

RADIAL ACCESS FOR CONCOMITANT CORONARY, SUBCLAVIAN AND RENAL ARTERY ANGIOPLASTY : one case report

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UN ACCÈS RADIAL POUR UNE TRIPLE ANGIOPLASTIE : CORONAIRE, SOUS-CLAVIÈRE ET RÉNALE. A PROPOS D'UNE OBSERVATION.

RADIAL ACCESS FOR CONCOMITANT CORONARY, SUBCLAVIAN AND RENAL ARTERY ANGIOPLASTY; ONE CASE REPORT

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R É S U M É

Prérequis : L'angioplastie combinée des artères coronaires et périphériques est une situation de plus en plus rapportée. Le pronostic du patient est en partie dicté par les complications locales notamment en cas d'accès fémoral ou huméral. La voie radiale, réputée plus sûre, a été largement utilisée au cours des procédures coronaires. L'amélioration du matériel de cathétérisme permettrait également de la proposer à plusieurs situations d'angioplastie périphérique.

But : Nous rapportons une nouvelle observation

Observation : Nous rapportons l'observation d'une patiente de 56 ans ayant une atteinte coronaire tritonculaire, une sténose significative de l'artère sous-clavière gauche et des sténoses serrées ostiales des deux artères rénales. L'indication d'une triple angioplastie de l'interventriculaire antérieure, de l'artère rénale gauche et de l'artère sous clavière gauche a été portée en raison d'une hypertension artérielle sévère et résistante et afin de préparer la patiente à une chirurgie de pontage coronaire à distance. Un stenting des trois sites artériels a été effectué avec succès au cours de la même procédure avec un accès unique radial gauche.

Conclusion : L'accès radial dans les angioplasties artérielles périphériques, combinées et complexes semble approprié et sécurisant. Le manque d'essais cliniques prospectifs demeure toutefois notable.

S U M M A R Y

Background : Concomitant coronary and peripheral angioplasty is a more frequently reported situation. Patient's outcome is significantly conditioned by access site complications especially in femoral and brachial approaches. The radial artery access is a safe and a well established alternative in coronary interventions and could be suitable for many peripheral angioplasty cases, thanks to devices enhancement.

Aim : Report a new case

Case description : We report the case of a 56-year-old woman with multivessel coronary artery disease, significant left subclavian (SCA) and bilateral renal arteries stenoses. Because of a severe resistant hypertension and prior to scheduled coronary bypass surgery a triple angioplasty of left renal artery, SCA, and left anterior descending (LAD) was attempted. Stenting of the three sites was successful in the same procedure through the left radial artery route.

Conclusion : Radial artery access in peripheral, combined and complex percutaneous transluminal angioplasty seems to be suitable and safe. However, prospective clinical trials are still lacking.

M O T S - C L É S

Angioplastie

K E Y - W O R D S

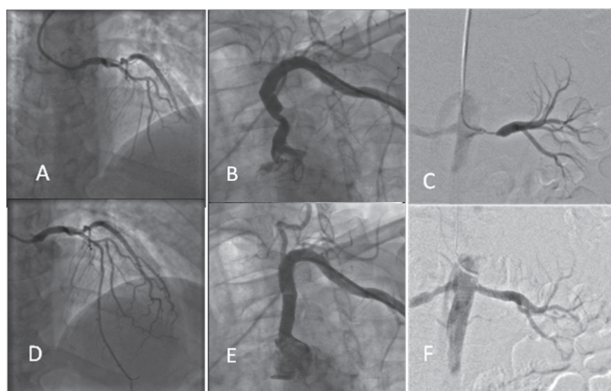
Angioplasty

Because of multiplication of diagnostic modalities (Doppler, multislice Ct-scan, MRI angiography), multivessel atherosclerotic artery disease are more frequently diagnosed nowadays [1]. Percutaneous management of multiple lesion sites in the same procedure is challenging and implies the right choice of the access route. Percutaneous angioplasty (PTA) via radial artery approach is feasible and safe for coronary [2, 3] as well as for other peripheral arteries stenosis [4, 5]. It provides increased comfort for the patient and less procedure-related complications. We report one case of concomitant multi-vessel PTA via radial access and discuss its feasibility and safety.

CASE REPORT

A 56-old-year woman, diabetic, with history of dyslipidemia, renal insufficiency, uncontrolled high blood pressure despite association of four antihypertensive drugs, presented in emergency with unstable angina (UA). Inter-arm systolic blood pressure (SBP) difference (between right and left arm) was 60 mmHg. Laboratory findings were normal unless a creatinine clearance rate at 37 ml/min. The coronary angiography using a non-ionic, iso-osmolar contrast medium (Fig.1A) showed sub-occlusive mid-LAD stenosis. Opacification of abdominal aorta (Fig.1C) revealed critical ostial stenoses of both renal arteries and the opacification of left subclavian artery (Fig. 1B) showed

Figure 1: Angiograms before angioplasties of left anterior descending artery (A), left subclavian artery (B), left renal artery (C). Angiograms after angioplasties of left anterior descending artery (D), left subclavian artery (E), left renal artery (F).



significant proximal stenosis. A concomitant percutaneous endovascular intervention of all stenoses was scheduled one week later.

Because of a pulseless left radial artery, assessment by Doppler ultrasound was performed. The artery was patent with a 1.5 mm of diameter. Before procedure, patient was given heparin (60 units/kg/IV), aspirin (250 mg/IV) and clopidogrel (75 mg/daily). We used a 6F radial introducer (Radifocus - Terumo®), 6F Judkins Left (JL4), Judkins Right (JR4) and multipurpose (MP) guiding catheters (Cordis®), 0.014" "floppy" guide wires (AbbottVasular®), 2,5 x 8mm coronary

stent (Flyer, Atrium®) and balloon auto-expandable pre-mounted stents (5.0 x 18mm and 7.0 x 17mm stents Rx Herculing Plus, AbbottVasular®). Direct stenting of LAD was firstly performed (Fig. 1D) followed by left renal (Fig. 1F) and left subclavian arteries (Fig. 1E). At the end of the procedure, radial pressure curve was compared to the aortic one and showed no residual pressure gradient. The radial introducer was immediately retrieved and the radial compressive bandage was removed 4 hours later.

The procedure was successful with optimal deployment of all stents without procedure-related complication. Post procedural biologic tests (especially Troponin I) remained at basal level except a transient worsening of renal markers. She needed one dialysis session and rapidly recovered her previous renal status. She was discharged 7 days after and is going well 1 and 6 months later.

DISCUSSION

Radial artery approach was first used for coronary angiography in 1989 [6]. Enhancement of dedicated devices allowed widespread of its use especially in coronary [7] and less in non-coronary interventions [8]. It is more comfortable for patients and provides less local complications [9]. Trans-radial approach for renal artery stenting offers technical advantages on catheter positioning in renal arteries with a caudal angulation [10]. This access is particularly useful in patients with diseased or tortuous iliac arteries [11].

Although rarely used, trans-radial PTA of subclavian artery has obvious advantages over the "classic" femoral route [12]. Opacification of the SCA by trans-femoral approach is always sub-optimal beyond a tight proximal stenosis. Stable selective guiding catheter positioning, through femoral access, is also delicate and somewhat harmful particularly in the case of ostial lesion, or a type III aortic arch [12]. Besides, engaging the left internal mammary artery (LIMA) or the vertebral artery for distal embolic protection or angioplasty can be difficult and implies lesion crossing [13]. Because of all these, upper limb arterial access seems to be the best choice [14]. While brachial artery has been more used, radial approach is safer and provides the same advantages.

However, radial artery access is conditioned by feasibility of radial puncture and ability to progress the appropriate size guiding catheter through radial and humeral artery [2, 3, 15]. Based on our experience patent radial artery can be punctured even if pulseless. Doppler ultrasound is of big help in assessing permeability, diameter of the radial artery and the quality of its anastomosis with the ulnar artery. Anatomic variations, tortuous upper limb arteries [16] and increased radial artery vasoreactivity have been reported to restrict usefulness of such access [17].

Use of large amount of iodinate contrast medium may hinder a one-procedure multiple PTA in high risk patients and careful preparation should be considered [18].

CONCLUSION

Radial access for PTA in multiple coronary and vascular stenoses is safe and feasible. It provides more comfort to the patient and less local complications. All lesions could be percutaneously managed with one radial access even in pulseless patients. It allows progression of convenient size catheters, enhanced assessment of subclavian artery stenosis and improved positioning of guiding catheters in renal arteries with caudal angulation.

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