

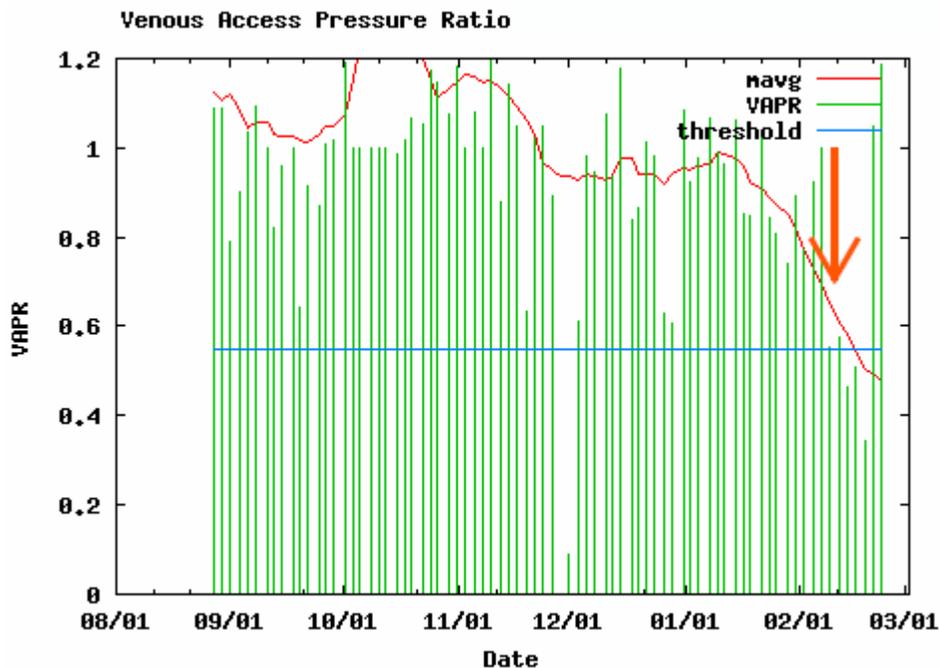


VASC-ALERT ACCESS SURVEILLANCE CASE STUDY

PATIENT PROFILE

59 year old male
Primary cause of ESRD: Type 2 Adult Onset Diabetes
Dialysis start date: 3/27/06
Dialysis access: Left upper arm arteriovenous fistula
Dialysis access placed: 6/29/05
Treatment time: 3.5 hours/210 minutes 3 times per week
Ordered BFR: 500ml/min
Kt/V result at time of intervention: 1.2

VASC-ALERT DATA



This patient had multiple high readings and alerts issued by Vasc-Alert. In the above VAPR graph each vertical green line indicates the average VAPR for the dialysis session. The horizontal blue line is a pre-set threshold value. The red line is a moving average which is used to visualize the trend of the graph more easily. The red arrow indicates when an intervention took place. The dates on the graph are in month/day format.

There were no clinical signs or symptoms that were indicative of access dysfunction or stenosis (e.g. no increase in venous pressure, no excessive bleeding, no decrease in blood flow, no difficulty in cannulation, no decrease in Kt/V), but the patient had consistent alerts and extremely high VAPR results. The patient was sent for a fistulogram on 2/7/07 based solely on Vasc-Alert results and was determined to have significant stenosis, so an angioplasty was performed. The red arrow on the graph indicates the drop in VAPR values below the threshold immediately after a fistulogram and angioplasty.

PROCEDURE

The fistula is accessed near its presumed origin near the antecubital region. Through this, contrast is injected and multiple images of the fistula are done including the major draining veins of the left upper extremity. The same approach is used for angioplasty of a lesion described below.

FINDINGS

There is a well-developed brachial basilic fistula without excessive collateral formation. Inflow appearance is stable and widely patent with free reflux to the distal brachial artery.

There is recurrent, tight narrowing at the fistula outflow to the upper brachial vein near the left axilla with 90% concentric narrowing. This lesion is redilated to native caliber of the fistula (9mm) with improved flow and caliber but there is some residual narrowing suggesting elastic nature of this abnormality.

The left axillary, subclavian and innominate veins are normal.

IMPRESSION

1. Recurrent, tight, concentric constriction of fistula outflow to the upper brachial vein near the left axilla.
2. Above narrowing dilated to native caliber including high pressure technique with some residual elastic narrowing but flow is improved angiographically.
3. No central venous obstruction seen.

SUMMARY

The patient was sent for access study based on Vasc-Alert results and found to have a hemodynamically significant stenosis of 90% that was treated by angioplasty. Shortly after intervention the patient's VAPR results returned to normal and fell below the threshold.