

# A Vascular Access Report for the Year 2011

“More fistulas, more grafts, and fewer catheters!!”

Michigan Vascular Access, PC  
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For previous editions of this newsletter and discussion of other topics please visit the MiDRE.org website to review the “Michigan Vascular Access, PC, 2009 letter to nephrologists”, and “A Vascular Access Report for the Year 2010”

## **Dear Doctor or dialysis professional:**

At *Michigan Vascular Access, PC*, we have been honored by your referral of one of more patients for help with their hemodialysis access needs. This annual letter contains a report of our activities for the year 2011, discussions and images.

### **Introduction**

*Michigan Vascular Access* is a professional surgical practice dedicated to providing and maintaining effective vascular access for hemodialysis patients: from initial long-range planning and provision of the optimal first access in new dialysis patients, to maintenance and rescue of dysfunctional or failed accesses. Open surgical and endovascular techniques are employed by a board-certified surgeon in a C-arm fluoroscope-equipped operating room, always with anesthesia support, and always in a JCAHO-accredited hospital.

*Michigan Vascular Access* uses the Dialysis Outcomes Quality Initiative (DOQI) guidelines to help us provide defensible and up-to-date dialysis access care. The DOQI guidelines have been boiled down to three main points: (1) provision of fistulas in all eligible patients, (2) avoiding or limiting catheter usage to avoid damage to the major veins, and (3) monitoring of access performance with pre-emptive intervention to avoid access loss. These three provisions drive much of our decision-making processes.

*Michigan Vascular Access* uses a “case management” approach to the care of the dialysis patient. We follow patients over time as much as possible, including episodic care delivered elsewhere, in order to provide the most logical long-term management. This demands more staff time, and is more expensive to provide, but leads to long term benefits to the patient.

*Michigan Vascular Access* sees patients from over one hundred dialysis units all over Southeast Michigan and extending from Battle Creek and Kalamazoo to Monroe, to Flint and Lapeer, Fowlerville and Fenton, Muskegon and beyond. *Michigan Vascular Access* is a true regional surgical practice.

### **2011 Numbers and statistics**

#### **New patients in 2011**

In 2011, 278 patients new to our practice were seen: 29 pre-dialysis patients (10.4%), 116 catheter dependent, new-to-dialysis patients needing first-time access (41.7%), 65 patients with previous failed access needing new access (23.4%), and 68 patients with problematic accesses performed elsewhere needing intervention (24.4%). In addition, over 779 established patient visits were scheduled for problems with existing access. Over 1130 open and endovascular procedures were done in 2011.

Overall, 285 new accesses were placed, with 245 fistulas and 55 grafts, for an overall fistula rate of 82%. 115 revisions were done and 603 endovascular procedures, including 78 percutaneous thrombectomies.

Patient suitability for a fistula depends to some degree on circumstance:

1. Of the predialysis patients, 26/29 (89.6%) were recommended to have a fistula, and 10% to have a graft.
2. Of the patients on dialysis with a catheter but without previous access, 97/116 (83.6%) were recommended to have a fistula, and 17/116 (14.7%) to have a graft.
3. Of the patients on dialysis with a catheter and with previous failed accesses, 47/65 (72%) were recommended to have a fistula. A recommendation for fistula creation was less and less likely in patients with more and more previous failures.

The lesson here is that the passage of time on catheter dialysis and previous access failures make it less likely that a fistula can be achieved. Therefore, getting patients in for access creation as early in the process as possible, and avoiding low yield procedures that eat up time and destroy options are both critical. There first shot is the best shot, and there is no one who can magically make everything better all over again (although we try).

In the last eleven years Dr. Webb has done over 9000 procedures including over 1800 fistulas.

| <b>Case type</b>                    | <b>HFH</b>  | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>total</b> |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| hematoma/seroma evacuation          | 9           | 16          | 21          | 26          | 27          | 23          | 23          | 30          | 22          | 197          |
| percutaneous declot                 | 335         | 51          | 88          | 95          | 61          | 71          | 91          | 136         | 77          | 1005         |
| venoplasty                          | 423         | 136         | 203         | 269         | 324         | 368         | 400         | 497         | 424         | 3044         |
| Ligation or banding                 | 52          | 14          | 44          | 59          | 60          | 77          | 70          | 68          | 65          | 509          |
| catheter placement                  |             | 15          | 14          | 3           | 2           | 0           | 0           | 0           | 0           | 34           |
| permacath removal (36589)           |             | 28          | 44          | 62          | 72          | 92          | 85          | 84          | 62          | 529          |
| removal of infected graft (35903)   | 9           | 12          | 10          | 7           | 15          | 5           | 18          | 6           | 8           | 90           |
| fistula, transposed basilic (36819) | 27          | 40          | 38          | 48          | 75          | 72          | 47          | 76          | 70          | 493          |
| fistula, other complex (36818, etc) | 4           | 7           | 13          | 22          | 41          | 32          | 45          | 39          | 40          | 243          |
| fistula, simple (36821)             | 110         | 57          | 100         | 151         | 182         | 141         | 110         | 127         | 134         | 1112         |
| <b>AV graft placement (36830)</b>   | <b>158</b>  | <b>37</b>   | <b>78</b>   | <b>69</b>   | <b>37</b>   | <b>66</b>   | <b>91</b>   | <b>43</b>   | <b>55</b>   | <b>634</b>   |
| open thrombectomy w/o revision      | 0           | 2           | 2           | 11          | 21          | 12          | 8           | 5           | 4           | 65           |
| revisions (36832-4, 35011/13)       | 67          | 41          | 43          | 53          | 46          | 48          | 70          | 74          | 67          | 509          |
| repair of artery (35206/236)        | 3           | 0           | 5           | 6           | 5           | 2           | 3           | 4           | 4           | 32           |
| diagnostic venogram/fistulogram     | 51          | 16          | 39          | 61          | 74          | 77          | 109         | 101         | 112         | 640          |
| <b>Total cases</b>                  | <b>1248</b> | <b>472</b>  | <b>742</b>  | <b>942</b>  | <b>1042</b> | <b>1086</b> | <b>1170</b> | <b>1290</b> | <b>1144</b> | <b>9136</b>  |

## Discussions

### Obesity

It has become clear to me that the current epidemic of obesity in our population is fueling a disastrous and theoretically preventable rise in chronic illnesses leading directly to hugely expensive medical and social costs – hypertension, diabetes, renal failure, coronary artery disease, asthma, sleep apnea, GERD, peripheral vascular disease, knee replacements, hip replacements, back operations, a lifestyle of disability, and on and on. The secondary costs of obesity are staggering, and yet we continue to treat this disorder as a “lifestyle choice” instead of a very serious health risk, or rather than a risk, a commitment to an expensive downhill health spiral.

In my mind, obesity poses the same magnitude of risk to our population today as HIV had in the 1980s, except as a familiar condition dating back to the Shakespearean Falstaff and beyond we fail to take it as seriously as it deserves. I believe that every health professional should address this issue head on in every situation where obesity plays a factor in creating a health problem, or complicates the treatment of a health problem.

For my part, I have long stated that all of us have habits or pursue activities that are not good for us, and have advocated understanding and support for those of us, myself included, who stray from the purely healthy path. I have developed techniques for superficialization and transposition of deep veins to allow obese patients to have fistulas for their dialysis. I have many, many patients with BMIs of over 50 who successfully dialyze with these complex fistulas. Yet, I have also felt on occasion that I was beating my head against a wall, working in horrible conditions to try to create a dialysis option, accepting elevated levels of risk, and being paid as though I were doing any run of the mill fistula or graft placement. I have seen more demoralizing failures, more physiologic instability, and had more nightmares in working with this group of patients.

I am ready to say, “Meet me halfway if you want to live – quit smoking, change your eating habits, and get 30 minutes of some exercise every day. Consider a formal weight loss program or weight loss surgery. Face the reality that end-stage renal disease has a 20% death rate per year, and act as though you want to live instead of acting as though you want to die”.

Something needs to be done, and the time to start is now. I’m getting on the treadmill.

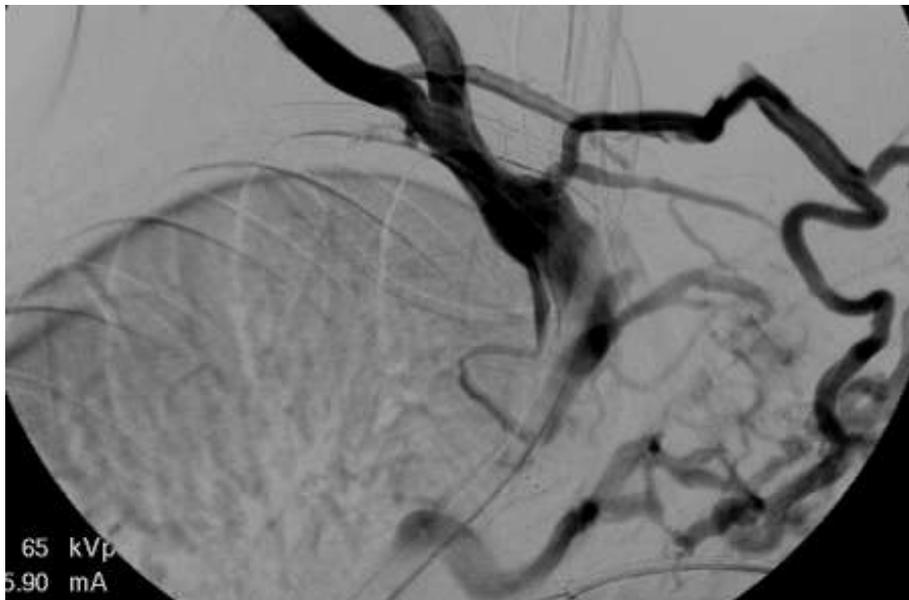
### Research in Central venous stenosis

In my opinion, avoiding or limiting catheter usage to avoid loss of central venous patency is the most important issue in dialysis access, because *loss of central venous patency*

*limits or eliminates all hemodialysis options.* Catheters can no longer be placed in occluded central veins, and shunts become complicated with unacceptable side effects of venous hypertension (see “Mr. Red” below). Loss of central venous integrity is caused predominantly by prolonged catheter placement, although pacemakers and AICDs also have major roles, followed distantly by Mediports, PICC lines, common central lines, clavicular trauma and congenital abnormalities.



**“Mr. Red”, whose central venous recanalization and stenting is discussed by Dr. Webb and Dr. Arpasi in the Online Vascular Access Teaching Project presentation “The Case of Mr. Red”.**



**Right innominate vein occlusion around a right IJ catheter**

Since central venous stenosis robs our patients of their options, and as little as three months on a catheter can result in significant central venous damage, it follows that we must get the catheters out as soon as possible. ***Time on the catheter accumulates with delays in referral or treatment, failures of access creation, delays in maturation to usability, delays due to infiltration or other inability to use an otherwise acceptable access.***

***This is a central and underappreciated issue, and all other issues reflect back on this. Time on the catheter, and thus loss of central patency, are due to delays in achieving adequate access. Thus, all delays in achieving a non-catheter vascular access for dialysis must be identified, evaluated, and corrected or supervised to achieve the best possible results for the patient.***

Unfortunately, in all too many patients the damage has occurred, and the question becomes how to manage the central venous stenosis or occlusion. In many, many cases, the answer is to attempt a recanalization and if central venous patency is restored, to maintain that patency with periodic redilation or stenting. Michigan Vascular access has a registry of 160 patients who have been treated with central venous stents with good success, and who are being followed and updated regularly. Long term secondary patency is over 90% at three years, and patients have been maintained for up to eight years with stented central vessels. Our results were presented in poster form at the 2012 Vascular Access Society of the Americas Meeting in Orlando, Florida in May 2012, and will be re-presented on a yearly basis as opportunity presents.

### **The “stick the next day” Flixene PTFE graft**

Although one of our preoccupations is the creation of fistulas as the optimal access for hemodialysis, the fact is that many patients do not have adequate vessels for a fistula, and will need a bridge graft as a means of having dialysis without a catheter. In my world, up to 30% of patients will benefit from a graft, and the sooner this realization is reached, the sooner steps can be pursued that will allow the catheter to be replaced.

But what graft to use? I have tried many different grafts: Vectra, the Procol bovine mesenteric vein graft, the bovine Artegraft, and have each time found that the new grafts did not live up to their hype. I returned each time to a thin-walled PTFE graft that had a flexibility and ease of use that I was comfortable with. A year ago I was introduced to the Atrium Flixene graft as an early cannulation option, and started to use it selectively in cases where an early cannulation graft could allow me to avoid placing a catheter, principally in cases of revision of an existing graft. The Flixene graft was stiff, difficult to use, and more expensive than the standard PTFE.

Recently, however, I had a string of patients whose standard PTFE grafts showed poor incorporation, early deterioration, multiple pseudoaneurysm formation, graft compression due to perigraft hematoma, and so on. Worse yet, these patients were almost invariably

the most difficult and desperate patients whose graft placement was a last chance effort. Complications or failure in these circumstances was galling and demoralizing for me and the patients. I started to ask whether the thick-walled Flixene graft would have these problems, and made the decision to trial the Flixene grafts over a year. To date I have placed approximately 75 Flixene grafts, have been able to use the majority of them within 48 hours, have had less thrombotic episodes, and have had no problems with failure to incorporate, perigraft hematoma, pseudoaneurysm formation or early degeneration. It is too early to draw firm conclusions, but I have seen enough to continue with my trial and to feel that the Flixene graft is worth the extra effort and cost.



**The kink and compression resistant Flixene graft**

### **Michigan Dialysis Research and Education (MiDRE)**

As a very busy, dedicated vascular access surgeon wrestling with the problems of dialysis patients over the last decade, I've worked solving individual patient problems one by one, twenty to thirty cases a week, working on most weekends in this essential service, and my practice became a model for how these services could be provided.

Nevertheless, I frequently came face to face with problems outside of the limits of what a single surgeon in private practice could usually address. I was asked to speak and share my experiences, but had little time. I was asked to publish my results, but had less time still. I saw the problems that existed for patients once they were released by the surgeon to use their dialysis access and then ran into trouble in an unsupervised and undereducated world, grieving for those patients as they suffered, and angry over how my work was ruined on occasion. There were so many problems beyond the operating room,

there was only so much time, and there was no support for these extra efforts. Yet, something had to be done about improving the delivery of services for dialysis patients.

National organizations such as the National Kidney Foundation, the Renal Network, the American Association of Kidney Patients, the Fistula First Initiative and others have educational efforts to promote necessary changes in this area, but all lack grassroots advocacy and practical effectiveness. Accordingly, we created ***Michigan Dialysis Research and Education (MiDRE)***, LLC, a Michigan non-profit organization, to provide local grass-roots educational services to local providers. It is our intent and our goal to work with the national organizations and bring all helpful messages to each and every dialysis unit and provider in our region. It is also our intent to become a model, or pilot program in how to achieve quality improvement and cost reduction through local action.

***MiDRE*** has a number of existing programs (see below) which have been tested and validated this last year and which have reams of feedback. Most of these programs are oriented toward improving patient management in the dialysis unit: improving cannulation techniques, reducing avoidable problems, streamlining progress toward a catheter-free, optimal dialysis access state, and reducing costs overall.

### **Correct Cannulation and the Access Ambassador**

Correct cannulation of dialysis access is a key step in the hemodialysis process, and essential for the smooth provision of dialysis. Simply put, two large needles must be treaded into a blood vessel three times a week for dialysis to take place. This is not always as easy as it sounds, and unfortunately, difficult or problematic cannulation of dialysis accesses is all too common. The resulting list of secondary problems is huge:

- (1) painful infiltration;
- (2) increasing difficulty with cannulation due to infiltration and swelling;
- (3) inability to cannulate, requiring replacement or retention of a permacath;
- (4) damage to the access with pseudoaneurysm formation; or
- (5) loss of the access altogether, requiring retention or replacement of a permacath,  
AND requiring a new access.

Ultimately, the patient has pain, spends increased time with a permacath, and has additional procedures. Patient satisfaction goes down, morbidity and mortality increase and overall costs are higher. ***Correct cannulation, therefore, is one of those areas in which a modicum of effort can theoretically profoundly positively affect the overall process for everyone.***

***Michigan Dialysis Research and Education (MiDRE)*** has identified “***Correct cannulation***” as a key initiative and is moving on several fronts to make a difference in this area. Since Michigan has half of the dialysis patients in ESRD Network Region 11, and southeast Michigan within 75 miles of our offices contains half the population of the state, the area within our reach provides an ideal test site for a “***Correct Cannulation***”

initiative, and this effort could represent the “biggest bang for the buck” in the Region. Our office sees patients from over 100 dialysis units and from over 300 nephrologists. Our initiative could be a true national test model.

As part of the *MidRE* project, we have assigned a staff member, Ramsis Georgi, to serve as an “*Access Ambassador*” for our practice (*Michigan Vascular Access, PC - MVA*), and as a “*Correct Cannulation*” educator for *MidRE*. After 18 years as a dialysis technician, and after more than a year in my office seeing the surgical perspective, he is uniquely positioned to liaison with the units. Ramsis has visited 40 units in the last six months, helping with difficult cases, orienting the unit personnel to new products we think are helpful (e.g., the HeRO graft catheter and the early-cannulation Flixene graft) and giving in-services on access problems.



**Ramsis Georgi, the “*Access Ambassador*” and “*Correct Cannulation*” educator**

If you would like to arrange a visit to your unit by our “*Access Ambassador*” and “*Correct Cannulation*” educator please contact the *Michigan Vascular Access office* (248-355-1100), or contact *Ramsis directly* ([rgeorgi@midre.org](mailto:rgeorgi@midre.org), cell 248-933-8252) .

### **Dr. Webb’s Talks**

Dr. Webb has given a great number of talks over the last decade, but in a new recognition of the need to reach out to dialysis professionals in the region, *Michigan Vascular Access* and *MidRE* arranged for a larger number of sponsored dinner presentations by

Dr. Webb in 2012: “Vascular Access in 2012: Vascular access planning and execution”, “Vascular Access in 2012: More Fistulas, More Grafts and Fewer Catheters” or “Vascular Access in 2013: Monitoring, Maintenance and Rescue of AV Access”. If you attended one of these talks, your participation and feedback was greatly appreciated.

This year, “Vascular Access in 2013: Monitoring, Maintenance and Rescue of AV Access” will be presented January 17<sup>th</sup>, and March 21<sup>st</sup> for CME credit at Andiamo’s in Livonia, sponsored by St. Mary Mercy Hospital. If you found last year’s presentation to be informative and worthwhile, you may want to attend this new talk. Attendance can be arranged for the presentations by contacting Holly Favero at 734-655-2700.

Dr. Webb’s previous talk “More Fistulas, More Grafts and Fewer Catheters” is being given in Jackson, Michigan, February 21<sup>st</sup>, sponsored by Atrium Corporation with CME credits by St Mary Mercy Hospital, and is available for additional presentation by special arrangement. An additional talk on “Problems in Cannulation” is planned for late 2013 after the current talk’s run is complete. In the meantime, please visit our website at [www.midre.org](http://www.midre.org) for more information. A taped version of “Vascular Access in 2012: More Fistulas, More Grafts and Fewer Catheters” is available for viewing on the website.

## **Dialysis Technician Training**

In recognition of the need for greater cooperation and understanding between the dialysis unit and the surgeon’s office, we have made visits to our office and operating rooms available to qualified dialysis technician students, dialysis technicians, and dialysis nurses. Countless visitors to our office have taken advantage of this opportunity this year to see how patients are evaluated, how office ultrasound informs choices to be made, how patients are followed up after surgery, and how fistulas are released for use with an ultrasound-assisted digital photo diagram. Visits to the operating room demonstrate how a fistula is created, how a graft is placed, and how percutaneous interventions are used to maintain or rescue dialysis access functions.

We hope to be able to provide recognized contact hours for dialysis technician certification or recertification in the near future. If you have attended one of our talks, clinic experiences or operating room visits, we will contact you once these arrangements have been made and notify you if contact hours have been awarded.

Patient confidentiality agreements and up-to-date TB testing are mandatory, and completing a feedback form is also required of all participants *Michigan Vascular Access* reserves the right to refuse or terminate this experience as needed. To arrange an office or operating room experience, contact Ronda Seley, *MiDRE* Executive Administrator ([rseley@midre.org](mailto:rseley@midre.org), or 248-355-1330).

## **Vascular Access Coordinator Training**

In response to requests for a higher level experience, a training program is being compiled for those dialysis technicians or nurses who wish to function as a Vascular Access Coordinator but do not have the necessary depth of experience to do so. The program is envisioned as a six day program over six weeks or so: (1) six half day clinics during which the participant will see and interact with 12-20 patients in all phases of their vascular access experience, get a solid understanding of how common and uncommon problems are assessed and managed, how ultrasound is used to extend the physical examination; (2) six half-day operating room experiences during which the participant will see a wide range of access creations and maintenance procedures; and (3) six one-hour didactic sessions in which main topics of vascular access are discussed in depth by Dr. Webb and Ramsis Georgi, the Correct Cannulation Coordinator. Educational materials will be provided. Extended consultation privileges with Dr. Webb and Ramsis Georgi will be extended to the graduates of this program. Certification is expected for the program when it is formalized. Unlike most of the offering of MiDRE to the dialysis community, this program is not free, and a fee will be assessed.

### **Conclusion**

I look forward to 2013 (now that we are most of the way through 2012). There are questions to answer, progress to make, and patients to serve. Every year we make many friends. Every year we lose a few friends. As always, our office staff (Luba, Ramsis, Amanda, Mary, Shauna and Tina) stand ready to smooth your patient's way toward effective vascular access, and to lessen the access burden on members of the dialysis community. We are ready to try to solve problems.

Thank you for the trust you have placed in us.

Sincerely,

**Marc Webb, MD, FACS**

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