

## Frequent Flyers Beware: Preventing “Economy Class Syndrome”

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*by: Mark Willis*

After a seven-hour airline flight to London, James Powers, M.D., noticed that his legs were swollen. He expected the edema to resolve as he walked around the city. The next day he felt intense pain in his left calf but dismissed it as a cramp. Determined to make the most of a brief holiday, he limped around London as the pain grew worse.

Seven days after Dr. Powers returned to his busy obstetrics/gynecology practice in Washington, D.C., the pain was unbearable. He consulted a vascular surgeon who diagnosed a deep venous thrombosis (DVT) in the calf vein. Dr. Powers was hospitalized immediately and treated with heparin. The clot was treated before it developed into a life-threatening complication such as pulmonary embolism, according to a recent report in the *Washington Post*.

Dr. Powers experienced what aerospace medicine specialists term “economy class syndrome.” It occurs when blood clots develop in the deep veins of the legs as a result of sitting for prolonged periods in cramped conditions such as the coach sections of commercial airplanes. Economy class syndrome is not limited to air travel, however. The condition was described first in 1940 by British physicians who observed an increase in pulmonary embolism among people sitting in crowded air-raid shelters during the London ‘Blitz.’

Stanley R. Mohler, M.D., director of the Aerospace Medicine Program at Wright State University School of Medicine, describes economy class syndrome as a “stealth problem.” He explains, “It’s almost completely unknown, and it sneaks up on people. It can fool doctors during diagnosis because the presenting symptoms resemble other conditions.”

The most common symptom is pain in the calf muscles developed during or shortly after a long airplane flight. The pain may be mistaken for a muscle cramp, but it can indicate formation of a deep vein clot resulting from sludging of blood in static leg muscles. Typically, the clot dissolves and pain subsides after air travellers reach their destination and have an opportunity to walk around.

“Most airplane passengers never know they experienced economy class syndrome,” notes Dr. Mohler.

In more serious cases, clot material reaches the lungs as emboli. Some experience flu-like symptoms (mild chest discomfort and coughing) which pass in a day or two as emboli dissolve. Others experience significant chest pain, which may be diagnosed and treated initially as a myocardial infarction. In the worst cases, the blood clot blocks the pulmonary artery, and may lead to ventricular fibrillation and death.

No research has been conducted to determine the frequency of deep vein clots among air travellers, and there is no central repository of cases, according to Dr. Mohler. A 1986 study at London’s Heathrow airport found that 18 percent of 61 sudden deaths among long-distance flyers resulted from blood clots. A 1994 study in the journal *Aviation, Space, and Environmental Medicine* (published by Farhad Sahier, M.D., a graduate of Wright State’s Aerospace Medicine residency, and Dr. Mohler) identified over 20 cases of economy class syndrome related directly to the physical restrictions of air travel. Perhaps the best-known case is that of former Vice President Dan Quayle, who developed pulmonary embolism in 1994 after a series of cross-country airplane flights.

Dr. Mohler believes that economy class syndrome is more common today as a result of two factors, the increase in the number of frequent flyers and airline deregulation. Seat pitch, the distance from one airline seat to the one in front of it, is no longer regulated by the Federal Aviation Administration. Airlines are moving seats closer together to fit more passengers on planes. Seat pitch in the economy class now runs between 28-31 inches. The distance should be 40 inches, according to Dr. Mohler.

“As a result of crowded seating, tall people often sit with their knees touching the seat in front of them. Other passengers are reluctant to move around a crowded cabin during flights because it causes so much commotion.”

Drs. Sahier’s and Mohler’s case review confirmed a number of risk factors for DVT that increase an air traveller’s chances of developing economy class syndrome. These include “a history of deep vein thrombosis, presence of a malignant process, increasing age, cigarette smoking, obesity, prolonged bed rest (such as postoperative care for orthopedic surgery), general anesthesia, and estrogen therapy (oral contraceptive pills).”

Dr. Mohler offers the following advice for preventing economy class syndrome on long flights:

- Book exit row, bulkhead, or aisle seats to get more leg room.
- Wear loose-fitting clothes and avoid knee-length stockings that constrict circulation.
- Avoid alcohol and caffeine, which contribute to dehydration during long flights. Drink plenty of other fluids.
- Walk up and down the aisle periodically.
- Massage feet, ankles, lower legs, and knees to move blood out of the legs and toward the heart.
- While seated, exercise calf muscles by clenching your toes.
- People at high risk of blood clots should take a half-strength aspirin daily beginning two days before the flight to thin the blood.

“Some airlines are beginning to put exercise guides in airplane seat backs,” Dr. Mohler says. “Both the airline industry and the medical profession need to do more to make people aware of this preventable hazard of air travel. When physicians diagnose patients presenting symptoms of chest pain, they should remember to ask if the patient has flown recently in an airplane.

**For more information:** contact Stanley R. Mohler, M.D. 937/276-8338. Internet users can find more information about economy class syndrome at: <http://members.aol.com/hilesd/legroom.html>