

Name: _____

D.O.B. _____

I have received the handout
Digital ischemia secondary to vascular access (steal)
(Original dated 5-18-09)

Name -----

Date -----

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Arteriovenous shunts (either grafts or fistulas) are created in many patients with renal failure in order to provide the means for dialysis. They do not occur normally in healthy people. A shunt is considered better than a catheter for dialysis in most people due to the lower rates of infection and damage to the veins around the heart. Years of research have demonstrated the superiority of dialysis via a shunt over a catheter, and a survival advantage.

Yet, there are some drawbacks to shunts. Every shunt represents a short-circuit of the circulatory system. Blood that would ordinarily travel down to the hand (or foot) is diverted into the shunt. In most people there is more than enough blood for both the shunt and the hand. The artery tends to dilate after the surgery to bring more blood down the arm, and the patient usually notices only occasional “pins and needles”, tingling, or coldness of the hand on the same side as the shunt (the “shunt hand”). We call this “steal”. These symptoms tend to get better with time as the body adjusts to the new circulatory pattern. We recommend that all patients keep their shunt hand warm, avoid smoking, and take low-dose aspirin to reduce these problems.

However, some patients have more significant problems. Steal can be painful. It can interfere with sleep. Numbness of the hand may interfere with activities of daily living. Poor circulation may prevent healing of minor injuries that result in infection of the finger and can even lead to loss of a digit. Steal is usually worse in the winter than the summer, and worse on dialysis. Steal causing significant problems can be managed several ways:

With mild steal (occasional numbness or coldness) we generally recommend a wait-and-see approach, keeping the shunt hand warm with a glove, particularly on dialysis and in cold weather, stopping smoking, and taking low-dose aspirin, assuming there is no contra-indication. Generally things get better with time.

For moderate to severe steal (persistent numbness, weakness of the hand, or pain) a more aggressive approach is generally needed. If warming the hand does not resolve the symptoms, addition of Trental (a medication to improve the circulation) may be added. Trental can take up to a month to show effect.

We may ask for *digital pressures* (to see how much blood is getting down to the fingers) or other non-invasive studies done in the hospital. Other options may include *branch ligation or banding of the fistula or graft* (limiting the blood flow to a single channel or placing a collar to slim down the access at the inflow end, thereby forcing more blood down to the hand); *a fistulogram with retrograde brachial angiogram* to detect and treat narrowings in the artery just above or below the shunt with balloon angioplasty; *an upper extremity angiogram*, to detect and treat narrowings in all of the arteries from the heart to the fingers; *revision with proximalization*, to reattach the shunt to a larger artery further up the arm; or a *DRIL procedure* to rearrange the circulation by bypassing the shunt with a vein from the leg. Finally, *ligation of the fistula or graft* and returning to a catheter as the long term dialysis access may be required. The National Kidney Foundation Dialysis Outcome Initiative guidelines state that up to 10% of dialysis patients may not have good enough veins, circulation or strong heart to have a shunt.

Life is full of compromises. Just as one person cannot completely assess another person's pain, neither can we completely understand what compromises are acceptable to a given patient. We advise, educate, and stand ready to help our patients live with their dialysis status as best as possible. The dialysis patient has a responsibility to educate themselves as much as possible, to make their own decisions, to communicate changes in their condition to their doctors promptly, and to follow recommendations agreed upon. Not taking medications prescribed, not troubling to wear a glove on a cold or numb hand, or secret smoking all sabotage the agreements we reach in the office.

Having renal failure and being on dialysis is like living in a dangerous country – one must always be careful. There are risks. But life is still worthwhile and we are ready to help.

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