# COMPLICATIONS ON THE FEEDING ARTERY AFTER AN ARTERIO-VENOUS FISTULA LIGATION OR EXTIRPATION -A CROSS-SECTIONAL ULTRASOUND FOLLOW-UP STUDY IN PATIENTS AFTER KIDNEY TRANSPLANTATION Abstract Number: WCN24-AB-709

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## INTRODUCTION

Arterio-venous fistula (AVF) or graft is sometimes closed in patients after kidney transplantation for various reasons, as it is no longer needed. There are some reports in the literature of **complications occurring on the feeding artery after AVF closure**.

The aim of our study was to screen for long-term complications on the feeding artery in a national cohort of kidney transplant recipients with closed AVFs.

## METHODS

- We performed a **cross-sectional observational study** in a previously published national cohort of kidney graft recipients from Slovenia (transplanted in 2000-2015) in whom a functioning AVF was closed (simple ligation or complete surgical extirpation with arterial reconstruction) after receiving kidney graft.
- All patients who were alive in January 2023 were **invited for follow-up ultrasound (US) examination**, where arteries were examined from axilla to the site of former anastomosis.
- We report only newly discovered, clinically significant complications, while we do not report clinically manifest complications that were recorded in medical records and were already known at the time of the ultrasound exam.

## RESULTS

Fifty patients (mean age  $62\pm10$  years, 40% females) with closed AVF (54% forearm AVFs, working for  $9\pm5$  years) were included in the study. Mean time from closure to the present ultrasound exam was  $9\pm7$  years.

There were 9/50 (18% incidence) major, although asymptomatic, complications found on the US exams:

- 7 (14% incidence) arterial thromboses and
- 2 (4% incidence) **aneurysms** (unrelated to the site of anastomosis).

Three thrombosis cases affected the whole radial artery, while two extended higher, some up to the axillary artery. There was one thrombosis of perianastomotic segment of brachial artery and one thrombosis of brachial artery aneurysm and distal arteries. All patients with arterial thrombosis extending to the brachial artery had large brachial arteries (>10 mm) or a brachial artery aneurysm.

Of the two brachial artery **aneurysms** (without thrombosis) found, one with mural thrombus required **surgical treatment**.

## CONCLUSIONS

- Our study of a national cohort of kidney transplant patients after AVF closure showed a relatively high incidence of significant complications on the feeding artery, which often developed several years after AVF closure. We hypothesize that they developed because of reduced blood flow velocity and increased pressure within a wide feeding artery with a thinned wall.
- One should consider these complications when contemplating closure of a well-developed AVF and an AVF preserving approach with flow-reduction surgery or aneurysm resection might be preferred in majority of cases.
- Furthermore, if AVF is ligated a short-term perioperative anticoagulation therapy should be considered to prevent spreading of thrombus from the perianastomotic area to the arterial system.

*Figure 1: A*: Thrombosed axilar artery (arrow) after RC AVF ligation - CTA reconstruction; **B**: Thrombosis of radial artery (arrow) after RC AVF ligation – CTA reconstruction.



longitudinal view

(0.9 cm mural

thrombus).