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Short and medium term outcomes of controllable fenestrated TEVAR using PMSGs for aortic arch pathology

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Disclosure

Speaker name:

...Xiangchen Dai.....

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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Objective

To evaluate short and medium term outcomes of controllable fenestrated thoracic endovascular aortic repair (f-TEVAR) using physician modified stent-grafts (PMSGs) for aortic arch pathology



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Methods

82 consecutive patients underwent controllable f-TEVAR by PMSGs for aortic arch pathology in TJMUGH from Nov.2015 to Nov. 2018 , Pre-, intra- and postoperative clinical data were recorded and analysed retrospectively



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Preoperative Data

82 cases: 2015.11-2018.11

TAAD: 4 cases

TBAD: 49 cases

Aortic arch aneurysm(AAA): 9 cases

Decending aortic aneurysm(DAA): 6 cases

PAU: 9 cases

PAU+IMH: 3 cases

Transection: 1 case

Type Ia Endoleak post TEVAR : 1 case



Preoperative Data

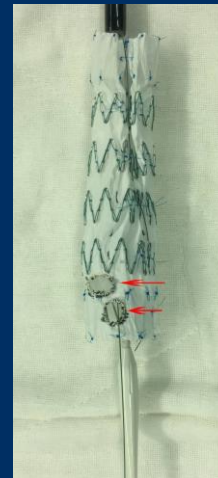
Variable	Mean and percentage(n=82)
Age (y)	57 (18-83)
Male	65(79.3%)
Comorbidities	
Hypertention	73(89.0%)
Coronary heart disease	27(32.9%)
Dyslipidemia	14(17.1%)
PAOD	9(11.0%)
Renal dysfunction	8(9.8%)
Diabetes	4(4.9%)
COPD	3(3.7%)
Marfan syndrome	1(1.2%)



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Intaroperative result

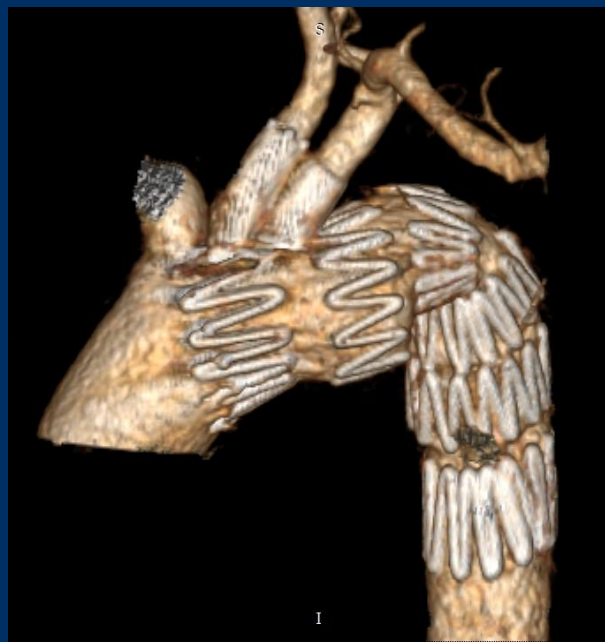
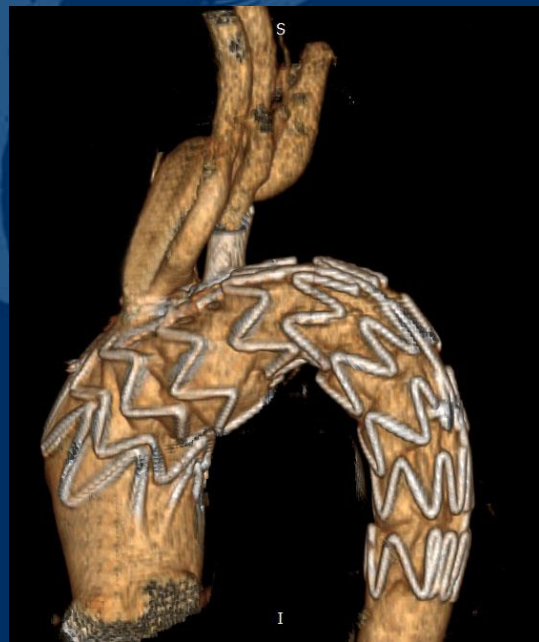
- 82 PMSGs were modified and deployed
- Mean duration for stent graft modification was 38.29 minutes (range 30-125 minutes)
- Auxiliary guide wire were added to all devices and posterior diameter-reducing ties were installed to all multiple fenestrated stent grafts except one Valiant endograft





Intaroperative result

- Covering part of PMSGs were anchored from Z0 , Z1 and Z2 in 5, 11 and 66 patients respectively





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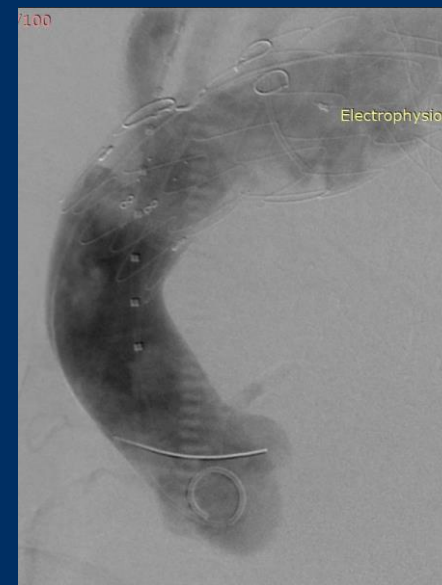
Intaroperative result

- The technical success rate was 97.56%(80/82).
- 2 early sigle fenestration cases were misaligned and LSA revascularization were performed by chemney stent
- An immediate type Ia endoleak caused by chemney TEVAR was sealed by coil.



Intaroperative result

- Intraoperative mortality was 1.22% (1/96)
 - One patient with triple small fenestrations died of sudden cardiac arrest intraoperatively after deployment of PMSG and all supra-aortic branch stents





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Intaroperative result

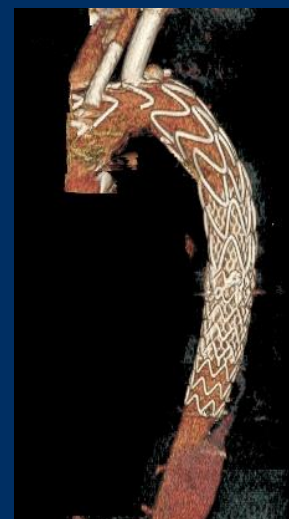
- No obvious intaroperative type III endoleaks
- No RTAD
- No transfer to open surgery
- All supraotic trunk are patent



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30 days Results

- No more patients died
- No stroke or paraplegia with permanent sequelae
- One type III endoleak occurred in a patient of Z2 group postoperative 7 days and was sealed by occluder





Follow up Results

- 81 patients were followed-up at mean 16.1 (range 1–36) months
- 2 additional patient died of non-aortic cause of death and overall mortality was 3.66%
 - Cardiac arrest 1 case (PO 4m)
 - Renal failure 1 case(PO 17m)
- All supra aortic trunks are patent without fenestration-related type I or III endoleaks



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Follow up Results

One Retrograde type A dissection occurred in Z0 group postoperative 40 days and repaired by open surgery





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Discussion



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Advantage of f-TEVAR

- **Less invasive**
- **Prolong healthy sealing zone**
- **No gutter**



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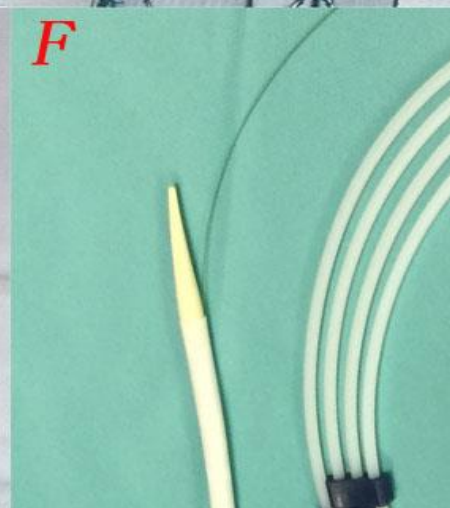
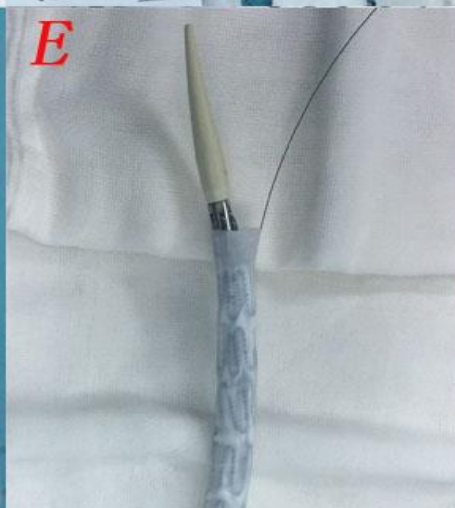
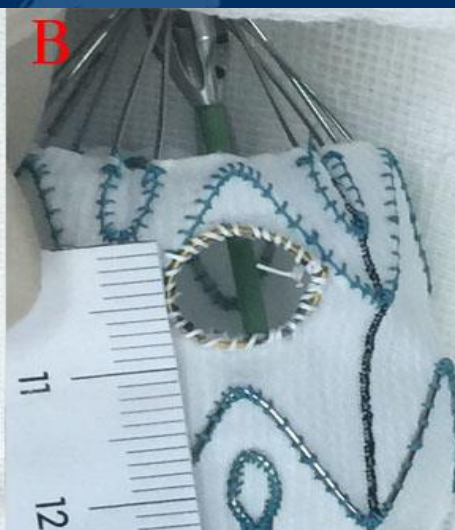
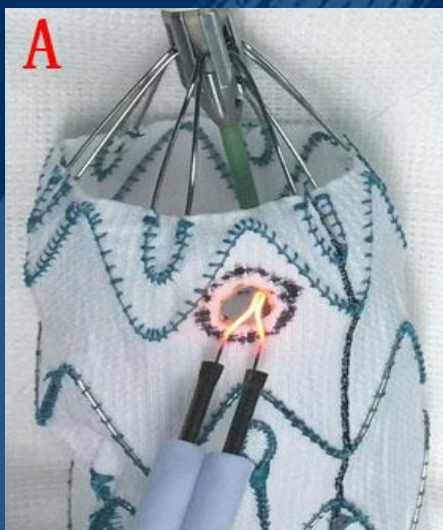
Most difficult problem

- **How to depoly endograft accurately and controllable**
 - **Confirming tangent position**
 - **Adding auxillary guide wire**
 - **Installing size reducing ties**



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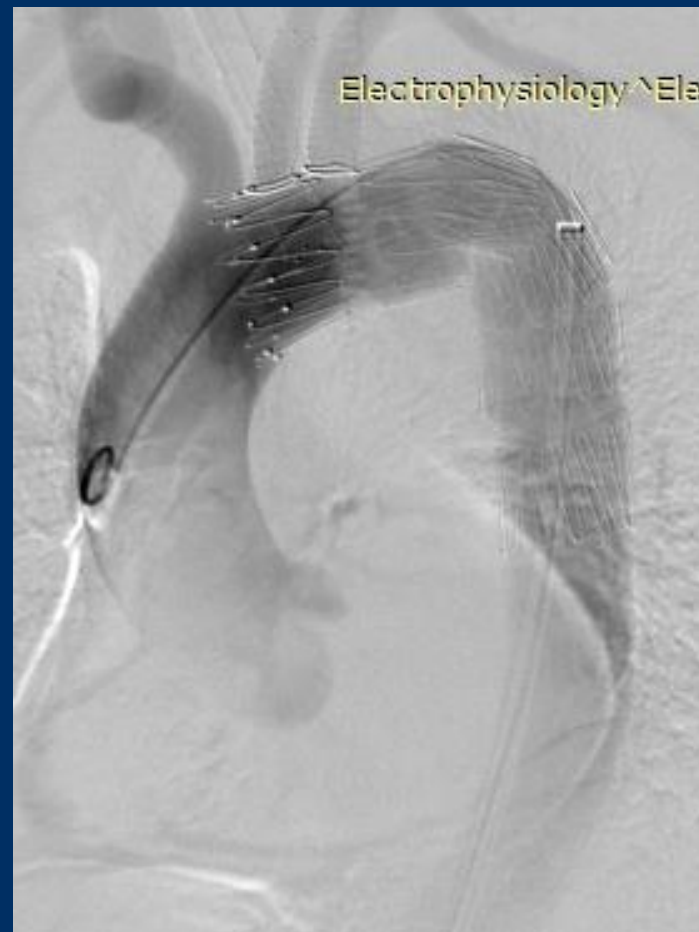
Key role of auxiliary guide wire





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Key role of size reducing tie





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Conclusions

- Controllable f-TEVAR by PMSG for aortic arch pathology is both feasible and effective
- Auxiliary guide wires and diameter-reducing ties are the most important safeguard of controllable alignment
- Durability concerns will need to be assessed in additional studies with long term follow up



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Thanks for your attention!



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