Endovascular Therapy for Popliteal Artery Injury

In the August issue of *Vascular Disease Management*, Tan et al report on a growing trend in the utilization of endovascular repair of popliteal artery injury as reported in the National Trauma Database. Despite the fact that approximately 95% of patients were treated with open surgical repair, acute outcomes were relatively similar in the open surgical and endovascular treated cohorts. There were lower rates of fasciotomy reported in the group treated by endovascular repair, but this may have represented the prophylactic use of fasciotomy in the open surgical cohort.

Unfortunately, the database does not allow comparison of important outcomes data such as long-term patency, criteria for case selection, overall cost, and long-term outcomes. Although open surgery remains the most commonly utilized method of repair, endovascular treatment is recognized as a viable option that has advantages in certain subsets of patients.

The popliteal artery historically has been one of the most challenging arteries in which to perform endovascular treatment. It is subject to stresses such as flexion, compression, and elongation. It gives rise to important collateral vessels. It is an important distal and proximal anastomotic site for bypass procedures. There are no devices designed specifically for treatment of the popliteal artery.

Despite these limitations, some patients with popliteal artery injury are being successfully treated via intervention, and the utilization of an endovascular technique is increasing in this highly challenging group of patients. Advantages of endovascular repair include the ability to perform angiography and treatment at the same time, the ability to work from a remote access to lessen risk of infection, and quicker restoration of flow. Limitations such as lack of appropriate devices, requisite endovascular skills, and a paucity of long-term cost and outcomes data remain problematic.

While databases such as the National Trauma Database do not provide enough information to draw clear scientific conclusions, they do serve as a starting point in considering new methods of treatment. The popliteal artery remains one of the most challenging arterial segments to treat with endovascular therapy. Data such as these may set the stage for randomized trials as well as more detailed outcomes data, which may lead to appropriate utilization of endovascular and surgical techniques based on scientific data. I suspect that factors such as vessel size, thrombus, tissue viability, infection, patient age, and run-off vessel status will be determinants of outcome as well as other factors that may not have been considered. We need more peripheral outcomes data to standardize treatment therapies and improve outcomes. While far from perfect, peripheral vascular registries may serve as a useful starting point to guide subsequent targeted studies.