Evaluation and Management of the Cardiovascular Patient Embarking on Air Travel

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Almost 2 billion passengers embark on international and domestic air travel each year. An increasing number of travelers will have cardiovascular disease as the population continues to age and our ability to treat cardiac disease improves. Guidelines for safe air travel in this population vary and are supported by few concrete data from randomized trials. Although the overall risk for clinically significant myocardial ischemia and arrhythmia during flight seems to be low in the population with stable cardiovascular disease, certain groups may be at increased risk. In-flight venous thrombosis is an increasingly recognized potential complication of prolonged air travel. Travelers with cardiovascular disease may be at increased risk for venous thrombosis as a result of depressed ejection fraction or immobility.

This case-based review describes the risks of air travel in a 65-year-old man with known cardiovascular disease. After reviewing the limited data on safe air travel after myocardial infarction and the common complications after both percutaneous intervention and coronary artery bypass grafting, we provide recommendations on safe air travel after myocardial infarction. We discuss the safety of both preflight screening and the in-flight environment with regard to pacemakers and implantable automatic defibrillators. We also review the literature on in-flight venous thrombosis and provide recommendations to prevent in-flight deep venous thrombosis.

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A 65-year-old man with a history of myocardial infarction 1 year ago, chronic stable angina, hypertension, and diabetes mellitus returns for a routine office visit. He reports experiencing exercise-induced angina several times each month, which is relieved with rest and 1 sublingual nitroglycerin tablet. He underwent cardiac catheterization with angioplasty and stent placement at the time of his myocardial infarction. A pacemaker was implanted several years ago for the sick-sinus syndrome. The patient feels well and tolerates his occasional angina. He wishes to attend a family wedding in Europe and asks your advice about traveling by plane.

What Is the Risk for In-Flight Cardiac Events?

Cardiac causes account for a high percentage of all in-flight medical incidents. In most observational studies, they account for 10% to 20% of all in-flight incidents and are second only to vasovagal events (1–4). Despite these percentages, the overall number of in-flight cardiac events is low. DeJohn and colleagues reported 8 in-flight medical incidents per million enplanements; 19.4% were attributed to cardiac causes (2). Cardiac diagnoses accounted for 12 of 15 deaths among 1.4 million passengers on 5 U.S. airlines; these statistics were recorded over 1 year from 1 October 1996 to 30 September 1997 (2). This survey used events recorded by MedAire, Inc., a private company that contracts to provide medical support during in-flight events and therefore may include only those events serious enough to warrant input from physicians on the ground. The Airline Transport Association reported 433 episodes of chest pain and 141 myocardial infarctions among approximately 580 million passengers in 1996; however, the Association did not detail its methods, describe diagnostic criteria, or report in-flight deaths (3). Thus, although the risk is small, as of 12 April 2004 the Federal Aviation Administration has mandated the placement of at least 1 automatic external defibrillator on all passenger-carrying aircraft of more than 7500-lb maximum payload capacity and with at least 1 flight attendant.

What Is Our Patient's Risk for In-Flight Myocardial Ischemia?

Several mechanisms could predispose travelers to myocardial ischemia and arrhythmia during air travel. Although airline cabins are pressurized to maintain an acceptable in-flight environment, they are not pressurized to sea level. Cottrell (5) found that the median cabin altitude on modern aircraft was 2259 meters when measured with a handheld altimeter. Acute exposure to moderate altitude results in many physiologic changes. Researchers have shown that decreased Pa_{O_2}, increased sympathetic activity, and increased pulmonary artery pressure occur at moderate altitude (6–8). In addition to physiologic changes resulting from altitude, many travelers experience mental stress while flying or traveling in general. Mental stress may lead to myocardial ischemia in individuals with known coronary artery disease (CAD) (9). Air travel may provoke even greater anxiety in the post-9/11 era. Despite these factors, no clear evidence has emerged to suggest a substantially increased risk for ischemia or arrhythmia during air travel. To date, only 1 study has used Holter monitoring to evaluate in-flight ischemia in patients with known CAD. Roby and colleagues (10) studied 38 patients who chose to fly within a mean of 15 to 16 days after acute uncomplicated myocardial infarction between January 1993 and February 1996. Before inclusion in the study, patients were required to walk up 1 flight of stairs without developing chest pain. All patients underwent continuous Holter monitoring and oxygen saturation monitoring during flight. The patients were randomly assigned to 2 L of in-flight oxygen by nasal prongs or no oxygen. One patient had transient electrocar-

diographic evidence of ischemia in flight, and 5 patients had ventricular ectopy with no episodes of sustained ventricular tachycardia. In-flight oxygen did not affect ischemia or arrhythmia. The small size of this study and the absence of a control group with known stable CAD limit its applicability.

In patients with CAD, research shows that moderate altitude exposure decreases coronary flow reserve during bicycle exercise, but myocardial blood flow does not seem to change substantially at rest (11, 12). This latter finding, coupled with the sedentary nature of air travel, may help explain the very low incidence of in-flight myocardial ischemia. Therefore, our patient is at low risk for clinically significant in-flight myocardial ischemia.

What Is Our Patient's Risk for In-Flight Arrhythmia?

One could postulate that the increased sympathetic tone and decreased oxygen tension found at altitude might lead to a higher incidence of ventricular and atrial arrhythmias. Kujanik and colleagues (13, 14) have demonstrated that the incidence of ventricular and supraventricular ectopy is increased at moderate altitude in healthy middle-aged and elderly men. They exposed healthy volunteers to increasing altitudes and compared Holter recordings at altitude to those of the same volunteers at sea level. Their data suggest that the occurrence of ectopy is proportional to altitude, with the highest incidence at an altitude of 2632 meters. These findings have not been correlated with an increase in substantial sustained ventricular arrhythmia.

Travelers with implantable cardiac defibrillators (ICDs) are probably at greatest risk for sustained ventricular arrhythmia during air travel. To date, no case series have shown an increased incidence of ICD discharge during air travel (15, 16). The Triggers of Ventricular Arrhythmia study, a large multicenter observational study currently under way, should provide additional information on the incidence of ICD discharge during air travel. No studies specifically address the incidence of sustained atrial arrhythmia during air travel. The extremely low incidence of sudden death during air travel suggests that our patient is probably at very low risk for substantial, life-threatening in-flight arrhythmia.

Table 1 summarizes contraindications to air travel for patients with cardiac disease.

The patient is reassured that his overall risk for substantial in-flight cardiac events is low, but he is concerned about returning home quickly if he experiences another cardiac event abroad.

Table 1. **Contraindication to Air Travel for Patients with Cardiac Disease***

Myocardial infarction within previous 2 weeks
Angioplasty or intracoronary stent placement within previous 2 weeks
Unstable angina
Coronary artery bypass grafting within previous 3 weeks
Poorly compensated heart failure
Uncontrolled ventricular or supraventricular arrhythmias

* For more information, see references 10, 17–23.

When Is It Safe to Travel after Myocardial Infarction?

The American Medical Association commission on Emergency Medical Services last published guidelines on air travel after myocardial infarction in 1982 (17). At that time, the commission recommended that individuals who had had recent myocardial infarction abstain from air travel for 3 weeks after their event. The American College of Cardiology/American Heart Association guidelines for the management of patients after myocardial infarction recommend that such patients abstain from air travel for a minimum of 2 weeks after an uncomplicated myocardial infarction or 2 weeks from the time of clinical stabilization after a complicated myocardial infarction (24). They further caution that patients should undertake early travel with a companion and ample medication. A third body, the Aerospace Medical Association, recommends that air travel be undertaken at least 2 to 3 weeks after an uncomplicated myocardial infarction and 6 weeks after a complicated myocardial infarction (25). It is difficult to support any recommendation on the basis of observational data. The 3 studies that evaluated the safety of traveling by air within 2 to 3 weeks after myocardial infarction enrolled all patients before 1999 (10, 18, 26). In the largest cohort (18), 209 patients were enrolled from 1986 to 1989. Only 4.1% of patients underwent angioplasty or coronary artery bypass grafting before travel. Roby and colleagues (10) do not provide clear data about the revascularization strategies used in their cohort of patients. The widespread adoption of more aggressive revascularization strategies, improved medical management after myocardial infarction, and a greater understanding of the mechanisms of thrombus formation support the adoption of the 2-week waiting period proposed by the American College of Cardiology/American Heart Association.

Thrombolysis or cardiac catheterization with percutaneous coronary intervention are the mainstays of therapy for acute myocardial infarction. Most patients in the United States will undergo coronary angiography with or without percutaneous intervention and coronary stent placement regardless of the initial reperfusion strategy used. Acute stent thrombosis is the most severe early complication of coronary stent placement. Evidence shows that decreased Pa_{O_2} can impair fibrinolysis and activate the coagulation cascade (27, 28). The period immediately after the procedure carries the highest risk for acute stent thrombosis, and most events occur in the first week (19). These factors support a moratorium on air travel during this period.

Vascular and renal complications must also be considered when guidelines for safe travel are being established. Acute renal failure, due to contrast media or other causes, will typically be manifest within the first several days after myocardial infarction. Vascular complications will also probably become evident within the first several days after percutaneous coronary angiography or intervention (20). Patients who have been treated with thrombolytic agents and who have not undergone cardiac catheterization or any reperfusion strategy should be evaluated with either submaximal stress testing before discharge or symptom-limited stress testing 3 weeks after myocardial infarction to assess cardiac risk before air travel (24).

Coronary artery bypass grafting continues to play a critical role in the treatment of CAD. In addition to the concerns mentioned earlier about in-flight ischemia, gas expansion poses another potential risk for patients who have undergone recent thoracic surgery. Gas in a closed space will expand at increased altitude and could result in worsening pneumothorax with resultant desaturation. The largest study of complications after coronary artery bypass grafting and readmissions found a 15.3% readmission rate at 30 days; the bulk of readmissions occurred within 19 days (29). The most common cause of readmission was infection followed by heart failure, myocardial ischemia, arrhythmia, and DVT and pulmonary embolism. Neither the American Medical Association nor the American College of Cardiology/American Heart Association has published guidelines on air travel after coronary artery bypass grafting. The data presented here suggest that patients should not undertake air travel within 3 weeks of initial discharge and potentially longer if pneumothorax has been detected in the postoperative period and has persisted.

When queried about his current symptoms, the patient reports stable exertional angina occurring with substantial exertion approximately once a month. His symptoms are relieved promptly with 1 sublingual nitroglycerin tablet.

Is Preflight Stress Testing Warranted?

The American College of Cardiology does not specifically address preflight stress testing in its guidelines on exercise testing or chronic stable angina (30, 31). The lack of evidence for increased resting ischemia at altitude argues against deviation from standard practice. A recent substantial change in clinical status would warrant an ischemic evaluation, but routine preflight exercise or pharmacologic stress testing is not recommended.

Our patient underwent symptom-limited stress testing before his entry into a supervised cardiac rehabilitation program 1 month after his myocardial infarction. His stress test did not reveal any reversible ischemia, and his symptoms have been stable since that time. He does not require repeat stress testing before he travels by air.

What Should Our Patient's Pretravel Evaluation Include?

Preflight evaluation should include a careful history and review of systems to address symptoms of angina, volume overload, dysrhythmia, and current medications. The physical examination should focus on the cardiac and pulmonary systems. Vital signs should include resting oxygen saturation, pulse, and blood pressure. A resting electrocardiogram should be obtained, and a copy should be given to the patient to be carried on his or her person during travel if it is abnormal. Patients should be queried about recent pacemaker evaluations or stress testing. All testing for new symptoms or concern for device malfunction should be performed before travel, if possible. Routine evaluation of pacemakers or ICDs should be performed on schedule but need not delay travel.

The patient's physical examination reveals well-controlled blood pressure, a regular pulse, and an oxygen saturation of 98%; his cardiopulmonary examination is unremarkable. The patient's pacemaker was recently interrogated and found to be functioning appropriately. He has been warned not to linger near security gates in retail stores, and he inquires about the safety of airport security systems and the in-flight environment.

Will Air Travel Interfere with Implanted Pacemakers or ICDs?

No current evidence shows that air travel will interfere with implanted pacemakers or ICDs. In-flight electromagnetic interference was formerly the most important concern, particularly for older unipolar pacemakers. De Rotte and Van Der Kemp (32) exposed 5 modern pacemakers to the cockpit environment of a single-engine fixed-wing aircraft during flight. They did not detect any interruption in normal pacemaker function. The fuselage of larger commercial planes should provide even greater protection from electromagnetic interference. Although no specific studies have assessed the incidence of ICD dysfunction during air travel, the major manufacturers of ICD technology have not received any reports of in-flight device failure (Tisch D, Dostalek J. Personal communication).

Should Patients with Pacemakers, ICDs, or Stents Exercise Any Precautions when Passing through Airport Security Devices?

Airport security gates may detect implanted pacemakers or ICDs (33) but not intracoronary stents. Travelers with any of these 3 devices should carry a card identifying the type of device or verifying stent placement. Several studies have evaluated the safety of airport security systems in regard to ICDs and pacemakers (34, 35). In the largest trial, Kolb and colleagues (35) exposed 200 patients with implanted pacemakers and 148 patients with ICDs to a standard airport metal detector gate. The patients re-

mained within the electromagnetic field for at least 20 seconds. All devices were interrogated before and after exposure. An external 6-lead electrocardiogram was recorded during exposure. The authors detected no electrocardiographic changes, no inappropriate detection of ventricular arrhythmias, and no suspension of therapies (35).

Many travelers with implantable devices will be rerouted for individual security clearance with handheld metal detectors or hand searches. Although no reports of ICD dysfunction due to handheld wands have appeared in the literature, there is a theoretical risk that the alternating magnetic field created by the handheld wand might be detected by an ICD and lead to delivery of inadvertent shock therapy. The alternating magnetic field might also temporarily inhibit an ICD's pacemaker output. The Federal Aviation Administration has yet to publish specific guidelines on this issue. The National Institute of Justice currently requires that all handheld metal detectors carry a warning that they may interfere with personal medical electronic devices (36). Therefore, patients with ICDs are advised to request a hand search, if possible. If a handheld device must be used, the examiner should be cautioned not to hold the magnet over the device for more than a few seconds. If a handheld wand must be passed over the device more than once, at least 30 seconds should elapse between each pass.

The patient's pacemaker has functioned well since implantation, but he is concerned about his options if the pacemaker malfunctions while he is in Europe.

What Should the Patient Do If His Pacemaker Malfunctions while He Is in Europe?

Most modern pacemakers can be interrogated over telephone lines. This may be somewhat limited by the quality of telephone service in other countries but should be possible in most of Europe. The major pacemaker manufacturers maintain Web sites that list hospitals and physicians overseas who are trained in evaluating pacemakers and ICDs. Travelers who experience frequent device malfunction or ICD discharge should compile a list of resources in the area they plan to visit before travel. Travelers who report frequent ICD discharge should be evaluated by a cardiologist before any extended overseas travel.

The patient remembers using supplemental oxygen at the time of his myocardial infarction. He asks if this would be useful during air travel.

When Is In-Flight Supplemental Oxygen Warranted?

Routine in-flight oxygen is not necessary for most travelers with cardiovascular disease. Roby and colleagues (10) found no significant difference in in-flight ischemia or arrhythmia with the use of in-flight oxygen in travelers who had experienced myocardial infarction. There are, however, several important exceptions. Any traveler who requires supplemental oxygen at sea level will require supplemental oxygen during air travel. Travelers whose predicted Pa_{O_2} at flight altitude is less than 50 mm Hg should also receive supplemental oxygen (37). The Pa_{O_2} at altitude can be determined by using the hypoxia altitude simulation test. The traveler breathes a gas mixture (85% nitrogen and 15% oxygen) that simulates the in-flight cabin environment. If testing is not available, Cottrell (5) suggests that a preflight Pa_{O_2} of less than 70 mm Hg at sea level is an indication for in-flight oxygen. Oxygen should be requested well in advance and is typically available only in 2-L or 4-L flow. Most airlines will also require a letter of medical clearance from the patient's physician at least 48 hours before the flight. U.S. air carriers will require a prescription for oxygen. Charges for in-flight oxygen vary widely (38).

Table 2. **Pretravel Checklist for Patients with Cardiovascular Disease**

Carry an ample supply of all medications; label all medications and place them in carry-on baggage.
Carry a copy of baseline electrocardiogram if it is abnormal. Patients with pacemakers should also carry a baseline electrocardiogram.
Carry contact numbers and Web site addresses for pacemaker and implantable cardiac defibrillator manufacturers and local representatives in destination country.
For travelers older than 50 years of age or younger than 50 years of age with 1 or more risk factors for deep venous thrombosis, wear below-the-knee compression stockings (20–30 mm Hg) when traveling >5000 km or >8 h.
Confirm aisle seating if at risk for deep venous thrombosis, as noted above.
Avoid alcoholic beverages and remain well hydrated.
Address any new symptoms with physician before travel.
Check the Centers for Disease Control and Prevention Web site (www.cdc.gov/travel) for up-to-date immunization and antimalarial recommendations.
Consider purchasing medical evacuation insurance if health insurance does not cover medical evacuation.

What Medications and Records Should the Patient Carry on Board?

Travelers should bring an ample supply of all medications in their carry-on baggage (**Table 2**). Insulin syringes, lancets, glucometers, test strips, and sharps disposal units should also be available in carry-on baggage. All injectable medication should be clearly labeled with a professional printed label. The airport screener should be notified that the passenger is carrying such items (33). All travelers should carry an updated medication list with both generic and brand drug names as well as doses. Travelers with cardiovascular disease and an abnormal baseline electrocar-

diogram should bring a copy of their most recent tracing. Travelers with known CAD should carry sublingual nitroglycerin. Individuals with implanted devices should carry a card with the manufacturer and device type as well as physician contact information. Travelers with complex medical histories should carry a list of their medical problems, recent test results, and procedures.

The patient reports that his wife was told to wear compression stockings during the flight in order to prevent DVT. He inquires about this practice and his risk for developing DVT during the flight.

Is Our Patient at Greater Risk for DVT and Pulmonary Embolism?

Deep venous thrombosis and thromboembolism have long been proposed as possible complications of air travel. The putative mechanisms of increased risk in air travel include venous stasis, fluid retention, hemoconcentration secondary to dehydration, and increased erythropoietin levels (47). Decreased Pa_{O_2} may also play a role by interfering with fibrinolysis and activating the coagulation cascade (27, 28). Venous flow declines by two thirds in the seated position compared with the decubitus position. Compression of the popliteal vessels on the edge of a seat during air travel further promotes stasis (48).

Researchers have found that rates of DVT during long periods of air travel are as high as 5.4% in high-risk groups flying an average of 12.4 hours and 0.7% to 2.1% in low- to moderate-risk travelers flying an average of 7 to 8 hours (49–51). In the largest prospective cohort study to date, Schwarz and colleagues (51) compared 964 passengers flying an average of 8 hours or more with 1213 nontraveling persons. Volunteers were recruited by advertisement in travel agencies and the media. The mean age was 52 years in both groups, and those with cardiovascular disease were not excluded. Schwarz and colleagues found that 2.1% of travelers compared with 0.8% of nontravelers had isolated calf venous thrombosis (determined by ultrasonography). Deep venous thrombosis was found in 0.7% of travelers and 0.2% of nontraveling controls. Schwarz's data suggest that both calf venous thrombosis and DVT occur with higher frequency in persons traveling greater than 8 hours by air.

Other researchers have reported even higher incidences of calf muscle venous thrombosis. Scurr and colleagues (39) demonstrated that the risk for symptomless calf venous thrombosis was as high as 10% in persons older than 50 years of age on flights greater than 8 hours. Although isolated calf venous thrombosis may not lead to clinically significant morbidity, some researchers have shown that calf venous thrombosis can extend to more proximal sites in as many as 20% of patients and has been associated with a risk for pulmonary embolism as high as 10% (52). The relatively high rate of calf venous thrombosis cited earlier does not translate into high rates of pulmonary embolism during flight. Lapostolle and colleagues (53) recently described 56 cases (out of 135.29 million travelers) of pulmonary embolism discovered at Charles de Gaulle Airport from 1993 to 2000. In this observational study, they found that distance traveled was a substantial risk factor for developing pulmonary embolism; persons who traveled more than 5000 kilometers were at the highest risk. Perez-Rodriguez and colleagues (48) analyzed the incidence of symptomatic pulmonary embolism at Madrid-Barajas Airport by using a similar observational approach and found an incidence of 1.65 per million passengers on flights longer than 8 hours. Our patient's risk for venous thrombosis is probably elevated compared with a nontraveling control, although his risk for in-flight pulmonary embolism is probably low. The duration of his flight is important because most data suggest that those who fly for more than 8 hours are at the highest risk.

Is There a Role for Specific Prophylaxis against DVT in Our Patient?

Several groups have examined the efficacy of below-the-knee compression stockings for the prevention of DVT during air travel. Belcaro and colleagues (49) randomly assigned low- to moderate-risk patients to compression stockings or no intervention. They found that the incidence of lower-extremity venous thrombosis was decreased in low- to moderate-risk travelers who used compression stockings on flights of greater than 8 hours' duration. Scurr and colleagues (39) demonstrated that compression stockings (below the knee, 20 to 30 mm Hg) decreased the incidence of superficial calf thrombosis in a similar population randomly assigned to compression stockings or no intervention. This benign intervention seems to be of some value and is therefore recommended for traveling for more than 8 hours or more than 5000 kilometers in travelers older than 50 years of age or younger than 50 years of age with at least 1 risk factor for venous thrombosis.

The Long Flights Thrombosis Study (LONFLIT3) (40) evaluated the efficacy of aspirin and low-molecular-weight heparin for preventing DVT in 300 high-risk persons traveling more than 10 hours by air. Patients were defined as high risk if they had had previous DVT, a coagulation disorder, obesity or severely limited mobility, a malignant condition within the preceding 2 years, or large varicose veins. Patients with cardiovascular disease, diabetes, and hypertension were excluded. The control group received no intervention. The aspirin group received 400 mg of aspirin daily for 3 days beginning 12 hours before the start of air travel. The low-molecular-weight heparin group received 1 dose of enoxaparin (on a weight-adjusted basis) 2 to 4 hours before the flight (40). Six episodes of DVT involving 4 patients were discovered in the control group of 100 patients, whereas no episode of DVT was noted in the group randomly assigned to 1 dose of low-

Table 3. **Prevention of Venous Thromboembolism in Air Travelers with Cardiac Disease***

Low risk
Travel: <5000 km or <8 h
Recommendations: Mobilization and hydration, possibly with below-the-knee compression stockings.

Moderate risk
Travel: >5000 km or >8 h in travelers older than 50 years of age younger than 50 years of age with a risk factor, such as large varicose veins, congestive heart failure with a left ventricular ejection fraction of 0.20–0.40, hormone replacement therapy or oral contraceptive pills, pregnancy, or obesity.
Recommendations: Below-the-knee compression stockings (20–30 mm Hg), mobilization, hydration, aisle seating. Although many consultants recommend aspirin therapy for moderate-risk travelers, no specific randomized trials support this practice.

High risk
Travel: >5000 km or >8 h in patients with previous venous thromboembolism; known thrombophilia; recent major surgery, including hip or knee arthroplasty within 6 weeks; history of malignant condition; or congestive heart failure with a left ventricular ejection fraction of 0.20.
Recommendations: Compression stockings, aisle seating, mobilization, and hydration. One injection of low-molecular-weight heparin before flight should be considered in travelers not currently treated with warfarin.

* Data obtained from references 39–46.

molecular-weight heparin before travel (40). Three episodes of DVT were discovered in the aspirin group. Because the number of patients with DVT was small, it is difficult to offer strong recommendations. Low-molecular-weight heparin (1 dose subcutaneously 2 to 4 hours before travel) should be considered for high-risk passengers who are not receiving anticoagulant therapy with warfarin. Although not proven, avoiding constrictive clothing, avoiding leg crossing, and participating in minor physical activity during flights will also probably have some efficacy. Aisle seating, avoiding alcohol-containing beverages, and increasing fluid consumption may also be of benefit (54). **Table 3** provides a strategy for stratifying travelers by risk and recommends preventive measures for each category of risk.

WOULD YOU RECOMMEND THAT THIS PATIENT WITH A HISTORY OF MYOCARDIAL INFARCTION, CHRONIC HYPERTENSION, A PACEMAKER, AND CORONARY STENT PLACEMENT ATTEND A FAMILY WEDDING IN EUROPE DESPITE HIS ANXIETY?

Yes. The patient's pretravel evaluation revealed stable angina without any evidence of active ischemia, a functional pacemaker, and well-controlled blood pressure. He was reassured that his risk for an adverse cardiac event during air travel was low. He was instructed to ask for an aisle seat, walk frequently through the cabin, and wear below-the-knee compression stockings (20 to 30 mm Hg) (54). He was also cautioned to avoid alcohol but remain well hydrated. The patient's regular insurance policy did not cover transport back to the United States or to a medical center in Europe. Medical evacuation insurance was recommended to assuage his anxiety about this potential cost.

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