Use of radial access in the Thiel cadaveric flow model for training in endovascular interventions

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Learning Objectives

To introduce a human cadaveric model for training in endovascular interventions through the radial access (RA).
Background

- Interest in RA is gradually increasing with mounting evidence of its clinical benefits, particularly the lower incidence of bleeding and vascular complications.

- However, RA requires a steep learning curve and is technically challenging because of anatomical complexities, such as subclavian artery tortuosity and radioulnar loops.

- More catheter exchanges are requested, with a consequent increase in procedure and radiation time and volume of contrast used.

- Recent data suggest that the exposure time using RA approaches that using transfemoral access with an increase in the experience of the operator.
Background

- Transradial access is not widely and consistently taught in fellowship programs.

- Animal models continue to provide a high-fidelity training model with blood flow, although their different anatomy, ethical issues and high costs are known limitation.

- Thiel cadavers with the addiction of extracorporeal flow are a recent option for interventional radiology training.

- The perfect anatomy, the retain flexibility, colour, tone, extended durability, negligible infection hazard and the vascular patency make them the a robust, reproducible, high-quality model that is ethically sound, to train multidisciplinary teams in complex endovascular interventions.
• Proof of concept was demonstrated using a Thiel-embalmed human cadaver with extracorporeal arterial flow.

• The extracorporeal circuit was prepared by inserting ports into the left axillary and femoral arteries and connected to a heart–lung bypass machine to provide continuous retrograde flow of up to 1 L per minute.

• The right radial artery was identified and punctured under US guidance and a 5F sheath inserted.

US guided access of the right radial artery
• Aortic and coronary angiogram, coronaroplasty, renal and lower limb angiography, and angioplasty were performed by an interventionalist, showing the patency and accessibility of vessels through RA.

• All endovascular procedures were conducted under fluoroscopic guidance using contrast.

Angioplasty of the left external iliac artery using a 6 mm standard balloon.
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**Procedure Details**

Left coronary angiogram using a 4F Judkins left coronary catheter

Left circumflex artery angioplasted with a 3mm standard balloon
Right renal artery angiogram using a 5F Multipurpose catheter

Right renal artery angioplasty using a 4mm standard balloon
Conclusions

• Thiel cadavers have the potential to provide a robust and realistic training model for fellows and consultants who want to improve or practice interventions.

• Training endovascular peripheral intervention through RA using Thiel-embalmed human cadaver is feasible and could reduce the learning curve for endovascular procedures through this access.
References


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References


