



## VASC-ALERT ACCESS SURVEILLANCE CASE STUDY

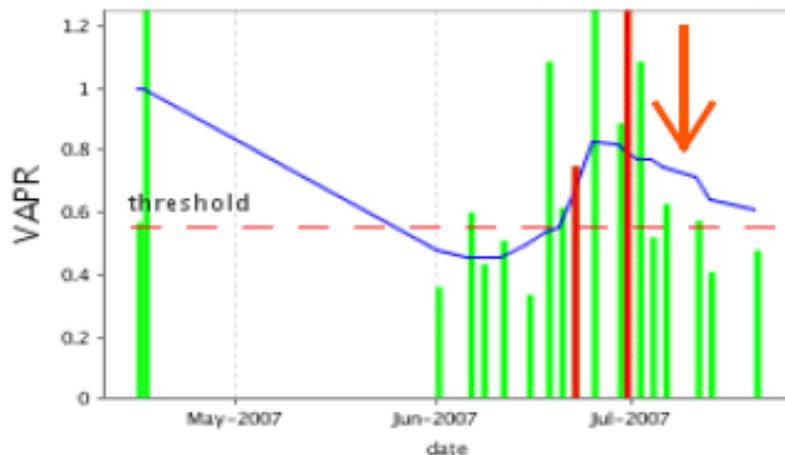
### PATIENT PROFILE

57 year old female  
Primary cause of ESRD: Type 2 Adult Onset Diabetes  
Dialysis start date: 10/23/04  
Dialysis access: Left upper arm brachial cephalic arteriovenous fistula  
Dialysis access placed: Approximately 2 years ago  
Treatment time: 3.75 hours/225 minutes 3 times per week  
Ordered BFR: 400ml/min  
Kt/V result at time of intervention: 1.7

There were no other 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 VAPR alerts.

### VASC-ALERT DATA

#### Venous Access Pressure Ratio



This patient had several high readings and alerts issued by Vasc-Alert. In the above VAPR graph the vertical green and red lines indicate the average VAPR for the dialysis session. The vertical red lines occur on dates where an alert was issued. The horizontal red dashed line is a pre-set threshold value. The blue line is a moving average which is used to visualize the trend of the graph more easily. The red arrows indicate when an intervention took place. The dates on the graph are in month/year format. Gaps in data are typically due to a lack of source data (missed treatment or hospitalization) or incomplete source data. For example, calculations may not have been made due to missing access type, needle gauge or blood pressure data.

### HISTORY AND EXAM

Left upper arm AVG, with recurrent venous outflow stenosis, was created over 2 years ago. Last angioplasty was in March 2007. Patient returned for 3 month follow-up appointment. The fistula has an area of proximal aneurysm with the skin over this somewhat eroded at the regions of repeat cannulation. The access was determined to have a significant stenosis on 7/3/07. The red arrow on the graph indicates the intervention date, and a drop in VAPR values below the threshold is seen after the procedure.

## **PROCEDURE**

The patient's left arm was prepped and draped in the usual sterile fashion. Lidocaine was used for local infiltration. An 18 gauge needle was used to cannulate the fistula facing downstream. The 0.035 inch Angio Bentson guidewire was advanced up the arm, and a 7 French sheath was inserted over the wire. Venogram revealed stenosis of the swing segment of the basilic vein in the mid to upper humerus, about 70-80% lesion.

Medications were given to achieve adequate conscious sedation. A 9X4 Conquest balloon was used to angioplasty the lesion with perhaps 10% residual.

A retrograde brachial arteriogram showed no inflow stenosis. There is a very large proximal fistula aneurysm.

Hemostasis was obtained with a z-stitch at the cannulation site. The patient tolerated the procedure.

## **FINDINGS**

1. Dysfunctional arteriovenous fistula, left upper arm brachial cephalic
2. Recurrent stenosis of the basilic vein in the mid-humerus, 80%

## **SUMMARY**

The patient went for a prescheduled follow up to a previous angioplasty procedure and was found to have a hemodynamically significant stenosis that was treated by angioplasty. Shortly after intervention the patient's VAPR results returned to normal and fell below the threshold.