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# **In Situ Laser Fenestration in Thoracic Endovascular Aortic**

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## Disclosure

Speaker name: Sen Shi

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I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)
  
- I do not have any potential conflict of interest



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Thoracic endovascular aortic repair (TEVAR) is safe for Thoracic Aortic Disease including aortic aneurysms, aortic dissections, and traumatic aortic transections.

However, when patients have a short proximal landing zone near the aortic arch, there is increased risk of endoleak, migration of the stent graft due to angulation of the aortic arch, and high blood pressure in the aorta for TEVAR.



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In our center, we performed 4 cases and found the effective and safe for in situ laser fenestration in revascularization of aortic arch during thoracic endovascular aortic repair.



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# Methods

After preparation and measured the diameters of the ascending aorta and arch branches by angiography and CTA. Laser Fenestration of 3 aortic branches was performed on aortic arches for 4 patients with aortic artery diseases (dissection type A: n=2, Penetrating ulcer: n=2) under general anesthesia.



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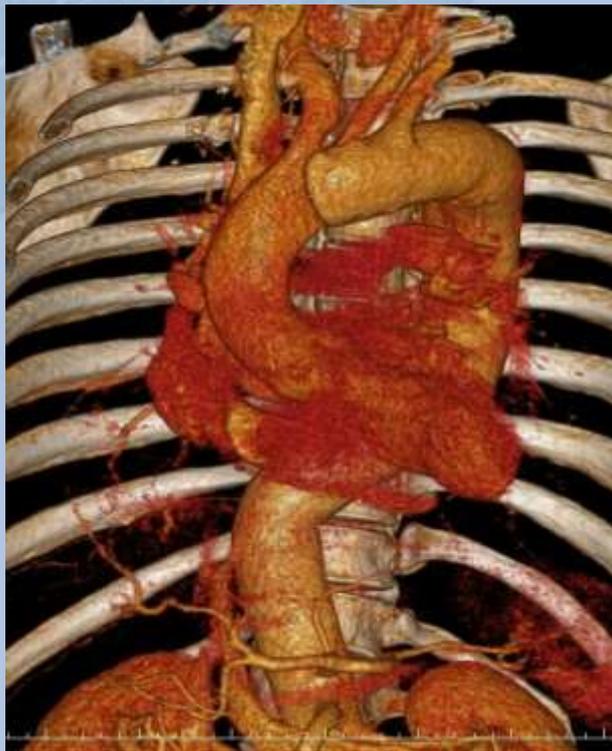
# Results

The technical success rate was 100%. No fenestration related complications or neurological morbidity occurred after this operation. During a mean postoperative 8-month follow-up (range: 3–12 months), all the left subclavian artery and carotid artery stents were patent with no fenestration-related endoleaks upon computed tomography angiography images.



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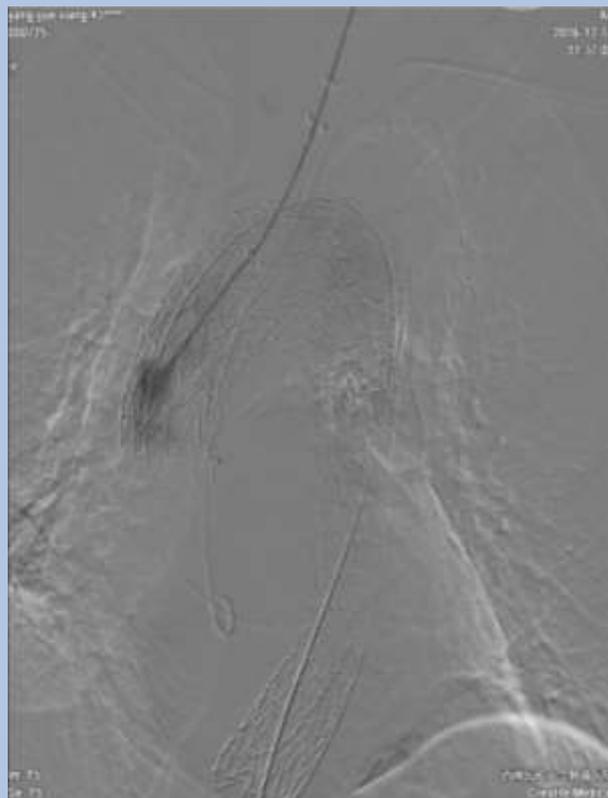
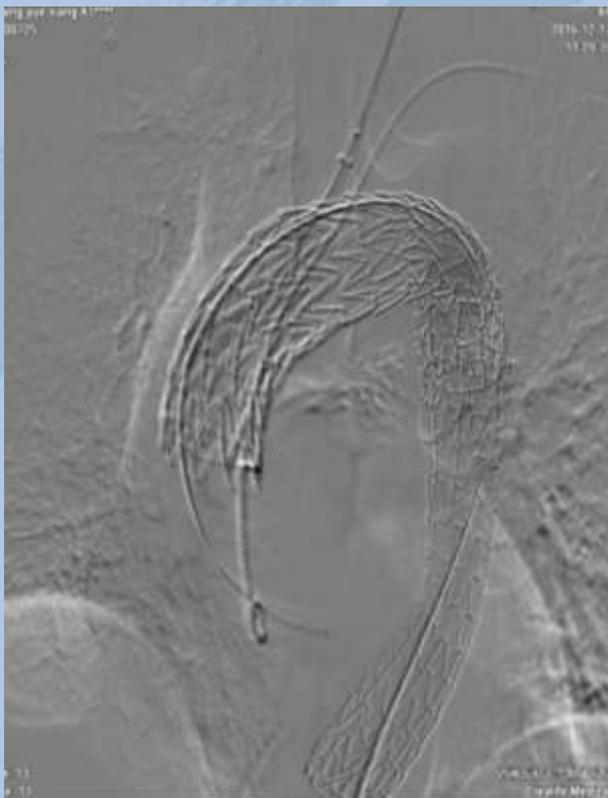
# Case 1 43y male Stanford A aortic dissections





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# Fenestration in LCA

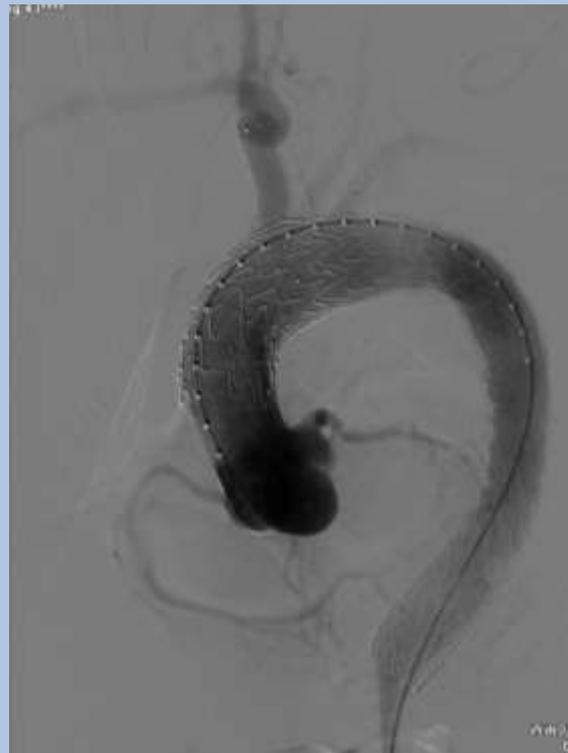
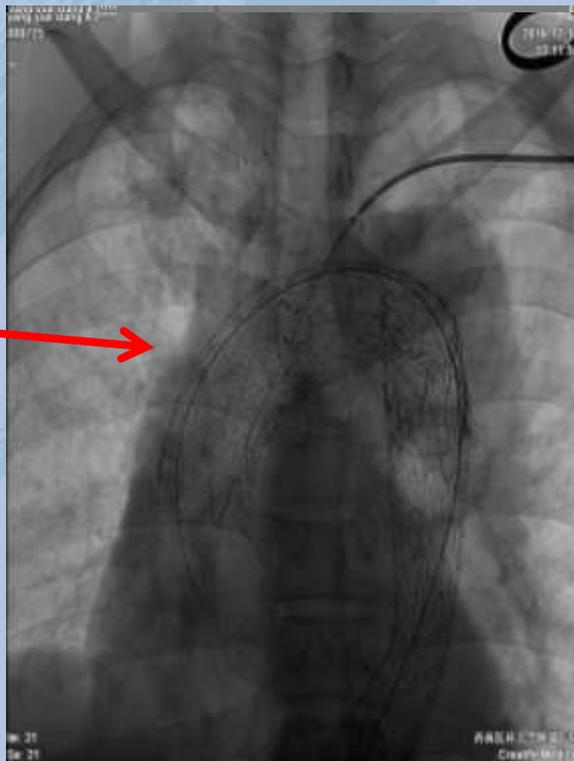




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## Fenestration in BCT

Fenestration  
in LSA

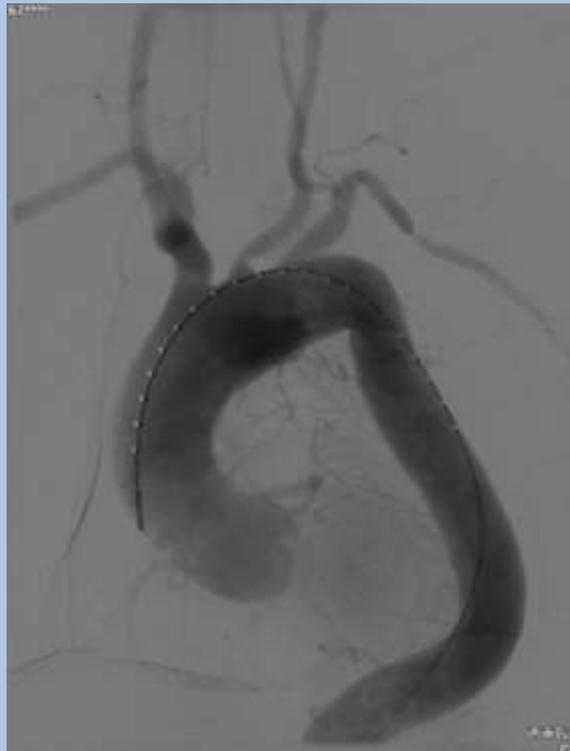


Balloon dilatation  
After stent  
inplant



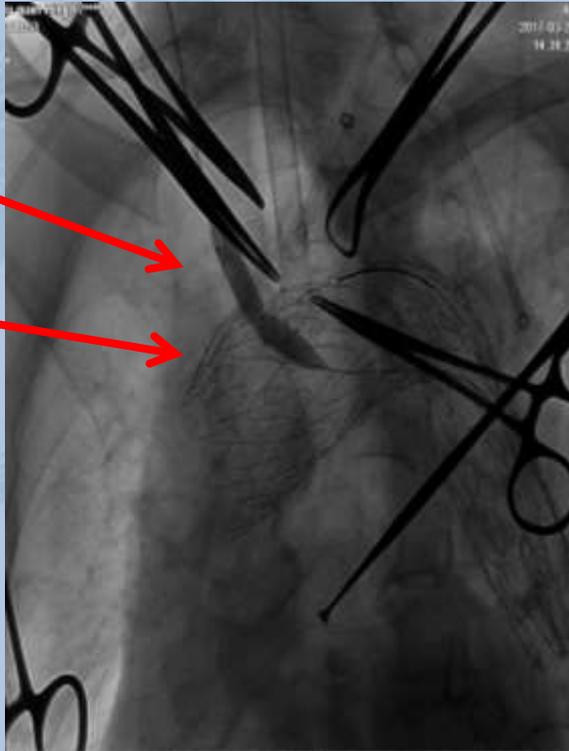
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## Case 2 67y, male penetrating ulcer near the aortic arch.





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Fenestration  
in BCT

Fenestration  
in LCA



**Axillary arteries  
Bypass by  
artificial vessel**

Fenestration  
in BCT

**We could not successful perform laser fenestration in LSA and  
change the operation plan to a bypass between two axillary  
arteries**



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## Conclusions

In situ laser fenestration is effective, rapid and safe option for revascularize the 3 branches of aortic arch during thoracic endovascular aortic repair. However, follow-up periods should be extended to evaluate the robustness of this technique.



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