

Transradial access in arterial embolisation procedures: a single centre experience

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Aims and objectives

Transradial access (TRA) offers many benefits compared to transfemoral access (TFA) such as a lower rate of bleeding complications, shorter time to hemostasis (1), immediate ambulation (2), greater post-procedure patient comfort (3) and lower costs (4). As opposed to the Transfemoral approach, the TRA allows patients to freely flex their leg, to walk and sit and it didn't constrain absolute post-procedural bed rest (2). The most frequent complication of TRA is the radial artery spasm. This is the main cause of conversion from radial approach to femoral approach (5). The TRA can be used in arterial embolisation procedures in case of contraindications to TFA (INR \leq 1,5 , platelet value $<$ 50000 , ECOG performance status 3-4). Moreover, taking into account advantages of TRA listed above, it could become the front line approach.

As regard the contraindications, transradial approach should be avoided in case of radial artery (RA) diameter smaller than 2mm (unless using 4F system), RA corkscrewed and dialysis fistula (6,7). The main contraindication to TRA is a "D waveform" showed by Barbeau test. The "type D waveform" is related to a poor ulnar compensation following radial occlusion (8). Until now, patients not suitable for radial access underwent TFA. Recently [Kiemeneij](#) et al proposed an even more distal access called "distal transradial approach", for interventional procedure with contraindications both to the TFA and TRA. Distal transradial access is performed through the deep palmar arch at the level of anatomical snuffbox (7).

This study describes single center's experience on TRA for arterial embolisation (AE) procedures, reporting technical success, safety and complications developed during emergency procedures too.

Methods and materials

From March 2017 to September 2017, at the Department of Radiology "ARNAS" Garibaldi Hospital in Catania, TRA was performed in 11 patients (8 female, 3 male; aged from 41 to 84 years). Procedures include 4 abdominal bleedings, one pelvic bleeding and 6 uterine artery embolisations (UAE) for fibroid treatment. AE were performed in emergency, UAE in programmed activity. To evaluate the feasibility of TRA, a Barbeau test (8, **figure 1**) and radial artery sonography were performed before the procedure. In one case the presence of a type D waveform at Barbeau test contraindicated the traditional TRA. In this patient a "distale transradial access" (TDA) through the deep palmar arch was chosen, because it allows a sufficient hand's perfusion even in case of occlusion (7).

Images for this section:

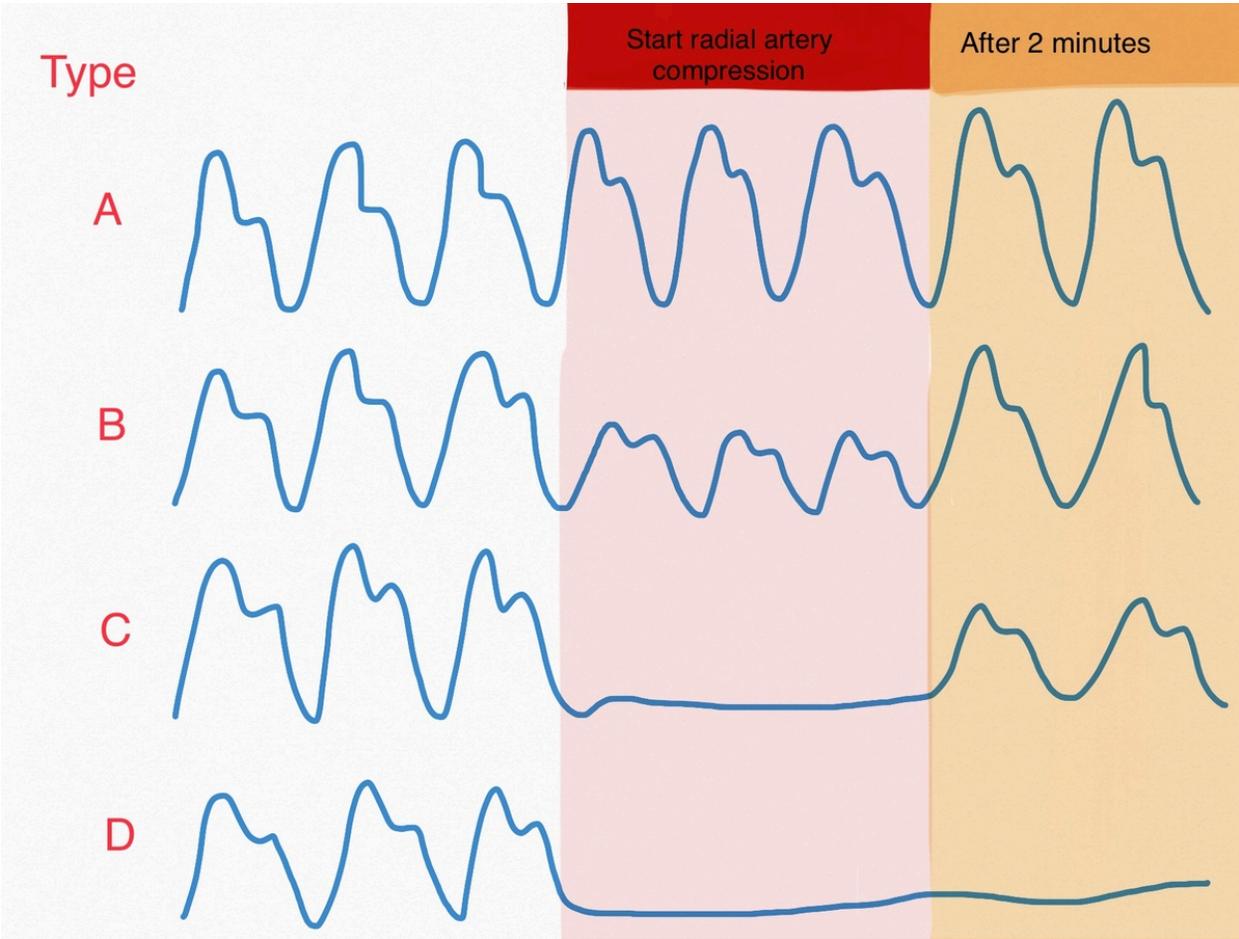


Fig. 1: Adapted from Barbeau et al. Am Heart J. 2004. The figure shows the 4 types of waveform

© Barbeau et al Am Heart J. 2014

Results

Technical success was obtained in all procedures. No patient required crossover to TFA and only in one case TDA was performed (**figure 2**). No major complications occurred, apart from one case of minor complications: radial artery spasm. After 24 hours artery's patency was sufficient in all cases (**figure 3**).

Images for this section:



Fig. 2: The figure shows the First Distal transradial access made by Professor Antonio Basile

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Type of procedure	Barbeau test waveform (A/B/C/D)	Radial artery diameter (mm)	Type of TRA (classic/distal)	Radial artery patency at 24 h (yes/no)	Complications developed during procedure
Iliac artery bleeding embolisation	A	2.3	Classic	Yes	No
Gastroduodenal artery bleeding embolisation	A	1.9	Classic	Yes	No
Ileocolic artery bleeding embolisation	C	2.3	Classic	Yes	No
Gastroduodenal artery bleeding embolisation	B	2	Classic	Yes	Radial artery spasm
Ileocolic artery bleeding embolisation	D	1.5	Distal	Yes	No
UAE (uterine artery embolisation)	A	3	Classic	Yes	No
UAE (uterine artery embolisation)	A	2.5	Classic	Yes	No
UAE (uterine artery embolisation)	B	2.3	Classic	Yes	No
UAE (uterine artery embolisation)	A	2.5	Classic	Yes	No
UAE (uterine artery embolisation)	B	3	Classic	Yes	No
UAE (uterine artery embolisation)	A	2.2	Classic	Yes	No

Fig. 3: The table shows the characteristics of procedures. Technical success was obtained in all procedures. Distal transradial access was performed in only one case. No major complications occurred, apart from one case of minor complication: radial artery spasm. After 24 hours radial artery's patency was sufficient in all cases

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Conclusion

TRA in AE procedures is safe and tolerated also in emergency. Moreover access through deep palmar arch could represent an alternative technique in case of contraindication detected at Barbeau test. Indeed, due to the distal origin of deep palmar arch, distal transradial approach will be an alternative vascular access without risk of complications involving the important vessels of the hand.

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