

Vascular access coordination on patients undergoing haemodialysis: evaluation of risk factors for fistula thrombosis

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Introduction

Arteriovenous fistulas (AVFs) are capable of providing adequate extracorporeal blood flow that is necessary for haemodialysis; however, vascular stenosis is common and can lead to inadequate haemodialysis or fistula thrombosis.

Objectives

To understand the factors that can predict AVF thrombosis.

Methods

This is a descriptive retrospective study. We evaluated patients with AVF thrombosis from 2014 to 2017. Only patients with successful cannulations for at least 6 months were considered.

Results

The thrombosis' rate in AVFs during follow up of this was 6.1% (34 patients).

All of thrombosed AVFs have associated pathological anatomy, 47.1% cephalic arch stenosis (CAS), 20.6% proximal stenosis (PS), 20.6% distal or arterial anastomosis (DAA), whereas the remaining stenosis were distributed along the access cannulation track and central veins (Graphic 1).

In addition, we evaluate if each stenosis was specific to an AVF type:

- CAS is seen most commonly with a brachial-cephalic AVF;
- DAA is identified only in the radial-cephalic AVF.

We also observe the prevalence of AVFs according with the stenosis location:

- Prevalence of AVFs on patients with CAS is 2 years and 11 months;
- Prevalence of AVFs on patients with DAA is 6 years and 9 months;

The risk factors associated with failure of an AVFs were reviewed separately:

- Patients with CAS have normal Kt/V (average 1.88), lower Substitution Volume (19.7 L), normal Qa (average 1420 mL/min), difficulties on haemostasis, high venous pressure (average 281 mmHg) and with an optimal blood pump of 419 mL/min;
- Patients with PS or DAA have lower Kt/V (1.34), substitution volume (19.4 L) and Qa (520 mL/min);
- Patients with DAA have also lower arterial pressure (average of -245 mmHg) and decrease on the average of blood flow of 348 mL/min.

Conclusion

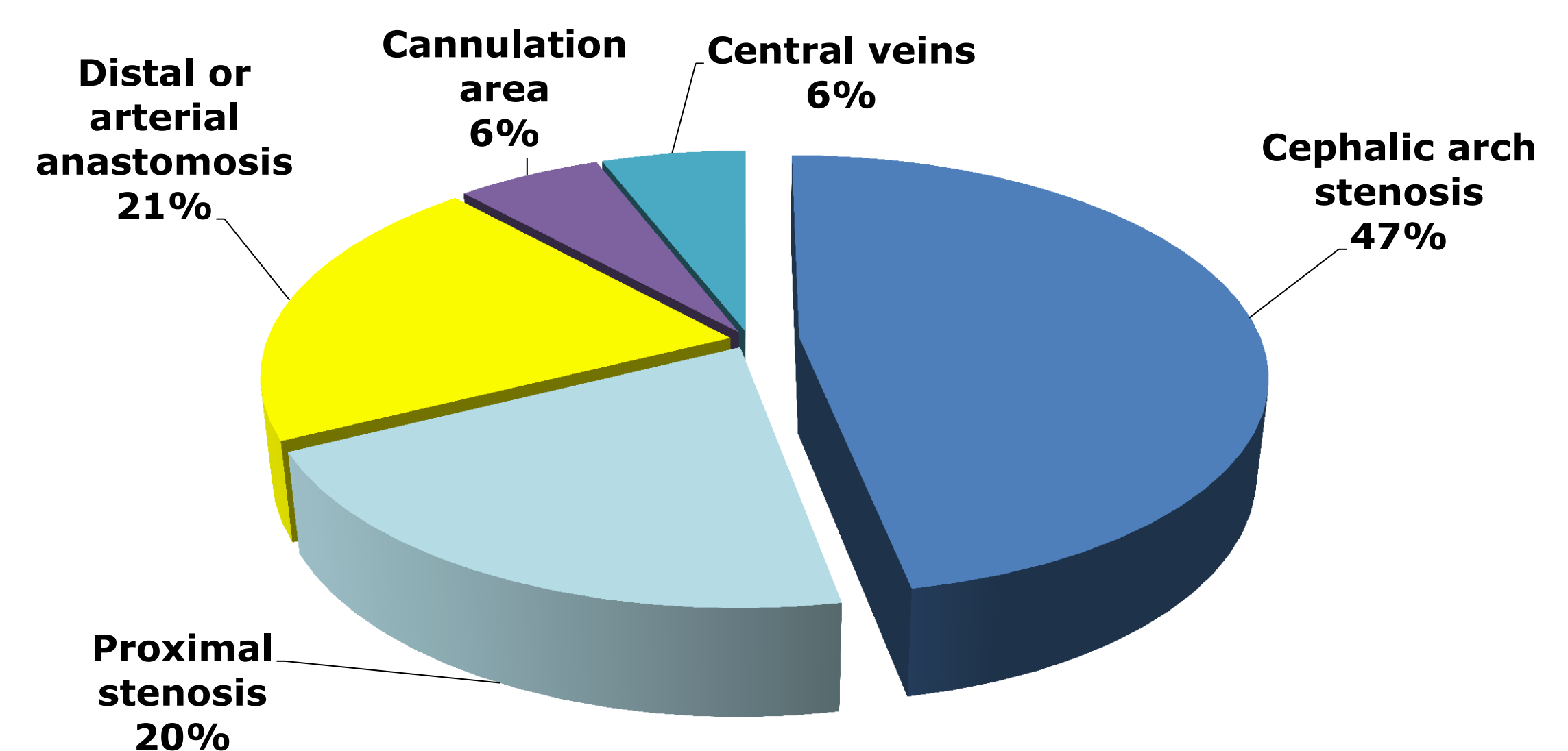
Proper fistula maintenance and care can help prevent injury to the fistula that might lead to problems. The location of the AVF is important and should be individually considered due to they specific risk factors.

References

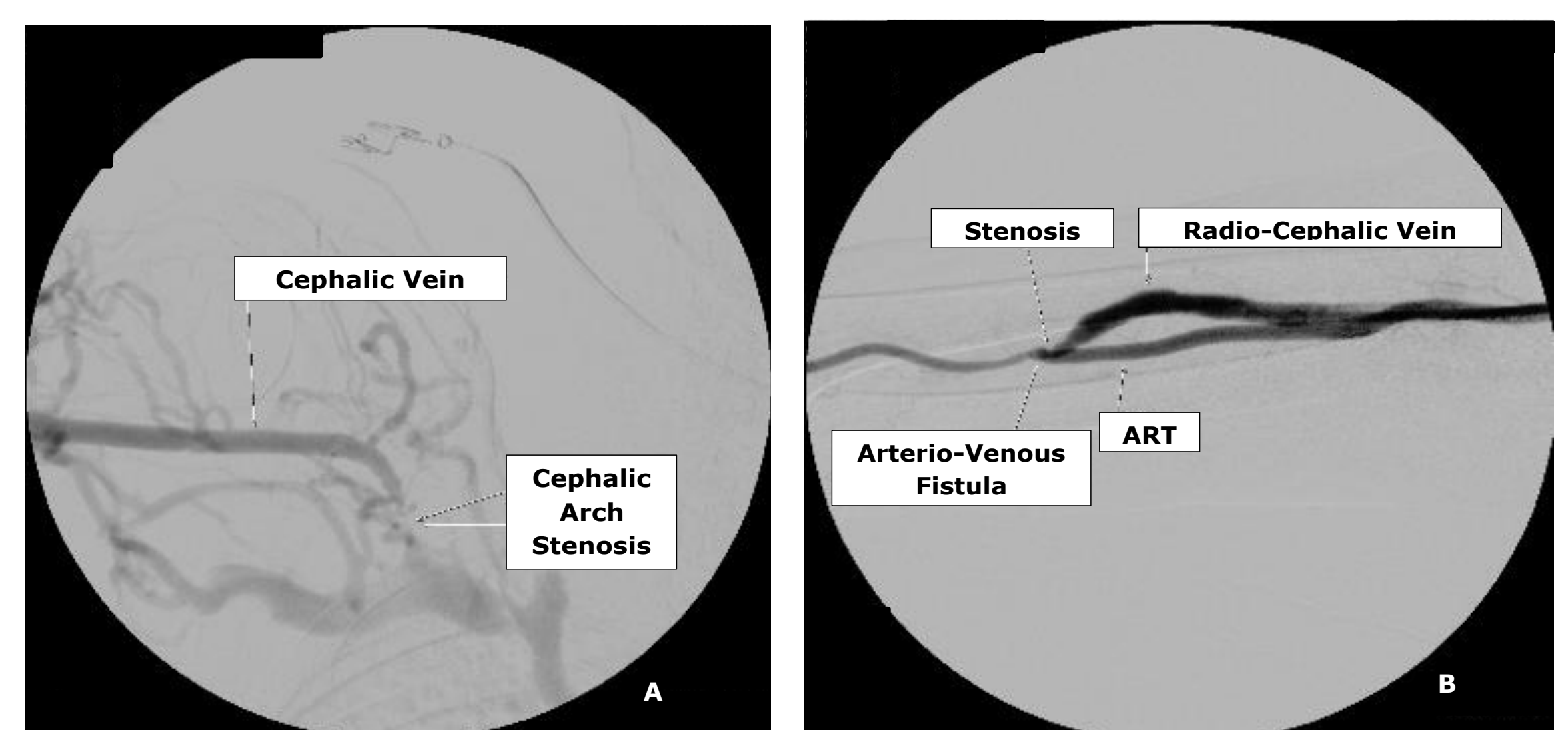
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Year	Total Number of patients	Number of thrombosis	Average (%)
2014	111	7	5.4
2015	109	7	6.4
2016	108	6	5.5
2017	112	8	7.1

Table 1 - Number of Patients with AVFs thrombosis between the years of 2014 and 2017



Graph 1 - Distribution of thrombosed AVFs according with pathological anatomy



Picture 1 - (A) Cephalic Arch Stenosis; (B) Radio-Cephalic Stenosis