# Mid-term results of blunt traumatic aortic injury treated with a stent graft in a low-volume institution

*Jun Woo Cho[1], Chul Ho Lee[1], Jae Seok Jang[1], Oh Choon Kwon[1]*
[1]Department of Thoracic and Cardiovascular Surgery, School of Medicine, Catholic University of Dageu

***Background:*** Thoracic endovascular aortic repair (TEVAR) is widely performed for the treatment of blunt traumatic aortic injury (BTAI). While many of the early benefits of TEVAR are known, the long-term results are still unclear. Thus, we investigated the mid-term results of TEVAR for the treatment of BTAI.

***Methods:*** Patients who underwent TEVAR for the treatment of BTAI from January 2009 to December 2019 at a tertiary institution were included in this study. For the mid-term results, we evaluated survival rate, endoleak, and state of the previously injured aorta during the follow-up period. In order to properly evaluate the mid-term results, we also investigated the early results, which included technical success rate, spinal cord injury, stroke, and 30-day mortality.

***Results:*** A total of 18 patients underwent TEVAR for the treatment of BTAI during the study period with a mean follow-up of 76 months. The mean patient age was 48.72 years and only two were female. The technical success rate was 100%, and there was no 30-day mortality, stroke, or spinal cord injury. One patient had intramural hematoma, two had aortic rupture, and the other had focal aortic dissection. Twelve patients had zone 3 lesions, and four patients had zone 2. One patient had a lesion in zone 1, and one patient had a zone 0 lesion; both of these patients were treated with a hybrid procedure. Only one patient underwent left common carotid artery to left subclavian artery bypass surgery for a zone 2 TEVAR. Until the final patient follow-up, no endoleaks were found in any of the patients, and the aortic lesion showed no signs of dissection or aneurysmal change. There were three late deaths with a 5-year survival rate of 83.0%, and all died of causes not related to aortic disease.

***Conclusions:*** TEVAR had favorable initial and mid-term results for the treatment of BTAI. There were no stent-related complications in the remaining aortas, and the mid-term survival rate was excellent.

**Table. Brief summary of results**

| | |
|---|---|
| Demographics and clinical characteristics | |
| Age (years) | 48.72 |
| Sex, male, n (%) | 16 (88.9) |
| Height (cm, ±SD) | 171.5 ± 7.45 |
| Weight (Kg, ±SD) | 69.28 ± 11.52 |
| HTN, n (%) | 3 (16.7) |
| DM, n (%) | 2 (11.1) |
| Old CVA, n (%) | 0 (0) |
| CKD, n (%) | 0 (0) |
| Pathology | |
| Focal aortic dissection, n (%) | 15 (83.3) |
| Aortic rupture, n (%) | 2 (11.1) |
| Intramural hematoma, n (%) | 1 ( 5.6) |
| Max aortic diameter (cm, ±SD) | 30.34 ± 9.09 |
| Proximal landing zone | |
| Zone 0, n (%) | 1 (5.6) |
| Zone 1, n (%) | 1 (5.6) |
| Zone 2 , n (%) | 4 (22.2) |
| Zone 3, n (%) | 12 (66.7) |
| Early postoperative results | |
| Technical success rate (%) | 100 |
| 30-day mortality, n (%) | 0 (0) |
| Stroke, n (%) | 0 (0) |
| Spinal cord injury, n (%) | 0 (0) |

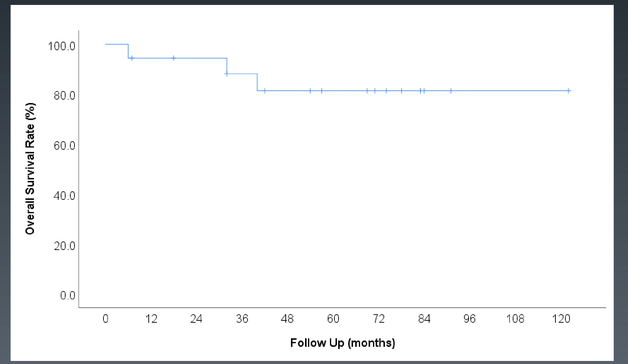



**Fig. Kaplan-Meier curve for cumulative survival rate**