

CASE REPORT

Patients crash more than airlines: a medical emergency at 35,000 ft

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An estimated 1 in 600 commercial flights will have an onboard medical emergency and approximately half of the time a passenger physician will provide medical assistance. A medical emergency on an aircraft can be a daunting task for even the most seasoned physician. This article is a narrative case report from a physician passenger who found himself in the midst of such an emergency on a 15-hour international flight.

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As a young physician with 1 year of training post medical school, I sat among some 300 individuals on an Airbus A340 on my way to start a US Internal Medicine Residency. As we followed the sun around the earth at 600 miles an hour, cruising at an altitude of 35,000 ft over the Atlantic Ocean, it seemed that little could go wrong. While watching my seventh episode of 'Frasier' on a 12-inch screen with a barely functioning headset, my show was interrupted by an announcement. 'Ladies and gentlemen, would those with medical training please make themselves known to the flight crew. There is a medical emergency on the aircraft'.

I thought that there must be a doctor sitting in business class who is probably already taking care of the patient. Why risk getting involved? But when the announcement was made a second time, 10 minutes later, I had no choice. An airline crewmember approached me, and I timidly asked 'Is there a true medical emergency on this plane?' She inquired back, 'Are you a doctor?' Nervously, I admitted to being a 'resident physician'. The passenger in the seat next to me basks in the drama unfolding next to him. The crewmember asked me to follow her to the front of the plane after showing proof of my medical training.

As I walked through the aisle towards the cockpit, it seemed as if I was being led to the cockpit itself. 'I hope it's not the pilot!' I thought to myself. Suddenly the turbulence seemed to increase and dark clouds were amassing, spewing lightning and thunder like a horror movie. Only thing worse that I could think of then would be another announcement, 'Ladies and gentlemen, Does anyone know how to fly an airbus?' Thankfully, I was

quickly debriefed about an elderly gentleman in business class who had collapsed in the bathroom.

An 82-year old man with a history of multiple myeloma and end stage renal disease on hemodialysis reclined in a luxurious business class seat was panting, sweating profusely and appeared exhausted. Before the flight, he had attended many a farewell dinner. Unfortunately, the night before he encountered a veritable foe, a drumstick gone bad. Drumsticks are the immature seed pods of the *Moringa oleifera* tree eaten in a variety of dishes in South Asia. His wife sat with him worried but able to provide more history. 'I told you that drumstick vegetable was rotten'. The man admitted to having had diarrhea for the last 24 hours and his last dialysis treatment was 1 day prior to departure.

Another young lady stood by his side and introduced herself as a registered nurse. I introduced myself to all. As luck would have it, the patient and his wife were from my hometown and already I could see a sense of relief on their faces. He did not have medical bracelet or any medical records with him. A bad case of gastroenteritis I thought to myself, likely a vasovagal event. I should assess his hydration status.

The patient's parched and cratered tongue, dry lips and a delayed skin turgor confirmed my diagnosis. One of the senior crewmembers tried to control the curious passengers and gave us a briefcase with a red cross etched on it. The bag contained an impressive array of gadgets and gizmos of the medical trade. Of course a blood pressure set, stethoscope, and torchlight lie on top. Underneath, intravenous tubing, lactated ringers solution and normal saline solution bottles, a laryngoscope with endotracheal

tube, scalpels, syringes, alcohol swabs, and enough sterile gauze to make a blanket. It included medicines like aspirin, antihistamines, acetaminophen, anti-nausea medications, epi-pens, beta agonist inhalers, and others. Another crewmember brought a smaller brief case containing a defibrillator with cardiac monitor along with multiple medications right off an Advanced Cardiovascular Life Support (ACLS) check list. The nurse started to record vitals while I came up with my management plan. I was fortunate to have a very engaged flight crew helping every step of the way, but that is not always the case.

Two flight crewmembers, the nurse, and I are managing this patient, still 4 hours from landing. The flight crew is well meaning, involved and very cooperative. I have had a similar experience twice in the past (involving a grand mal seizure and a panic attack), and airline crews on both flights were very nonchalant. I explained to the patient's wife that it seemed clear that he is very dehydrated and the best course of management would be to administer some intravenous fluids. This is an easy order in the hospital, but not so easy in a dehydrated, hemodialysis patient in an airplane seat. Despite bright flashlights, neither the nurse nor I was successful in attaining intravenous access. A life-saving remedy in the developing world, oral rehydration solution was quickly concocted, which the patient sipped gratefully from a paper cup. The patient seemed to improve, appeared calmer, and his mentation improved as well.

Arrangements were now being made for immediate medical evacuation, once we landed at our destination. We continued to monitor the patient with half hourly rounds until landing. I was asked to prepare a brief summary of events and impressions, which would be handed to emergency medical staff at the destination.

Twenty minutes before landing, a final glance at the patient before transfer out of unit A340, 'patient is alert and fully oriented in time, place, and person' I think to myself. After 2 hours of sipping on a sufficient amount of the minerals of life, he is mentating well at this point, his sweat having dried off his brow. He is asking about what was to happen next. The patient and his wife were truly grateful for the assistance as were the crew. Just like that, it was over. We returned to our lives.

Two weeks later, I received a letter in the mail. It was from one of the senior flight crewmembers who had assisted in the care of the gentleman. To my astonishment, a million dollar check fell out of the letter, along with card which read 'I cannot thank you enough for your assistance with the medical case on last week's flight! I found out that our guest's condition improved in part to your efforts. It would be an honor and a pleasure to see you on one of our flights again soon!' Just kidding about the check! The million dollar check was actually a very thoughtful and useful Target store gift card.

Discussion

Over 2 billion people travel by commercial aircraft every year. Approximately 1 out of 40,000 passengers will have a medical incident needing assistance while on an aircraft (1). That works out to 40,000 medical emergencies a year, about 50 flights a day in the US alone (2).

Out of the most common medical problems that are faced in these situations syncope or pre-syncope is seen in more than a third of cases, followed by respiratory problems (12%), nausea or vomiting (10%), seizures (6%), and trauma (2%). The dreaded cardiac arrest case has a lower incidence of 0.3% of cases (1). Approximately 70% of the time, assistance will be provided by a physician and/or nurse passenger (1).

The Federal Aviation Administration in 1986 established regulations requiring airline carriers to place medical kits on board passenger aircrafts (3). Most US commercial airlines have a defibrillator and ACLS medications (4). However, this varies worldwide depending on the airline (5).

A few airlines even carry telemonitors and sometimes one can expect a device called the Tempus IC. This is an impressive micro ICU kit equipped with an oximeter, blood pressure monitor, glucometer, and 12 lead Electrocardiogram (EKG) monitor. It is able to transmit live pictures and images to a ground-based physician (6).

As a healthcare provider, a thorough triage of the patient is essential in determining whether the plane must be diverted or if the patient can be stabilized until landing at its predetermined destination.

If the patient can be stabilized, the other question that often arises is whether the patient needs immediate medical attention on landing. Most cases of hospital admissions after landing have been due to possible stroke, respiratory symptoms, and cardiac symptoms, and approximately one third of those patients are admitted (1).

Legal implication

In 1998 Aviation Medical Assistance Act provided an extension of Good Samaritan laws to protect state-qualified physicians, nurses, physician assistants, Emergency medical technician (EMTs), and paramedics (3). It states:

An individual shall not be liable for damages in any action brought in a Federal or State court arising out of the acts or omissions of the individual in providing or attempting to provide assistance in the case of an in-flight medical emergency unless the individual, while rendering such assistance, is guilty of gross negligence or willful misconduct. (3)

The provider is required to show identification and evidence of his/her medical training. In the absence of identification the flight crew can refuse assistance.

So as we travel the skies more frequently, remember that our Hippocratic oath does not end at the end of a

shift but is a lifelong commitment to the care of others in any circumstance, even at 35,000 feet above the earth. Sometimes, those with medical training can find themselves in unfavorable situations where they are asked to answer the call of duty. Those that find themselves responding to a medical emergency on an airplane should know of the legal protections, resources, and options available to them.

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