

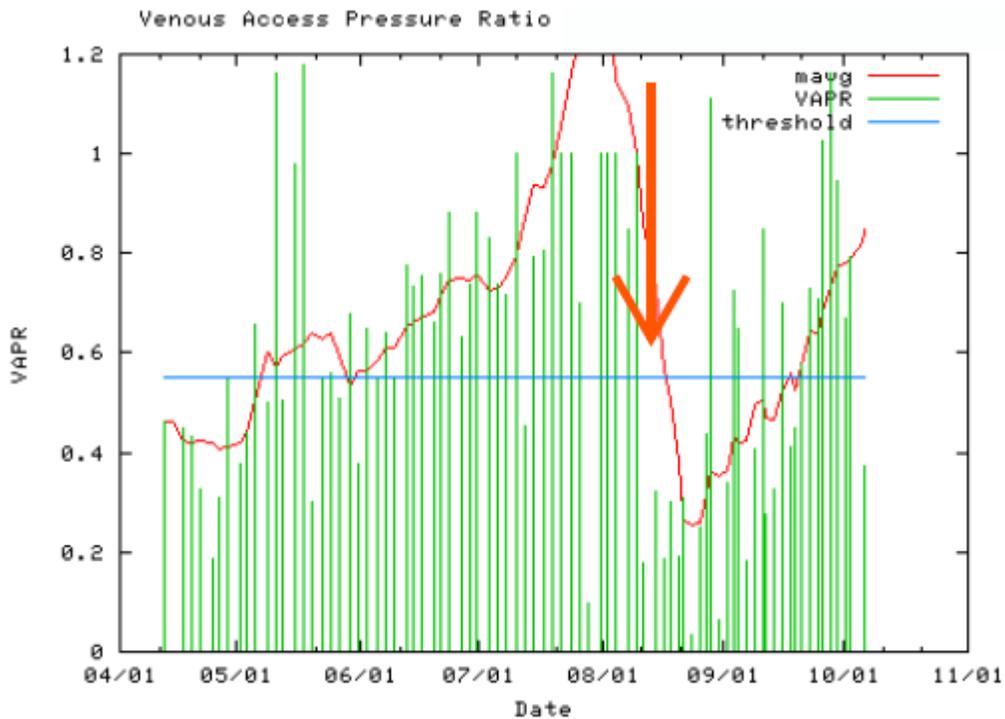


VASC-ALERT ACCESS SURVEILLANCE CASE STUDY

PATIENT PROFILE

76 year old female
Primary cause of ESRD: Hypertension
Dialysis start date: 5/09/02
Dialysis access: Left upper arm arteriovenous fistula
Dialysis access placed: 3/20/01
Access revision: 1/17/07
Treatment time: 3 hours/ 180 minutes 3 times per week
Ordered BFR: 400 ml/min
Kt/V result at time of intervention: 1.8

VASC-ALERT DATA



This patient had multiple high readings and alerts issued by Vasc-Alert. In the above VAPR graphs 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 an increasing trend in VAPR results above threshold. The patient was sent for a fistulogram on 8/03/06 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 patient's left upper arm dialysis fistula is accessed near its site of origin near the antecubital fossa. Through this, contrast is injected and multiple images of the fistula are taken, including the major draining veins of the left upper extremity. Using the same approach, fistula angioplasties are done of the abnormalities described below. Access catheter remains in place for use during hemodialysis, which is anticipated immediately following this procedure.

FINDINGS

There is a patent and well-developed left upper arm dialysis fistula, which appears to be a brachial basilic fistula. There is no excessive collateral formation. No inflow restriction seen from the distal brachial artery.

There are two adjacent areas of tight concentric narrowing of the fistula at its outflow to the subclavian vein. One of these is 15 millimeters in length with 90% concentric narrowing. Immediately peripheral to this is an 8 millimeter 80% concentric narrowing.

Above narrowings are brought to native caliber (8 millimeters) using conventional techniques. Following this, there is reduction in pulsatility, and improvement in flow angiographically.

IMPRESSION

1. Patent left upper arm brachial basilic fistula.
2. Two adjacent areas of tight concentric narrowing are seen at the venous outflow to the left subclavian vein.
3. Above narrowing is brought to native caliber using conventional techniques.
4. No central venous obstruction is seen with the subclavian and innominate veins normal.

SUMMARY

The patient was sent for access study based on Vasc-Alert results and found to have two hemodynamically significant stenoses of 80 and 90% that were treated by angioplasty. Shortly after intervention the patient's VAPR results returned to normal and fell below the threshold.