

Nurse's role in the prevention of Central Venous Catheter – two case studies

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Introduction

Nurses are responsible for Vascular Access' (VA) cannulation and play a central role in early identification of first signs and symptoms of VA complications.^{1,2}. Early identification and fluent communication within the healthcare multidisciplinary team, allows adequate actions, such as timely creation of native Arteriovenous Fistula (AVF) while avoiding the need for a Central Venous Catheter (CVC).

Objectives

To demonstrate the importance of VA surveillance and assessment in order to allow timely planning of VA interventions, anticipating VA failure and preventing CVCs.

Methods

Case studies of two patients with dysfunctional and problematic AVF. Physical examination of AVF, access flow (Qa) measurement by thermodilution and referral to Vascular Access Centre (VAC) lead to a timely creation of a new native AVF, before VA fails avoiding the need of a CVC.

Data were collected using electronic tools.

CASE 1	
Age	81
Background	Congestive heart failure, Obesity
Aetiology	Not Specified
Start HD	October 2015
First Access	Central Venous Catheter
Creation date (First VA)	November 2015
Location	Left Radio-ulnar
Date of first use	June 2016
Access failure	July 2017



Severe changes in physical examination: pulsatile, tortuous with slow flow, aneurysms and segments between aneurysms with multiple stenosis;

Although the dialysis efficiency is higher than 1.4.

Decreasing Qa (minimum 60 mL/min);

Referenced to VAC four times, and submitted to two percutaneous angioplasty (PTA), without anatomical and functional results

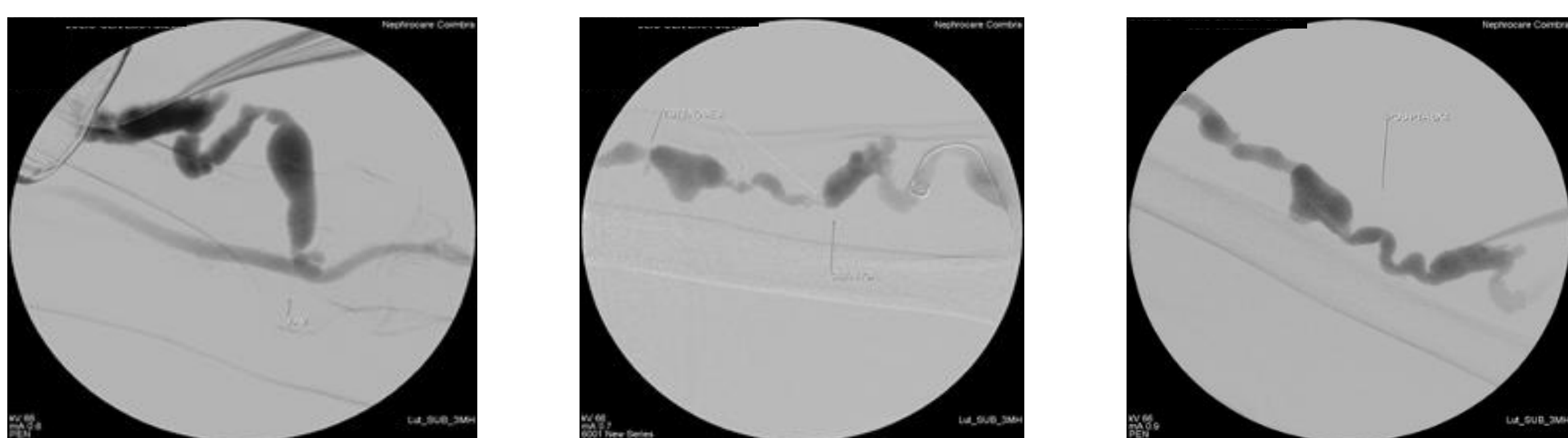


Figure 1 - Angiography showing stenosis

FEBRUARY 2017 - a new AVF was created in the right wrist, presenting nowadays Qa of 1100 mL/min and Kt/V > 1.4.

- Physical examination: normal pulse, continuous thrill, continuous bruit.
- Without intervention.



CASE 2	
Age	78
Background	Diabetes mellitus type 2 with micro and macrovascular complications
Aetiology	Insulin-Dependent Diabetes Mellitus
Start HD	March 2017
First Access	AVF
Creation date (First VA)	April 2016
Location	Left brachiocephalic
Date of first use	March 2017
Access failure	January 2018



Severe changes in physical examination

Decrease of Kt/V (maximum 1.1).

Referenced to VAC performing six PTA with slight improvement in Qa.



Figure 2 - Angiography showing stenosis

NOVEMBER 2017 - a new AVF was created in the right forearm, presenting nowadays Qa 740 mL/min and Kt/V average 1.7.

- Physical examination: normal pulse, continuous thrill, continuous bruit.
- Without intervention.



Conclusion

Our case studies showed that a constant monitoring, assessment and referral of dysfunctional AVFs to VAC can avoid CVC and its limitations for the patient.

References

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2. Parisotto, M. T., *et al* - A Nursing Best Practice Guide for the Arteriovenous Fistula. 2nd edition. Lucerne: European Dialysis and Transplant Nurse Association/European Renal Care Association (EDTNA/ERCA), 2015. ISBN:978-84-617-0567-2