these schemes in real-world practice, and propose an optimized approach.

**Methods:** We conducted a retrospective analysis of prospectively collected data from our Vascular Quality Initiative database from 2010 to 2017. Open surgical abdominal aortic aneurysm repairs were queried, and adverse cardiac events (myocardial infarction, myocardial injury after noncardiac surgery), new arrhythmia, new congestive heart failure, or cardiac vascular death) along with preoperative cardiac testing results were studied. A selective retrospective chart review was then conducted to investigate details not captured in the Vascular Quality Initiative database.

**Results:** We identified 178 open surgical abdominal aortic aneurysm repairs, including 129 elective cases. The majority of elective patients (62%) had preoperative cardiac stress testing. Of these stress tests, 79% were negative, yet 33% of these patients (vs 46% of those with positive stress tests) experienced an adverse cardiac event. Upon further review, many patients who sustained unanticipated cardiac events had irreversable defects on their stress testing or untreated coronary disease on coronary angiography.

**Conclusions:** Preoperative cardiac risk stratification with stress testing was only modestly protective against postoperative cardiac events. The addition of an open abdominal aortic aneurysm repair. Alternative strategies including biomarker use or coronary angiography warrant further real-world investigation.

**Author Disclosures:** C. C. J. Zavitz: Nothing to disclose. N. Eisenberg: Nothing to disclose. G. Roche-Nagle: Nothing to disclose.

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**Evaluating the Role of Preoperative Medicine Consults on Clinical Outcomes in Vascular Surgery Patients**

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**Objective:** The Internal Medicine Perioperative Consult Team (IMPCT) was introduced at our institution in 2015 with the goal of improving preoperative optimization to reduce postoperative complications. The objective of this study was to evaluate the effect of IMPCT on clinical outcomes in patients undergoing vascular surgery.

**Methods:** A retrospective review of all vascular patients who received preoperative IMPCTconsults between January 2015 and December 2017 was conducted. A tertiary care teaching hospital was undertaken. In addition, a control group (2:1) from the same period who did not receive IMPCT consults were matched to the IMPCT cohort based on age, sex and surgical intervention. Patient demographics, comorbidities, and postoperative complications, including troponin levels, were collected. The primary outcomes were delays in surgery, postoperative complications, and length of stay.

**Results:** Two hundred patients were identified: 71 IMPCT and 129 control patients. Average age, sex and surgical procedure were no different between the two groups. Delay in surgery was not significantly different between IMPCT (22%) and control groups (26%; P = .09). Average days of delay was also similar: 4.89 days versus 4.94 days (P = .97). Postoperative complication rate in the IMPCT group was higher than the control group but did not reach significance (59.1% versus 39.3% (P = .06). Cardiac complications were the most common in both groups, 31.0% and 30.2% (P = .13), respectively. The IMPCT group had higher elevated postoperative troponin levels compared with the control group, 20% versus 16% (P < .05). Length of stay trended toward higher for IMPCT compared with control patients, 16.2 days versus 9.5 days (P = .08).

**Conclusions:** The introduction of a new periparative medicine consult service at our institution did not improve vascular surgery patient outcomes but may delay surgery and prolong hospital stay. Prospective studies are needed to determine IMPCT’s role in this patient population.


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**A Shared Decision Making Approach to Prescribing Aspirin + Anticoagulant Management in Peripheral Artery Disease:**

**The Role of a Vascular Profile**

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**Objective:** This study aimed to analyze a population with peripheral arterial disease (PAD) to identify those who may benefit from combined aspirin (ASA) and anticoagulant (AC) therapy (ASA+AC), as presented in the COMPASS trial, and assess patients’ acceptance of this management.

**Methods:** All patients presenting with PAD were prospectively assessed for their vascular profile of risk factors, presenting complaints, previous management, and vascular disease in other beds and issues related to antiplatelet (AP) or AC use. All patients underwent ultrasound examination for PAD and physical examination, assessments of other vascular beds were reviewed. All patients underwent a standardized discussion regarding AP+AC treatment based on estimated risk of cardiac and peripheral arterial events balanced with patients’ preferences. As a quality improvement study, expedited research ethics board was granted.

**Results:** We entered 121 patients. The age range was 47 to 97 years and 66% were male. All patients had at least one risk factor. 27% had four. Associated vascular involvement included coronary artery (28%), carotid artery (65%) and aortic aneurysm (12%). Potential risks for AP and AC use included intolerance (10%), bleeding (7%), falls (5%), renal dysfunction (4%), and seizures (0%); use of AP (85%) ASA, 5% clopidogrel) or AC (10%) was noted. Thirty-six percent were considered to be ineligible for ASA+AC treatment. Analysis of presenting features suggested 42% might benefit from combined treatment. 90% declined due to cost or concern regarding potential benefit versus risk.

**Conclusions:** This assessment of patients presenting with PAD showed that many patients may not be candidates or benefit from combined ASA+AC therapy. Patient concerns further limit implementing this strategy at this time.


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**Endovenous Deep Vein Valve Creation for the Treatment of Chronic Venous Insufficiency**

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**Objective:** To assess the safety and efficacy of endovenous formation of autogenous neo deep vein valves in patients with chronic venous insufficiency secondary to deep vein reflux.

**Methods:** Patients with deep vein reflux and CEAP classification C4 to C6 were treated with the BlueLeaf endovenous valve formation system in 5 centers in New Zealand, Australia, and Canada. Retrograde access to the common femoral vein was obtained, followed by contrast venography and intravascular ultrasound to assess suitability of treatment sites. Suitable candidates will then have the valve creation device inserted to form monocuspid valves in the femoropopliteal vein segments spanning 7 to 11 mm in diameter. Successful valve creation was confirmed by intraoperative imaging. Patients were placed on 6 months of anticoagulation. Clinical outcomes include duplex ultrasound examination, physical examination, and patient questionnaires.

**Results:** A total of 12 patients have been treated with CEAP classifications in C4 (n = 2), C5 (n = 5), and C6 (n = 5) for both primary (n = 8) and secondary (n = 3) etiology and one undetermined. Successful valve creation occurred in 11 of 12 patients. Single valve formation was done in five patients, two valves in five patients, and three valves in one patient. Proven follow-up ranges from 7 days to 1 year. During this period, no occlusive deep venous thromboses were reported. Access site complications were noted in eight cases that were self-limiting. Mural thrombus

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was seen in three patients that all resolved by 90 days. Of the subject that reached at least 210 days of follow-up, seven of nine patients had a 4-point or greater improvement on the venous clinical severity score.

**Conclusions:** Preliminary data suggest that endovenous deep vein closure is a novel technique that shows promise in treating deep venous insufficiency.


### Comparison of Endovenous Interventions Versus Stripping and Ligation for Varicose Veins Arising From the Popliteal Fossa

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**Objective:** Venous insufficiency in the lower extremities is a common clinical complaint. Office-based Doppler ultrasound examination has revolutionized varicose vein management by defining precise varicosity anatomy. However, when varicose veins arise at the level of the popliteal fossa, there is marked variation in management. There has not been any comparison of ligation and stripping under local anesthetic with endovenous interventions. The objective of this study was to review the outcomes of varicose veins originating from the popliteal fossa at a single center.

**Methods:** Retrospective analysis of varicose vein referrals between September 2014 and September 2017 to two practicing surgeons was performed to screen for varicose veins arising from the popliteal fossa. Patients with CEAP classification C2 or higher were included. Patients were excluded if no procedures were done by the time of analysis or lost after initial consultation. Demographics, preoperative and postoperative symptoms, operative data, anatomic distribution of varicose veins, symptomatic improvement, complications, and reintervention rates were collected and analyzed.

**Results:** After screening, 98 patients were identified to have varicose veins originating from the popliteal fossa, and 46 underwent intervention for their varicose veins. Most patients are female (80%) with an average age of 53 years old and average follow-up was 34.1 ± 32.0 weeks. There were 21 ligation and stripping of veins and 25 endovenous procedures performed. The average improvement in CEAP clinical score was 2.56 ± 1.12 versus 1.41 ± 0.85 (P = .001). The rate of recurrence is not different between the groups (5% vs 8%; P = .58). There was a low rate of complications (6.3% vs 10%; P = .69). Symptomatic improvement was seen in both groups (100% vs 80%; P = .69).

**Conclusions:** Open surgery under local anesthetic for varicose veins originating from the popliteal fossa is a safe and viable option. It is associated with significant reduction of clinical grading compared to endovenous interventions.

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### Radiographic and Functional Outcomes of Vascular Thoracic Outlet Decompressive Surgery: Is There a Benefit?

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**Objective:** To determine if surgical decompression for vascular thoracic outlet syndrome (TOS) outweighs the risks.

**Methods:** A retrospective chart review was completed on all vascular TOS procedures performed in Manitoba from 2009 to 2018.

**Results:** Twenty-five patients underwent first rib resection from 2009 for 2018; 4 for arterial TOS (aTOS) (3 female, 1 male) and 19 for venous TOS (vTOS) (10 female, 9 male). Two were lost to follow-up. All aTOS had cervical ribs, and had either aneurysm formation (n = 1) or arterial occlusion (n = 3). Three required arterial reconstruction, at 6 weeks, 75% were improved. All vTOS patients presented with deep vein thrombosis (manifesting mainly as extremity swelling and pain) and were anticoagulated. Eleven patients had an inciting event or activity, including lifting weights, skiing, or drumming. Eleven patients underwent thrombolysis and eight underwent thrombectomy. Preoperative venograms showed 12 with stenosis and 1 occlusion. Fourteen had either occlusion or worsening stenosis in Adson’s maneuver. Operative complications included nine pneumothoraces; six required chest tubes or drain placement. Five had neurologic dysfunction.

At 6 weeks, 13 were symptomatically improved and 3 unchanged. Venograms showed stenosis in five and occlusion in one; seven demonstrated a positive Adson’s. Five patients required venoplasties. At final follow-up, 15 of 18 patients had improved symptoms: 5 without stenosis or positive Adson’s. 5 with stenosis. 1 with occlusion, and 6 with a positive Adson’s. Of those with improvement; five patients had a normal venogram. Of patients who did not improve; two had stenoses and one had a positive Adson’s.

**Conclusions:** The aTOS patients did well with bypass when performed and had excellent outcomes post operatively. Decompression improves symptoms but not radiographic stenosis in vTOS and has high complication rates. Future work includes a follow-up survey regarding ongoing symptoms and satisfaction having undergone decompressive surgery. A prospective series with contemporary venous reconstruction may help to determine the usefulness of vTOS decompression.

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### Functional Durability of Hemodialysis Access

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**Objective:** The decision to perform hemodialysis (HD) via arteriovenous access (AV) using either a fistula (AVF) or graft (AVG) or tunneled central venous catheter (CVC) is not well-informed by functional durability data. We investigated the functional durability of the first HD access site for patients on chronic HD.

**Methods:** This retrospective cohort study identified the intended first access site of all patients undergoing chronic HD for more than 3 months in the Champlain NephroCare network between 2003 and 2018. Cumulative access site durability was defined as the functional use of access site despite minor AV revisions or CVC exchange over a guidewire. Survival analysis was performed with piecewise Cox regression with competing risk for transplants.

**Results:** There were 3068 eligible first dialysis accesses that were identified, of which 1438 (46.9%) were AVF, 83 (2.7%) were AVG, and 1547 (50.4%) were CVC. The access site was functional for the entire duration of HD requirement in 47.4% of AVF, 21.7% of AVG, and 57.3% of CVC.