Purpose
To assess the feasibility of the embolization for type 1a endoleak after TEVAR via direct transthoracic puncture (Direct puncture embolization, DPE) in pig models.

Materials and Methods
Animal model: 7 pigs, under general anesthesia

1: Aneurysmal creation
Under minimal invasive thoracotomy, Thoracic aortic aneurysm were created with jugular vein patch.

2: Type 1a endoleak
Type 1a endoleak was intentionally created by stentgraft leg with up-side-down technique.

3: Direct puncture and Embolization of endoleak
Direct puncture was performed under cone-beam CT guidance. Type 1a space between aorta and stentgraft were embolized with coils first. Then glue embolization were done.

Results
Aneurysm and type 1a endoleak after TEVAR were successfully created in 7 pigs. However, 3 pigs were died within 7 days after operation due to aneurysmal rupture in 2 pigs and excessive invasion during operation in 1. In all of the rest of cases, DPE was successfully performed.

Conclusion
Thoracic aneurysm and type 1a endoleak creation was feasible with some difficulty. DPE could be a possible approach to treat the endoleak after TEVAR.

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