

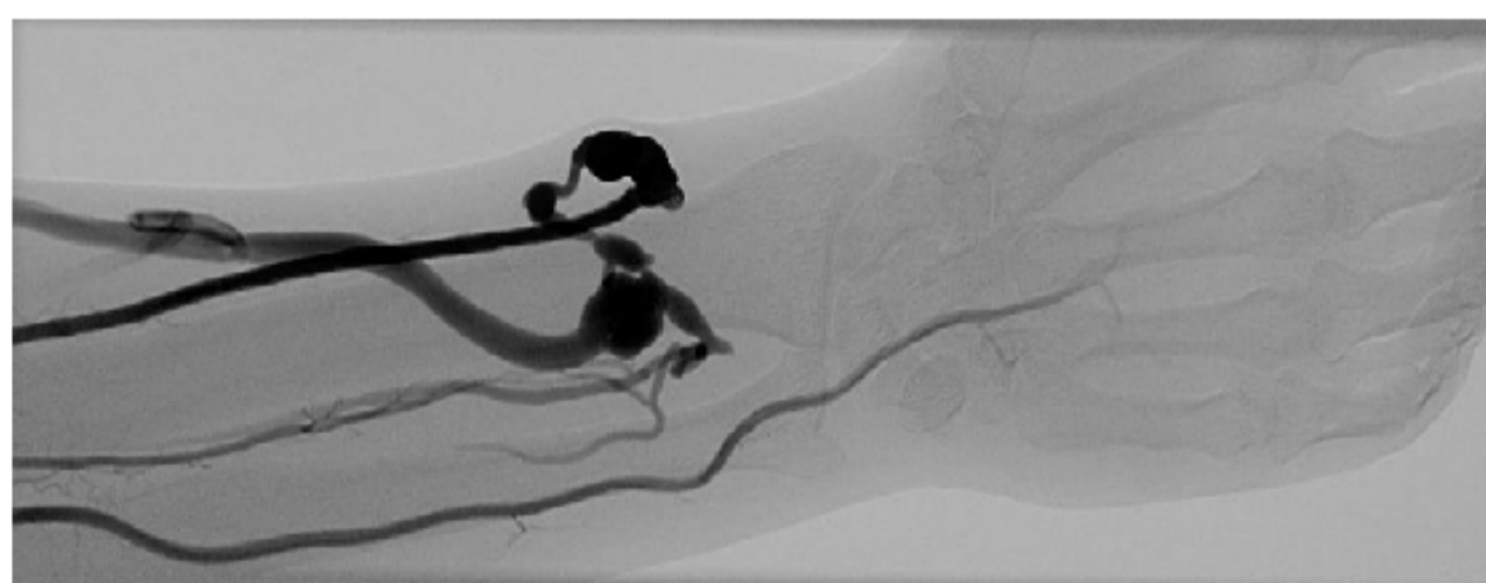
THE IMPACT OF PRE-DIALYSIS FISTULA SURVEILLANCE ON INITIAL VASCULAR ACCESS TYPE AT START OF HEMODIALYSIS

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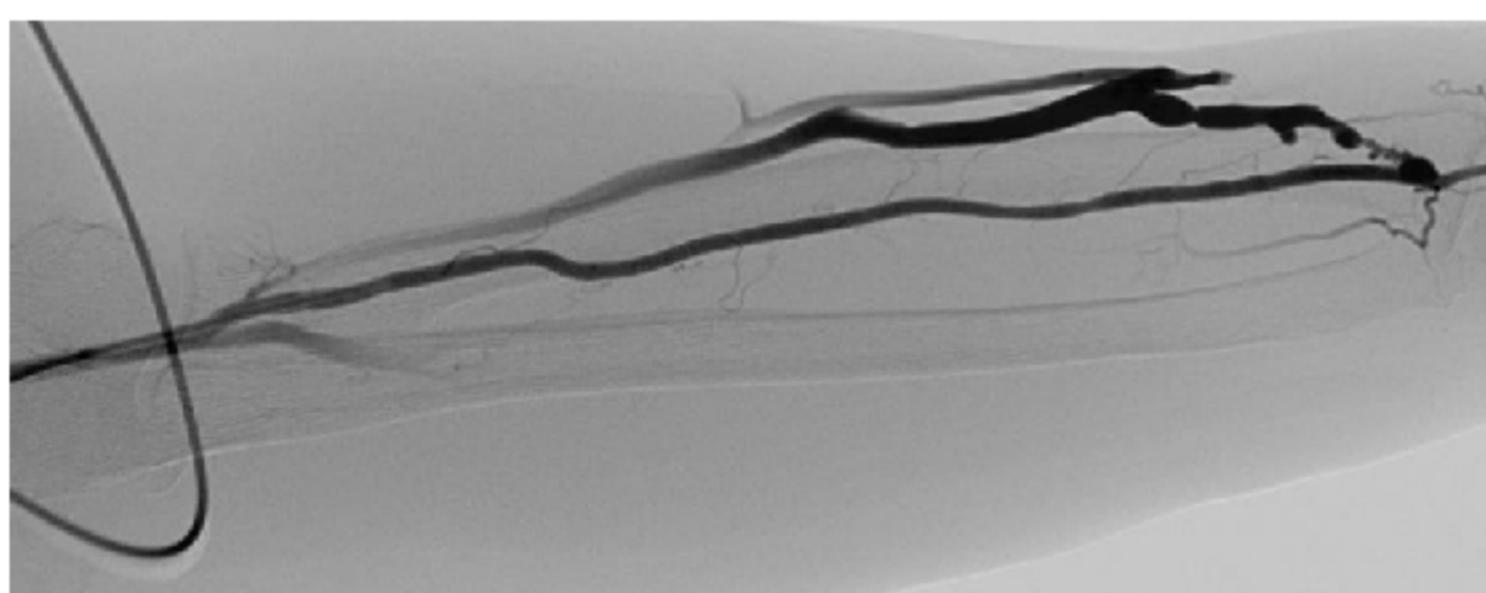
INTRODUCTION AND AIMS:

- The life expectancy of haemodialysis (HD) patients is significantly improved by creating an arteriovenous fistula (AVF) with appropriate blood-flow.
- Duplex ultrasonography (DUS) is a proper device for mapping of suitable vessels and evaluating the maturation process of AVF.
- If necessary, fistulography, percutaneous transluminal angioplasty (PTA), or other surgical interventions may be considered prior to the start of HD.
- The aim of the study was to evaluate the impact of our pre-dialysis proactive fistula surveillance program on the rate of functional AVF at first dialysis.

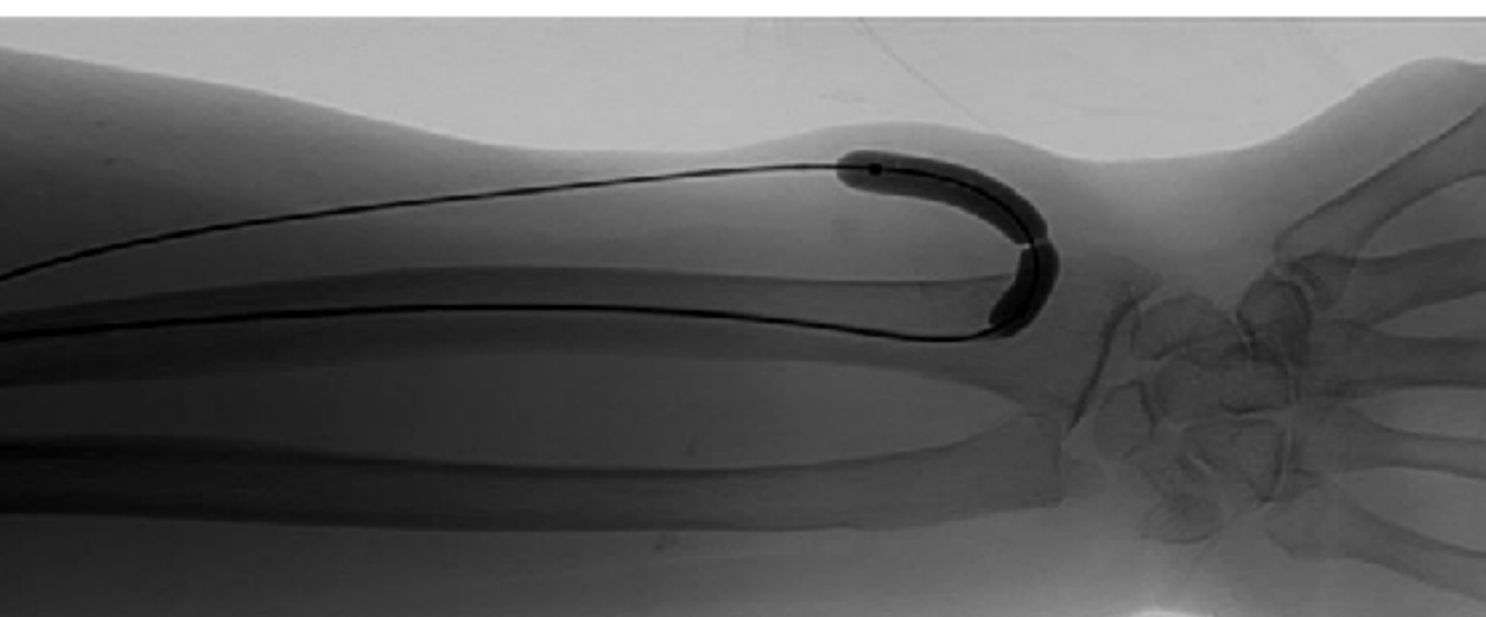


Because of cephalic vein obstruction venous outflow can be seen only in collateral veins. PTA is not possible. Creation of new fistula is necessary.

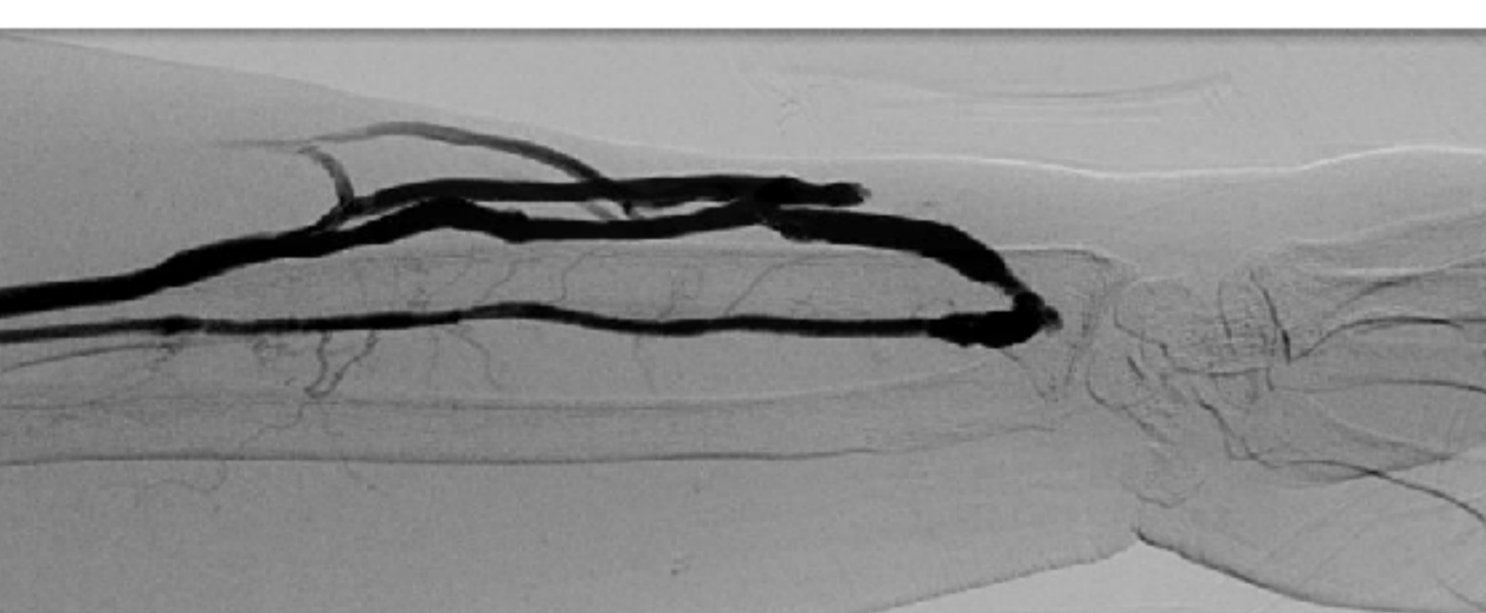
Fig. 1. Fistulography in the predialysis period



a. Venous outflow stenosis



b. Balloon angioplasty



c. Control

Fig. 2. Fistulography and PTA in the predialysis period

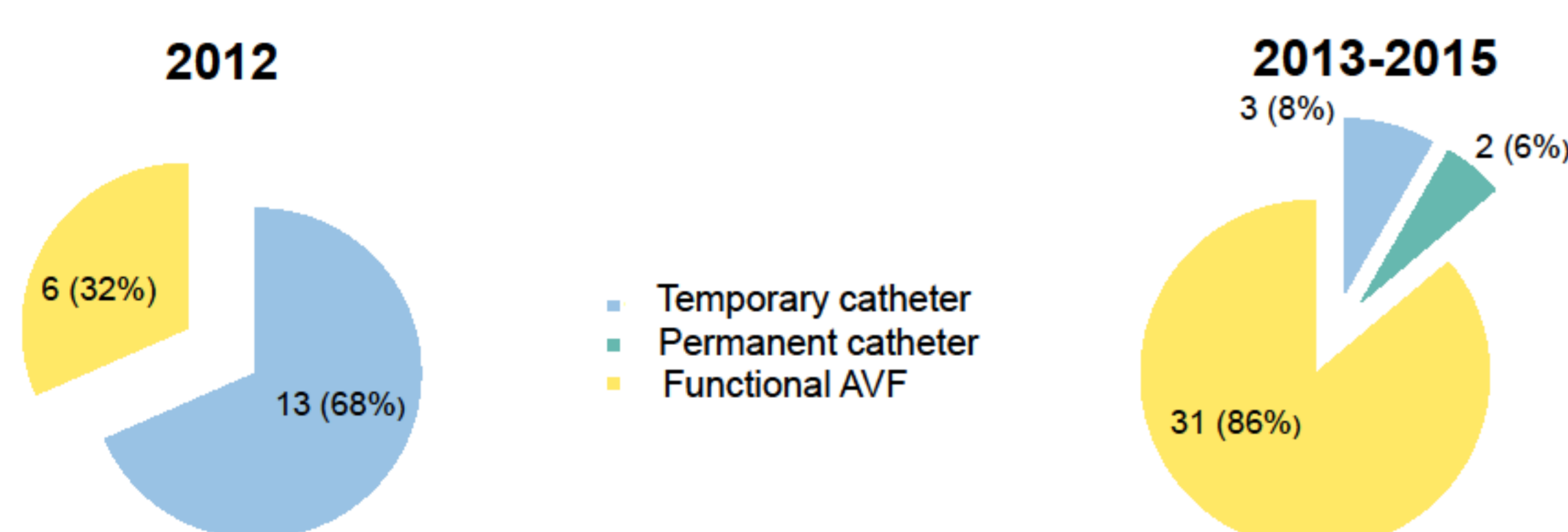


Fig. 3. Vascular access distribution at the beginning of HD

PATIENTS AND METHODS:

- Between January 2013 and August 2015, we carried out mapping and/or DUS after 6-8 weeks of fistula creation or before the first HD in 82 patients suffering from chronic renal failure (mean age 66 year, min. 28, max. 94 year, male/female: 51/32, diabetes 41 [50%]).
- In accordance with the relevant recommendations, arteries with ≥ 2 mm and veins with ≥ 2.5 mm of diameter were considered suitable for native fistula creation.
- In cases of inefficient maturation we performed fistulography and when indicated, the correction of the fistula was performed by PTA or surgical intervention. (Fig. 1-2.)

RESULTS:

- The proportion of appropriate/inappropriate/borderline vessels in the case of 66 mappings was 61/2/2.
- The fistula position of wrist/forearm/elbow ratio was 27/21/10.
- Based on the results of 70 DUSs of 45 patients the ratio of shunts mature/stenotic/immature/borderline was 39/15/9/7.
- Before the start of HD:
 - ✓ Stenosis was verified in 15 cases of 18 fistulography in 16 patients, PTA was possible in 13 cases.
 - ✓ New fistula was created in 5 patients, in three of them diameter of vein was $< 2,5$ mm, in one case mapping was not performed. Surgical correction of fistula was performed in 4 cases and in one case the shunt was ceased because of bleeding.
- The mean age of fistulas at the start of HD was 231 days (max. 849, min. 20 days).
- Compared to the previous year (2012) in the reporting period at the start of HD the proportion of patients with properly functioning fistula improved from 32% to 86%. Two patients had permanent catheter, one because of inappropriate vessels and the other because of abortive fistula creation. Three patients had transient catheter because of rapidly failing renal functions. (Fig. 3.)

CONCLUSION:

- The mapping of suitable vessels, evaluation of maturation of AVFs via DUS, confirmation of stenosis requiring radiological or surgical interventions with fistulography and the completion of these interventions in the pre-dialysis period can significantly improve the proportion of patients with well-functioning fistulas at the time of dialysis initiation.

References:

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