



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, DC

Medical Factual Report

February 11, 2016

Nicholas Webster, MD, MPH
Medical Officer

A. ACCIDENT: CEN15FA164 Saint Louis, Missouri

On March 6, 2015, at 2310 central standard time, an Airbus Helicopter (Eurocopter) EC-130-B4, N356AM, operated by Air Methods (doing business as ARCH), struck the edge of a hospital building and impacted its parking lot during a visual approach to the St Louis University Hospital elevated rooftop helipad (MO55), St Louis, Missouri. During the approach, the helicopter experienced a loss of directional control and entered an uncontrolled descent. The helicopter was destroyed by impact forces and a postcrash fire. The commercial pilot, who was the sole occupant, sustained fatal injuries. The helicopter was operated under Title 14 CFR Part 91 as an air medical positioning flight that was operating on a company flight plan. Night visual meteorological conditions prevailed at the time of the accident. The flight was returning to MO55 after it had been refueled at the operator's base in St. Louis, Missouri.

B. GROUP IDENTIFICATION:

No group was formed for the medical evaluation in this accident.

C. DETAILS OF INVESTIGATION

Purpose

This investigation was performed evaluate the pilot for any medical conditions, the use of medications/illicit drugs, and the presence of any toxins and to document the extent of his injuries.

Methods

The pilot's FAA medical case review, toxicology results, autopsy report, and the investigator's report were reviewed.

FAA Medical Case Review

According to the FAA case review, the 52-year-old commercial pilot was 65 inches tall, weighed 167 pounds, and reported he had accrued 2,700 total flight hours as of his most recent medical certification examination, dated December 19, 2014. He reported no medication and the examining physician did not identify any abnormal findings. The FAA Aviation Medical Examiner issued him a Second Class medical certificate with the following limitation: Must wear corrective lenses.

Autopsy

According to the City of Saint Louis Medical Examiner's autopsy, the cause of death was thermal burns and smoke inhalation and the manner of death was accident.

The external examination identified thermal injuries over the entire body. The pilot had fire related fractures of the right and left elbows, right and left wrists, right tibia and fibula, left ankle, and left fibula, as well as multiple fire-related skull fractures.

The internal examination identified a traumatic hairline fracture of the right frontal bone, a sternal fracture at the level of the second ribs, and a fracture of the fifth cervical vertebra without evidence of a spinal cord injury. The subarachnoid space around the brainstem was described as containing blood extending up from the cervical spine fracture. The abdomen and extremities showed no evidence of trauma other than thermal injuries. Soot deposition was identified in the respiratory tract from the trachea to the bronchial tree.

The heart weighed 320 grams (average for a 168-pound man is 341 grams, range 258-450 grams).¹ The heart muscle was noted to have a normal consistency and was free of focal lesions. Varying degrees of coronary artery narrowing were described including: 5% circumflex coronary artery, 20% right coronary artery, and 80% left anterior descending coronary artery. Microscopic examination was not conducted. No other significant natural disease was identified.

Toxicology

The FAA Bioaeronautical Laboratory did not identify any tested for drugs in the urine, ethanol in the vitreous, or carbon monoxide in the blood (reporting cut off 10%).

D. SUMMARY OF FINDINGS

The pilot had not reported any active medical conditions or use of medications and toxicology did not identify any medications or toxins.

The autopsy determined the cause of death was thermal burns and smoke inhalation. It described severe thermal injuries to the entire body including multiple thermal fractures and soot deposition in the respiratory tract from the trachea to the bilateral bronchial tree. Traumatic injuries included a hairline fracture of the frontal bone, a sternal fracture, and a fracture of the fifth cervical vertebra without evidence of a spinal cord injury. Subarachnoid blood was attributed to extension of blood from the fracture in the cervical spine.

The autopsy identified coronary artery disease including 80% narrowing of the left anterior descending coronary artery. However, no focal lesions (evidence of an old or new heart attack) were identified in the heart muscle.

References

¹ Kitzman DW, Scholz DG, Hagen PT, Ilstrup DM, Edwards WD. Age-related changes in normal human hearts during the first 10 decades of life. Part II (Maturity): A quantitative anatomic study of 765 specimens from subjects 20 to 99 years old. Mayo Clinic Proc., 1988. 63(2): p. 137-46.