Austin Journal of Surgery

Austin Publishing Group

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Editorial

Saving Lives as a Vascular Surgeon: Be an "Access Whisperer!"

Karl A. Illig*

Division of Vascular Surgery, University of south florida, USA

***Corresponding author:** Karl A. Illig, Division of Vascular Surgery, University of south florida ,2 TGH Circle, STC 7016, Tampa, FL 33606, USA, Email: killig@health.usf.edu

Received: February 14, 2014; **Accepted:** April 02, 2014; **Published:** April 04, 2014

When we graduated from medical school, we all wanted to treat the sexiest problems, do the biggest cases, and basically save the world. In vascular surgery this typically means tackling the largest thoracoabdominal aneurysms, or doing the sexiest abdominal and thoracic endografts. Really saving the world, however, means doing the greatest good for the greatest number of people, and just what this means sometimes takes a lot of experience – and humbleness.

As of 2010, one in 10 US residents had some degree of renal insufficiency, with almost 900,000 patients being treated. There were about 400,000 patients receiving dialysis, and a 65-year-old on dialysis has a 4.5 year life expectancy. If you really want to make a difference in vascular surgery, this is the problem to solve.

It starts with doing the right type of access to start with. We all agree that an autologous fistula is preferable to a prosthetic AV graft, but too many people pay lip service only to this. Tip Jennings in Tulsa has now performed over 2000 consecutive primary autologous fistulae-the veins are there if you look hard enough. Basilic transpositions have an 85% maturation rate, and especially using a staged technique, the brachial veins themselves can be used.

Once the fistula is up and running, problems are not far behind. As many as five percent of patients suffer significant steal. In the old days this could be palliated with banding, but most such patients ended up losing their access anyway. Numerous alternatives now exist, all having in common reducing collateral resistance to the forearm while increasing resistance of the fistula in a physiologically acceptable fashion. Distal revascularization interval ligation (DRIL) has a 90 percent limb and fistula salvage rate. There's not much excuse for ligating any fistula for steal in 2014.

What of the "opposite" problem-central vein/inflow obstruction? Stenoses in veins surrounded by soft tissues have long been treated with endovascular techniques, but subclavian vein stenoses at the thoracic inlet have frequently led to abandonment of fistulas. There is now extensive experience to show that this is frequently simply a form of venous thoracic outlet syndrome; the vein is damaged at the junction of the clavicle and first rib. First rib excision is extremely well tolerated, associated with very low morbidity and mortality, and seems to provide a new lease on life for these patients. Even fistulas that degenerate and end up with focal or disuse aneurysmal dilation can frequently be salvaged, as well - long segment exposure, debridement of excess tissue, and publication over a 20 French bougie yields excellent results, "resetting the clock" for further fistula use.

Even patients with acute need for access can now be treated without catheters. There is now an FDA approved immediate access graft on the market. Patients in urgent need for dialysis or with infected access, rather than simply having a catheter placed, can travel to the operating room, be operated on under local or regional anesthesia, be transported to the dialysis center after recovery, and undergo access via the freshly placed graft within a few hours. This may be the one time where prosthetic access is better than autologous. While the concept of "fistula first" continues to be valid for elective access, the subtly but importantly different "catheter last" concept may well apply to the urgent situation.

What if all other options are failing? If any wire access whatsoever can be gained into the atrium, a combined graft/catheter device is a good option. Although the patient's left with prosthetic access, the modularity of this system allows repeated and surprisingly successful thrombectomy and/or revision if and when needed (the vascular group at Duke has the most experience with this algorithm). Bypass can be performed, with or without rib resection, from a patent subclavian vein to the right atrial appendage via a small third space "mini thoracotomy," leading to fistula salvage in approximately 2/3 of patients. Finally, one must not forget leg access. While groin prosthetic grafts have (perhaps unacceptably) high morbidity and mortality rates, leg fistulae perform quite well. The best strategy seems to be to use the femoral vein in a transposed fashion. If the vein won't reach the artery, a piece of prosthetic can be used deeply to restore inflow, with access via the autologous portion near the skin.

How can a surgeon save the world? This editorial is meant to emphasize that in vascular surgery the greatest unmet need is that of perfecting AV access. The organ shortage for transplant is never going to go away, and until we develop a true workable artificial kidney, AV access will remain the scourge of our patient population. These cases should not be relegated to a junior resident, and this practice should not be considered second-rate. The "access whisperer" will lengthen, improve, and save more lives than the thoracoabdominal or endografting guru!

Citation: Illig KA. Saving Lives as a Vascular Surgeon: Be an "Access Whisperer!". Austin J Surg. 2014;1(2): 1007.