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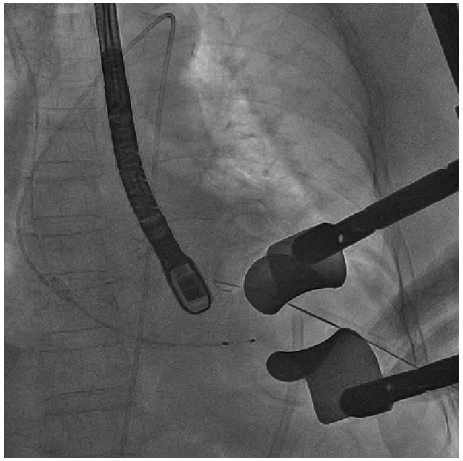
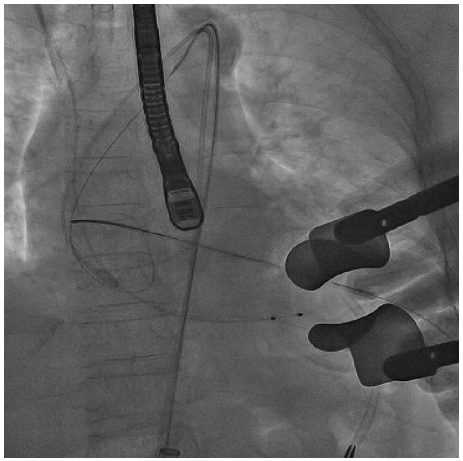
Novel apical-to-femoral rail technique for horizontal aorta in transcatheter aortic valve replacement

Key words: Transcatheter Aortic Valve Replacement, Aortic Stenosis, Horizontal Aorta, Apical-to-femoral Rail

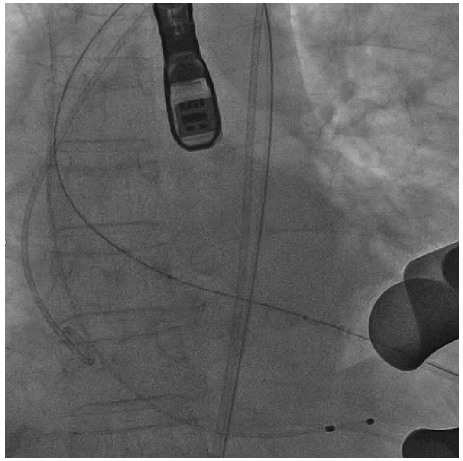
Research Summary

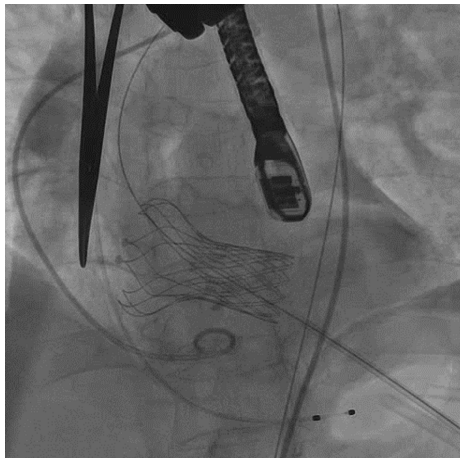
The study mainly showed that when encountering the situation of unable to pass through the aortic arch during the TAVR procedure, establishing an apical-to-femoral rail might be an effective emergency strategy to avoid converting to open surgery. The operation steps are as follows:





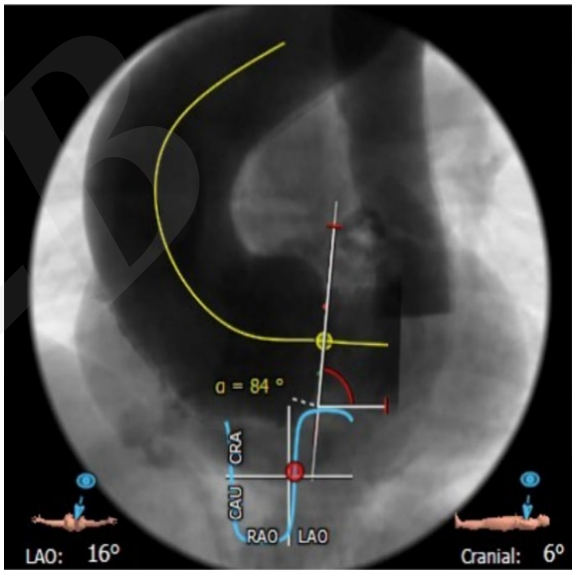
1. Introduce the guide wire via the femoral artery
2. Introduce the snare via the apex
3. Snare loops the guidewire to establish the rail
4. Pulling or loosening the wire ends simultaneously
5. Coordinate manipulation





Technical difficulties

1) Extremely aortic angulation would weaken the tension of guidewire.
2) The guidewire tip lack of enough cushioning to adjust the direction due to the short dilated ascending aorta.
3) Because of the small left ventricular cavity, the guide wire was difficult to anchor in place.



Innovation points

Establish an apical-to-femoral rail

Benefits of the rail:

1) Enhance the rigid guidewire's maneuverability.
2) Prevent the guidewire tip from being exposed to the ventricular cavity and left ventricular perforation.
3) Require less invasive incision.

Figure 4