

LETTERS TO THE EDITORS

The Editors invite readers to submit letters commenting on the contents of articles that appear in the JOURNAL. Also welcome are brief communications in letter form reporting investigative or clinical observations without extensive documentation and with brief bibliography (five titles or less), not requiring peer review but open to critique by readers. Letters to the Editors should be no more than 500 words in length and they may have to be edited for publication.

The use of endovascular stented grafts in the management of traumatic false aneurysms: A caveat

To the Editors:

We read with interest the article by Marin et al. (*J VASC SURG* 1994;20:466-73), which described their experience with the use of a combined stent/arterial graft device in the management of arterial trauma. We agree with the authors that, in certain circumstances, including trauma to the great vessels near their origin associated with other life-threatening injuries, this therapeutic option avoids major, technically demanding surgery. However, as a result of a recent experience in our unit in the treatment of a patient with an iatrogenic false aneurysm of the right subclavian and carotid arteries, we want to highlight a possible limitation of the use of endovascular stent/graft devices in this clinical setting.

CASE REPORT

A 52-year-old woman was admitted under the care of the renal physicians in our institution with acute-on-chronic kidney failure. An attempt was made to place an intravenous catheter via the right jugular vein to commence venovenous hemofiltration. The physician performing this procedure experienced some difficulty in locating the internal jugular vein, and in fact the procedure was abandoned. In particular, it was stated that during this attempted central venous line placement, on two separate occasions, inadvertent arterial puncture had occurred, but it was believed that firm pressure had controlled this. Even so, the patient had development of severe bruising of the right side of the neck over the ensuing days. This appeared to be settling, and venovenous hemofiltration was performed via a temporary femoral venous line.

Two weeks after the attempted neck line placement the patient had sudden acute pain in the right side of the neck associated with a dramatic increase in neck swelling. Clinically, this swelling was pulsatile and enlarging, although it did not cause tracheal deviation or respiratory compromise, and the patient was referred to our service for an opinion. A clinical diagnosis of a false aneurysm was made, and a duplex scan was ordered. This confirmed the presence of the lesion and suggested that the lesion was being "fed" from a defect in the proximal right subclavian artery. We elected to perform arch aortography, with a view to possibly placing a covered stent device as a means of treating this false aneurysm. The angiogram showed the false aneurysm clearly located adjacent to the right subclavian artery lateral to the origin of the vertebral artery.



Fig. 1. Arch arteriogram shows superior aspect of false aneurysm filling first (*arrow*), suggesting that more than one arterial injury was present.

However, the films appeared to show the superior aspect of the false aneurysm being filled before the remainder of the lesion (Fig. 1), raising the suspicion that there was more than one route by which blood could enter the false aneurysm cavity. Therefore we proceeded to operative exploration. After resecting the medial half of the right clavicle and gaining control of the right subclavian, innominate, and right common carotid arteries, a laceration of the thyrocervical trunk was identified, and this vessel was ligated. However, the false aneurysm continued to fill after restoring flow to the subclavian artery, and so further exploration from within the false aneurysm itself was undertaken. This revealed a second defect in the proximal right common carotid artery, which was oversewn and complete control was achieved.

The patient had an unremarkable recovery from the procedure.

DISCUSSION

This case presentation raises a number of interesting points pertinent to false aneurysms of the subclavian arteries in general and the decision process about their treatment in particular. It is clear from our experience that duplex scanning and angiography can be complementary investigations, particularly in the context of an iatrogenic needle injury to the artery in question. Indeed, in the case presented here, the angiogram raised the suspicion that more than one arterial injury had been sustained. This finding, taken together with the description of events at the time of the original injury, not only influenced our decision on the mode of treatment but also helped guide our operative approach to the false aneurysm.

Wherever possible, we agree that the ideal treatment of iatrogenic false aneurysms should be by duplex scanning directed manual compression. However, it is clear that in certain circumstances, it is not possible to adopt such an approach because of the anatomic location of the injured vessel. The decision on the ideal management of such a lesion then lies between direct operative repair and the innovative covered stent approach described by Marin et al. Given our experience with an iatrogenic false aneurysm that had more than one associated arterial injury, we wondered whether the authors have had any experience with a similar lesion and if so, whether they have attempted its repair by an endovascular approach?

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Reply

To the Editors:

We have read with interest the letter by Chalmers, Brittenden, and Bradbury. The nonselective arteriogram in their patient fails to clearly reveal the site of arterial injury responsible for the false aneurysm. Despite the fact that we can see no firm evidence in their illustration that more than one arterial injury existed, in the presence of incomplete angiographic documentation of the site and nature of the injured artery or arteries, a traditional operative approach would appear to be reasonable and was obviously successful.

However, better arteriography with selective injection of the right common carotid and subclavian arteries probably would have more accurately defined the nature and location of the arterial injuries. Armed with this information, the authors could have treated the lacerated carotid artery with a stent graft or covered stent and the

lacerated thyrocervical trunk by subselective catheterization and coil embolization.

We have successfully used these techniques to treat individual patients but have not as yet treated this exact combination of injuries in a single patient. However, we believe that these endovascular approaches, when guided by better arteriography, will be more widely used and will become the future standard of treatment for even complex arterial trauma such as in the case that Chalmers et al. have described. Accordingly, operative morbidity rates and treatment costs will be reduced.

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Regarding "Presidential address: Transluminally placed endovascular stented grafts and their impact on vascular surgery"

To the Editors:

In his presidential address to the Eastern Vascular Society (J VASC SURG 1994;20:855-60), Dr. Veith draws our attention to the growing antagonism between vascular surgeons and radiologists. He predicts a war over the issue of transluminally placed endovascular grafts if no measures are taken to avoid an escalation of the conflict. Casually, he introduces the abbreviation TPEGs for this procedure by using it more than 50 times in his article.

We believe not only that the word TEAM is a better acronym (transfemoral endovascular aneurysm management) but that it is also a key factor for putting an end to the so-called "turf battles." In addition, TEAM is more specific than TPEGs in that it refers to only one group of indications for endovascular treatment (aneurysms).

Furthermore, we do not believe that the solution to the conflict Dr. Veith offers is one of "mutual understanding, cooperation and compromise," as he puts it. He suggests that vascular surgeons should become sufficiently competent in catheter techniques to allow them to perform endovascular procedures without interventional radiology support, unless they encounter an unusual problem. For vascular surgeons and radiologists, this would be a role reversal with regard to current balloon angioplasty and stent placement. But the taking over of vascular cases by radiologists has never been appreciated by vascular surgeons in the first place, and therefore this option smells of retaliation. Simple monopolization of the TEAM procedure will not lead to much mutual understanding.

Dr. Veith also believes that vascular surgeons can provide their own training in endovascular techniques. If cooperation is the aim, training programs in catheter guide wire-imaging-stent methods must be coordinated with interventional radiologists. Such a team approach will also improve radiology training programs.