

ARTERIO-ARTERIAL BRACHIAL LOOP GRAFT AS AN ALTERNATIVE VASCULAR ACCESS FOR HAEMODIALYSIS

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INTRODUCTION

The adequate function of vascular access (VA) is crucial for successful and proper haemodialysis treatment. Unfortunately, arteriovenous fistula (AVF) failure remains high among the dialysis patient population. The resolution of problems in these patients with VA represents a pressing issue for the entire nephrology team. The expansion of the portfolio of alternative VAs for haemodialysis is an opportunity for a large number of patients to improve the quality and adequacy of dialysis treatment.

CASE REPORT

The case report involves a 46-year-old patient of lower social status, who has been admitted in the chronic haemodialysis program since 2005. Thus far, he had created **2x AVF, 8x CVC**, among other reasons due to the patient poor hygiene. Because of the patient's non-compliance with the dietary and hydration regimen and non-compliance with the use of medication at home and in caring for vascular access, the AVF was gradually obliterated and there were recurrent complicated infections of the central venous catheter, with the last staphylococcus sepsis in the femoral vein occurring in 06/2017.

On 10.5.2017 - creating of an AA brachial loop graft on the right upper limb; following initial bleeding complications, the condition is stabilized and the AA graft develops. The AA graft was punctured for the first time on 21.6.2017, and it was necessary to remove the CVC from the femoral vein due to catheter sepsis.

For puncturing, we used 17G needles, which we are still using. The AA graft is limited by low flow, as the patient can take QB 90 ml/min at the most, and with increased QB there is great pain and cramping in the right arm. When puncturing, it is advisable to avoid compression, therefore we do not use a tourniquet. After the disconnection and removal of the needles from the AA graft, the punctures are only slightly compressed. All of the intravenous medication is administered in the venous system of the patient - in the left upper limb.

The effect of dialysis - due to low QB - was very low, therefore it was necessary to increase the dialysis time to 5 hours. The ideal solution would be daily dialysis, but due to the patient's lack of collaboration, the dialysis regimen was set at 4x5 hours.

In November 2017 a dry lesion formed on the AAG, but after haemodialysis there was arterial bleeding from the AA graft and the patient was hospitalized with the need for the AAG segment resection. Staphylococcus aureus is present in the swab from the AAG wound and i.v. antibiotic therapy (vancomycin) is necessary, which the patient often rejects after hemodialysis.

SPECIFICS OF CARE FOR VA - AAG

- when puncturing, we do not compress the AVF limb, i.e. no tourniquet is used,
- during cannulation the needle is tilted at a 45° angle and at least 3 cm from the anastomosis,
- with the AAG, the flow is only 90-110 ml/min (recommended up to 150 ml/min)
- after the removal of needles, lower intensity of puncture compression,
- with the AAG, the i.v. therapy is administered only in the limb where the AAG is not installed,
- strictly aseptic conditions when treating and puncturing the AAG,
- the AAG loop must not be punctured at the apex of the arc,
- the AAG must be managed individually and the recommendations of the vascular surgeon must be complied with.



COMPLICATIONS OF AAG

- graft infections - even after treatment it must not be used, as the infection persists inside,
- increased occurrence of thrombotic complications by up to 41% compared to AVF, therefore there is the need for more frequent intervention and stenosis of the graft at the anastomosis.

CONCLUSION

Through improved collaboration with the vascular surgeon and regular monitoring, we were able to extend the range of vascular access techniques for haemodialysis.

However, the Achilles heel remains the responsible attitude of the patient. Providing care for such a patient is extremely demanding. The patient does not understand the serious nature of his medical condition, continuously rejecting everything that could help. Often the patient is verbally abusive, demanding early disconnection.

Our experience with this type of VA showed that this type of VA is a possible solution for patients with exhausted and limited VA options; however, it is necessary for the patient to be involved in the nursing care, to comply with the treatment regimen and to protect the VA consistently.