TEVAR and post procedure angiography.

**DISCUSSION**

Blunt aortic injury (BAI) is the second leading cause of death. According to management for blunt aortic injury according guidelines 2, It is feasible to delay repair for multiple trauma patients with other severe concomitant injuries especially when hemodynamically stable. Since 1997, endovascular repair has been widely used for the management of aortic injury. An endovascular approach has been reported to have higher success rates and lower mortality rates compared with surgical treatment 3. However, traumatic related injuries which located acuteness of the angle of the arch and short distances from arch vessels could be possibly predicted higher risk of endograft failure 4. Mosquera et al reported that 37.9% of the conservative group had an aortic-related complication in long-term results, and survival rate was decreased at 10 years (75.6% at 1 year, 72.3% at 5 years and 66.7% at 10 years). The surgical group remained at 77.2% at 1, 5, and 10 years and the endovascular group was 85.7% at 1 and 5 years in survival rate 5. Hybrid approach
for unsuitable for endovascular repair alone is applicable to thoracic aorta aneurysm. Delay two stage hybrid approach for blunt thoracic aorta injury needed repair, it may be thought a feasible strategy for management of multitrauma patient.

# Conflict of Interest Statement

None of authors have a conflict of interest.

REFERENCES