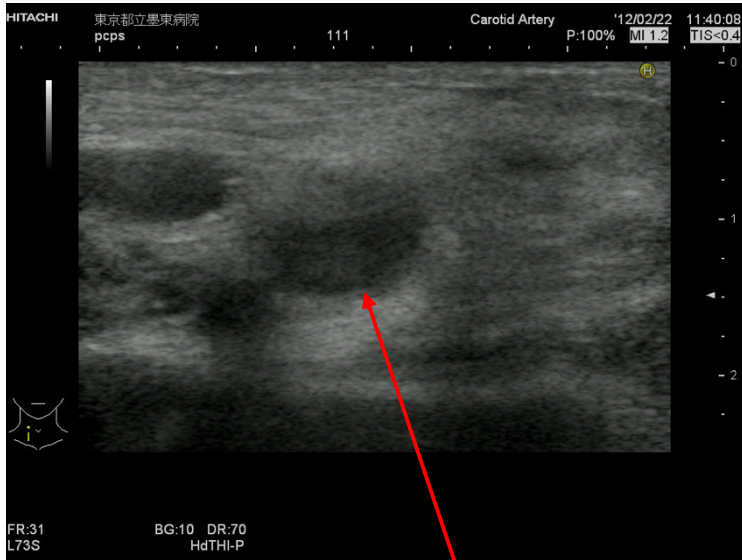


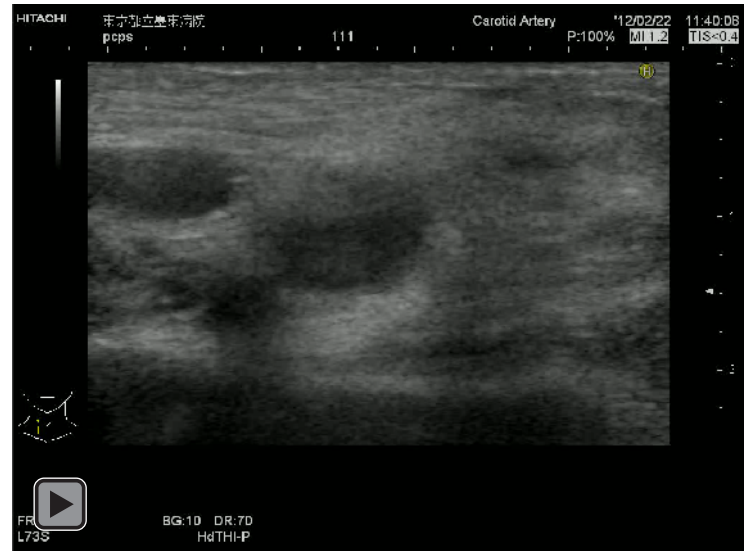
## Supplementary material. Cannulation method details of two groups.

### Comparison group (ultrasound guided percutaneous cannulation)

1. Femoral vessels are punctured by an 18G puncture needle while confirming with linear-type probe, in parallel with standard cardiopulmonary resuscitation continued as possible.

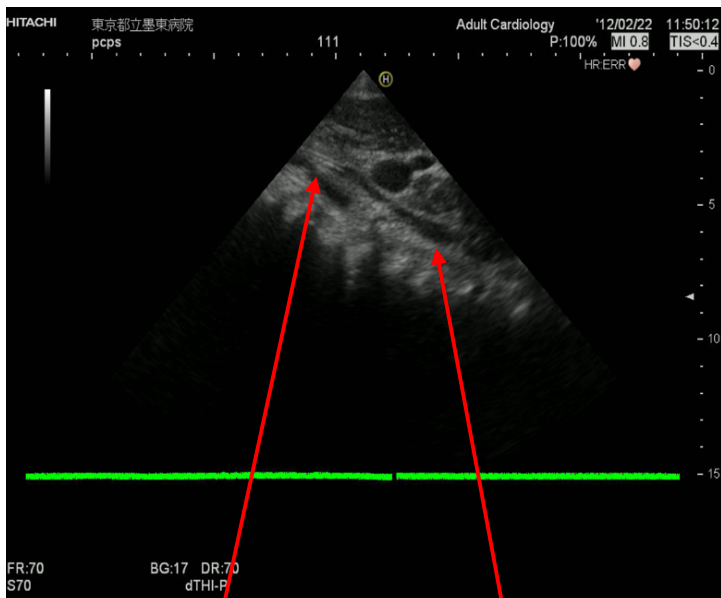


Femoral vein



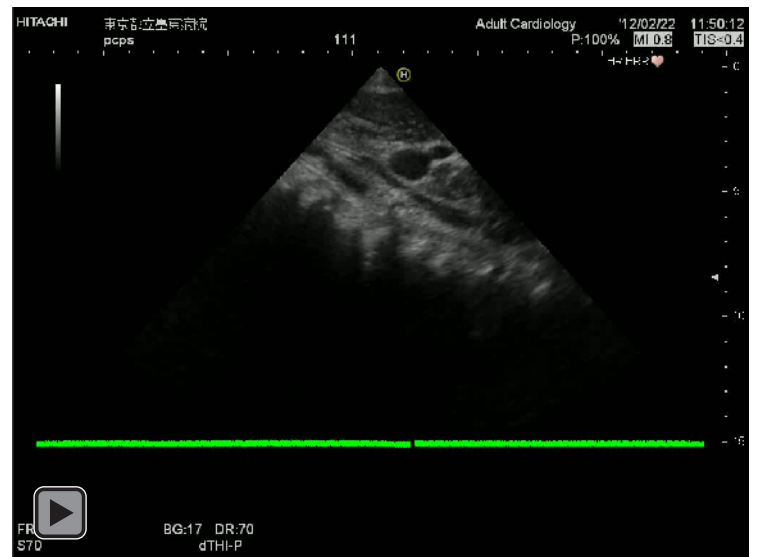
Video (requirement of Acrobat Reader 9 or later)

2. Guiding wire and cannula were inserted to appropriate position using sector type probe.



Guiding wire

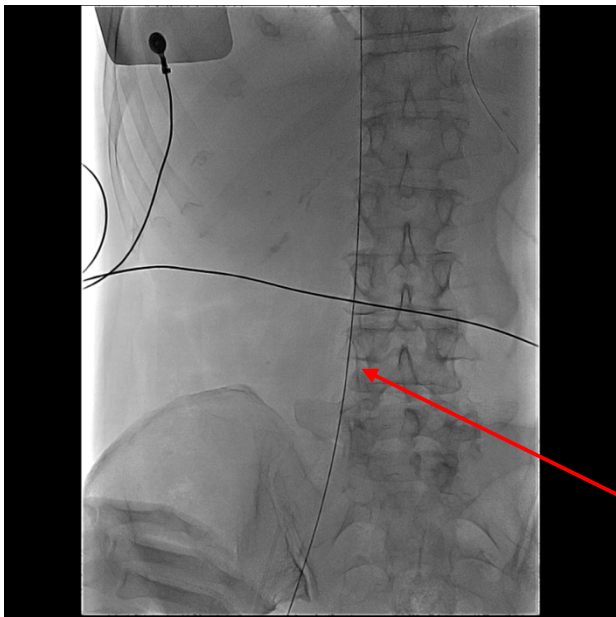
Inferior vena cava



Video (requirement of Acrobat Reader 9 or later)

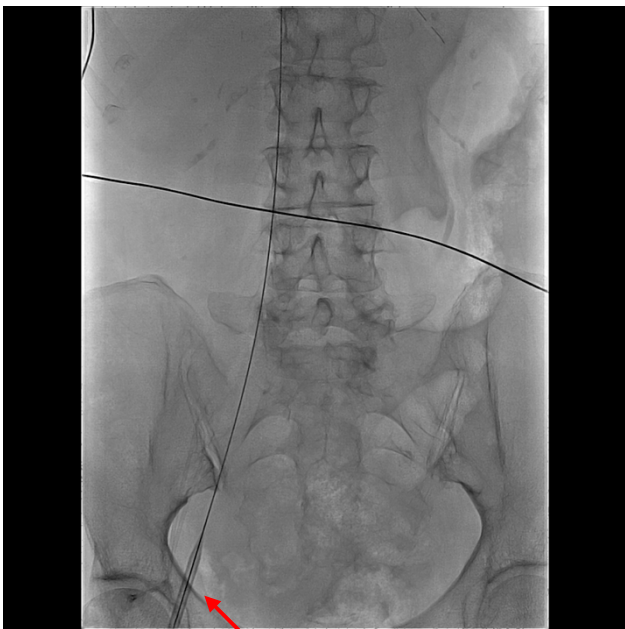
**Exposure group (ultrasound and fluoroscopy guided percutaneous cannulation)**

1. Femoral vessels are punctured using linear type ultrasonic probe as with comparison group.
2. Guiding wire is inserted to appropriate position using fluoroscopy.

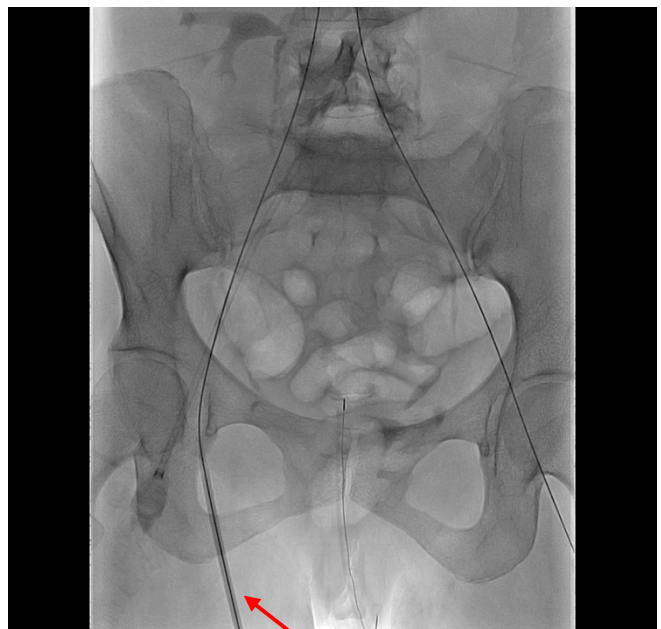


**Guiding wire**

3. The punctured site is dilated using a dilator; the direction of the dilator was matched with the direction of the guiding wire using fluoroscopy.

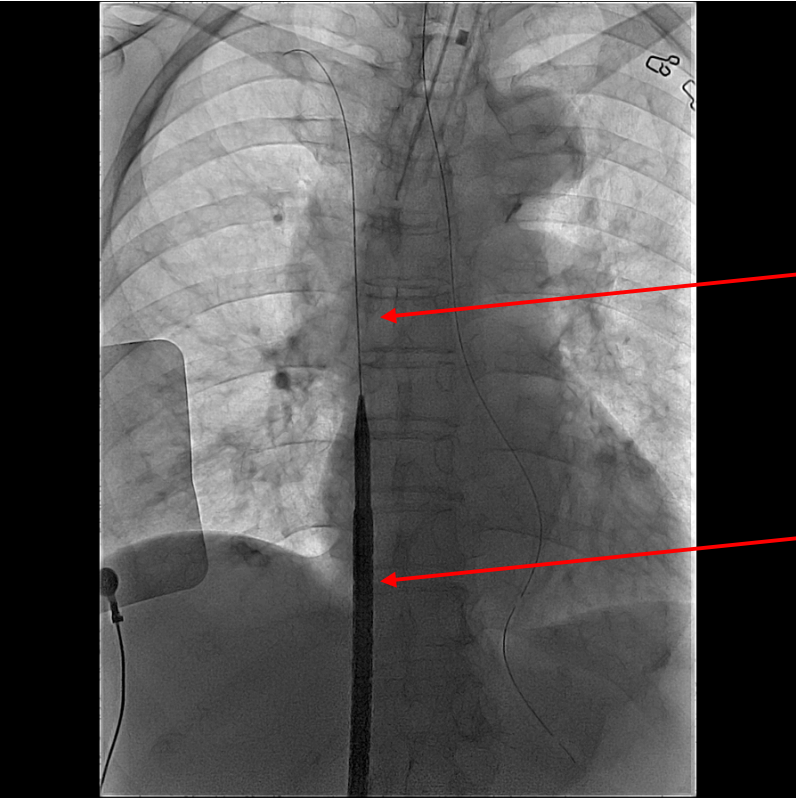


**Appropriate dilator direction**



**Wrong dilator direction**

4. The position of cannula is confirmed using fluoroscopy.



**Guiding wire**

**Inflow cannula**