Saphenous Vein Graft Hemorrhage

To the Editor:

I read the recent case report by Alam et al (December 1999). During 14 years of experience in cardiothoracic surgery, I have seen mediastinal hemorrhage from saphenous vein graft in three patients: two after coronary revascularization and one after emergent repair of a type I aortic dissection.

The first patient, who was diabetic and suffered from chronic renal failure, presented 2 weeks after discharge with sternum dehiscence. Bleeding was noted when the patient was returned to the operating room for repair of the sternum. The second patient presented with mediastinitis 3 weeks after coronary revascularization. She had debridement and open dressings while awaiting muscle flap placement when hemorrhage from an anteriorly routed right coronary vein graft was noted. The third patient had undergone repair of a type I aortic dissection, with resuspension of the aortic valve and ascending tube graft, who required a saphenous vein graft to the right coronary artery because of a significant hematoma in the outflow tract around the aortic root.

In all three instances, the saphenous vein leak was repaired with 7-0 Prolene suture (Ethicon; Somerville, NJ). The patient with renal failure and sternum dehiscence had no obvious wound infection but did have a poor quality vein. The second patient with mediastinitis had an infected mediastinum, through which the saphenous vein graft to the right coronary had been routed over the anterior surface of the right ventricle. The other grafts, placed to the left anterior descending, diagonal, and obtuse marginal, included left internal mammary and radial arteries and were placed laterally. The third patient was doing well hemodynamically, and the saphenous vein laceration was thought to be secondary to trauma from the sternal edge.

The etiology of the bleeding vein graft was believed to be poor vein quality in the patient with renal failure, infection in the second patient, and trauma in the third patient. All three vein injuries were initially repaired. In all three cases, the patients presented a second time with hemorrhage from these vein grafts and were ligated. Only the first patient, with renal failure, survived.

My current policy is to ligate the saphenous graft with hemorrhage, as the likely cause is a necrotizing infection. It should be ligated as proximal and distal as possible, in vein tissue that is as normal as possible. If hemodynamic change occurs with temporary occlusion of the graft, another graft should be placed.

To the Editor:

Dr. Baciewicz' experiences with three cases of saphenous vein-graft hemorrhage over a 14-year period highlights the lethal nature of this rare complication. We feel that his letter supports the conclusions that were made in our article. The overall mortality rate of 75% at his institution due to graft hemorrhage is consistent with the reported literature. However, in only one of his patients was the etiology of graft erosion felt to be necrotizing infection.

Based on his considerable experience, Dr. Baciewicz has made a number of suggestions for the management of these challenging patients. While agreeing with all of his recommendations, we would like to re-emphasize the importance of early closure of an open mediastinum utilizing muscle flaps.

Dr. Baciewicz’ letter also raises the possibility that this complication might be more common than we realize, most likely due to an underreporting of mediastinal hemorrhage.

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In-line Suction Catheters May Impede Aerosol Delivery to Patients Receiving Mechanical Ventilation

To the Editor:

A recent article suggests that closed in-line suction catheters are used frequently in patients receiving intubation and/or mechanical ventilation. We have been concerned that some of these devices trap aerosolized medications, preventing them from reaching the airways of our patients. Some in-line suction catheters include a potentially turbulence-creating 90° adapter that becomes moist during use. Theoretically, these attributes could impede the delivery of therapeutic aerosols to patients’ airways.

We informally examined the effectiveness of a nebulized bronchodilator when administered with an in-line suction catheter left in place, vs having it removed from the patient-ventilator circuit. The Steri-Cath (SIMS Portex; Keene, NH) is a closed-suction system used for all patients receiving intubation and/or mechanical ventilation in our hospital. This system consists of a 57-cm, 14F (4.7-mm outer diameter) catheter wrapped in plastic foil, connected in a straight line with the endotracheal tube (ETT) via a three-way connector. The inner diameter of the orifice connecting to the ETT is 15 mm. The ventilator y/e-piece connects at 90° to the ETT-suction catheter axis via the third aperture (inner diameter, 12 mm) of the three-way connector.

Two sequential nebulized albuterol treatments of 2.5 mg in 3 mL were given to three patients at intervals of 20 to 30 min, one with the suction catheter in the circuit, and one with the suction catheter and three-way connector out (y/e connected directly to the ETT). Airway pressures (peak and plateau) were measured with constant inspiratory flow rates of 60 L/min, before and 20 min following treatments. The suction catheter was in-line during measurements, but the catheter was withdrawn into its plastic sheath (outside the three-way connector). No endotracheal suctioning occurred between sets of treatments/measurements. Airway resistance was computed as the difference between peak and