



**OFFICE OF THE DISTRICT MEDICAL EXAMINER
DISTRICT 15 – STATE OF FLORIDA
PALM BEACH COUNTY
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NAME: LAVENIR, ENORA

CASE NUMBER: M21-01466

DATE OF DEATH: August 7th, 2021 **AGE:** 19 months **SEX:** F **RACE:** B

DATE OF AUTOPSY: August 8th, 2021 0900 hrs

FINDINGS:

1. Toxicology:
 - a. Antemortem blood and postmortem (subclavian vein) blood positive for fentanyl
2. Scene investigation:
 - a. Reportedly otherwise healthy, normally developing infant
 - b. Reportedly struck head falling with stroller at airport and getting out of bed, both on August 6th, 2021
 - i. Decedent reportedly consolable with no obvious trauma
 - c. Last known alive around midday August 7th, 2021
 - i. Reportedly napping with older sister on August 7th, 2021 with no indication of airway obstruction
 - ii. Discovered unresponsive around 1430 hrs on August 7th, 2021
 - iii. Transported to hospital; resuscitative efforts unsuccessful
3. Examination:
 - a. Normally developed female infant
 - b. Cardiomegaly (62 grams)
 - c. Pulmonary congestion and edema
 - d. Hepatomegaly (504 grams)
 - e. Gastritis
 - f. Splenomegaly (61 grams)
 - g. Accessory spleen
 - h. Renomegaly (45 and 48 grams)
 - i. Cerebral edema
4. Post-mortem imaging:
 - a. No evidence of acute osseous injury
5. Microbiology:
 - a. Nasopharyngeal swab positive for respiratory syncytial virus (see attached report)

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6. Histology:
- a. Lungs consistent with respiratory syncytial virus infection
 - b. Remainder of organs unremarkable

OPINION

CAUSE OF DEATH: Acute Fentanyl Toxicity

MANNER OF DEATH: Accident

HOW INJURY OCCURRED: Decedent ingested fentanyl



Catherine Miller, M.D.
Associate Medical Examiner
Date Signed: 12/23/2021

RATIONALE FOR OPINION

The decedent is a 19 month old female with no known past medical history. Per reports, the decedent was on vacation with her family on August 7th, 2021. She was napping with her older sister who, upon waking from the nap, discovered the decedent unresponsive. The decedent was transported to a local hospital, and was pronounced deceased in the emergency room.

At autopsy, the decedent was a normally developed female infant. She had pulmonary congestion and edema, and cerebral edema. Post-mortem imaging revealed no evidence of acute osseous injury. Viral testing of a nasopharyngeal swab was positive for respiratory syncytial virus, and viral cytopathic changes consistent with respiratory syncytial virus infection were seen histologically.

Toxicology testing was performed on postmortem and antemortem blood specimens. Both specimens revealed a lethal level of fentanyl. The discrepancies in the fentanyl levels between specimens are thought to be due to postmortem redistribution of the drug, and also the differing concentrations of drug often seen in peripheral (antemortem) versus central (postmortem) collection sites.

Fentanyl is a powerful opioid that is used for pain management and anesthesia. The illicit manufacture of this medication has been named as one of the causes of the opioid epidemic in the United States. It is used recreationally in many forms, though powder and pill forms are the most common. Fentanyl is a central nervous system depressant, and the administration of the drug can depress the drive to breathe. Individuals who are exposed to the drug in high concentrations may have enough respiratory depression to cause death.

In this case, the decedent had a lethal level of fentanyl in her blood. How the drug was ingested or administered is unknown, but it is likely to be the result of accidental ingestion. Therefore, the cause of death in this case is Acute Fentanyl Toxicity and the manner is Accident.

EXTERNAL EXAMINATION

The body is that of a well-developed, well-nourished female infant who weighs 28 pounds, 3 ounces (90th percentile for the age)*. The crown-heel length is 84 centimeters (60th percentile for the age). The crown-rump length is 51 centimeters. The decedent appears consistent with the reported age of 19 months. The body is refrigerated, well preserved, and not embalmed. Rigor mortis is marked, and pink lividity is fixed on the posterior surfaces, except in areas exposed to pressure. The body is cool to the touch.

The head is normally formed, with a circumference of 47.5 centimeters (50th percentile for the age). The scalp has short, brown hair in a normal distribution. The inner canthal distance is 2.9 centimeters (approximately 80th percentile for the age). The outer canthal distance is 9 centimeters (greater than 97th percentile for the age). The irides are brown. The pupils are 0.6 centimeter each. The interpupillary distance is 4.8 centimeters (75th percentile for the age). The corneas are clear. The sclerae are white. The conjunctivae have no petechiae. The ears, nose, and mouth are normally formed. The external auditory canals are unremarkable. The nasal bones and nasal septum are intact. The philtrum is 1.4 centimeters and is not flattened or deformed. The lips are normally developed. The frenula are not lacerated. The labial mucosa is not injured. The teeth are natural and in good condition.

The neck and chest are symmetrical. The nipples and breasts are unremarkable. The chest circumference is 50 centimeters (50th percentile for the age). The internipple distance is 11.6 centimeters (60th percentile for the age).

The abdomen is protuberant and soft, and has a circumference of 46.5 centimeters. The back is symmetrical. The atraumatic external genitalia are those of a prepubescent female. The atraumatic anus is patent and unremarkable.

The extremities are symmetrical, normally formed, and have no congenital deformities or palpable fractures. The arms have no track marks. The wrists have no scars. All digits of the hands and feet are present and are normally formed. The hands are 11 centimeters each (90th percentile for the age). The right foot is 12.8 centimeters. The left foot is 13 centimeters. The fingernails and toenails are intact.

IDENTIFICATION

The decedent is visually identified by her parents at the scene. Identification is confirmed by law enforcement personnel via visual comparison of the decedent to the passport known to belong to Enora Lavenir. A toe tag with the decedent's name is affixed to the right great toe.

CLOTHING AND PERSONAL EFFECTS

None.

EVIDENCE OF INJURY

None.

EVIDENCE OF MEDICAL INTERVENTION

A Combitube enters the oral cavity and terminates in the trachea. Defibrillator pads are on the chest and back. Electrocardiogram pads are on the chest, abdomen, and arms. A blood pressure cuff is around the right arm. Intraosseous catheters are in the right leg and left thigh. A hospital identification band is around the left ankle. A bandaid is on the left heel. A pulse oximeter lead is on the right great toe.

RADIOGRAPHS

Full body radiographic images reveal no evidence of acute osseous trauma.

INTERNAL EXAMINATION

The ribs, sternum, and clavicles are intact. The diaphragm is not elevated. The mesothelial surfaces are smooth and glistening. All body organs are in their normal anatomical position. The right and left pleural cavities have no excess fluid or adhesions. The pericardial sac has no excess fluid. The peritoneal cavity has no excess fluid or adhesions.

The soft tissues of the neck, including strap muscles and large vessels, are unremarkable. The hyoid bone, thyroid cartilage, and larynx are intact. The tan-brown thyroid gland has a normal size and shape, and unremarkable parenchyma. The parathyroid glands are inconspicuous. The 37 gram thymus has a normal size and shape, and unremarkable parenchyma.

The 62 gram heart (normal range for the age: 43 – 55 grams) has smooth epicardial surfaces. The four cardiac chambers do not contain mural thrombi or thromboemboli. The four, thin, pliable, cardiac valves have no deformities or vegetations. The tricuspid valve is 6 centimeters (normal range for the age: 4.7 – 5.6 centimeters). The mitral valve is 5.5 centimeters (normal range for the age: 4.1 – 4.7 centimeters). The pulmonary valve is 3.6 centimeters (normal range for the age: 3.0 – 3.5 centimeters). The aortic valve is 3 centimeters (normal range for the age: 3.0 – 3.4 centimeters). The mural endocardium is thin, smooth, and translucent. The red-brown myocardium has no fibrosis, necrosis, erythema, or areas of accentuated softening or induration. The normally positioned ostia of the left main and right coronary arteries are patent. The coronary arteries arise normally. The right coronary artery supplies the posterior aspect of the apex of the heart. The coronary arteries and their branches have no atherosclerosis. The left and right ventricles are 0.5 centimeter and 0.1 centimeter thick, respectively. The interventricular septum is 0.6 centimeter thick. The thin, elastic aorta arises from its usual position, has a normal branching pattern, and is smooth and shiny with intimal fatty streaking and no atherosclerosis. The vena cavae and their

major tributaries have a normal distribution and are free of thrombi.

The mucosal surfaces of the upper airway, trachea, and mainstem bronchi are smooth, pink-grey, and unremarkable. The mainstem bronchi are clear of debris and foreign material. The right lung is 134 grams (normal range for the age: 55 – 116 grams). The left lung is 176 grams (normal range for the age: 50 – 103 grams). The pleural surfaces are smooth and glistening. The red-pink, firm pulmonary parenchyma expresses frothy fluid and has no masses, granulomata, or discrete areas of consolidation. The pulmonary arteries are patent and have no thromboemboli. The bronchomediastinal lymph nodes are not enlarged.

The 504 gram liver (normal range for the age: 283 – 413 grams) has a smooth, glistening, intact capsule covering dark brown, mottled parenchyma with a preserved lobular pattern. The liver has no focal lesions. The extra and intrahepatic vessels are patent. The gallbladder sits normally on the hepatic bed, and contains approximately 2 milliliters of yellow-green mucoid bile and no calculi. The gallbladder mucosa is green and velvety.

The tongue is unremarkable. The epiglottis is yellow and leaf-like, and has no swelling. The esophagus is lined by grey-white smooth mucosa and is not dilated or stenotic, and has no varices. The stomach has a normal size and shape. The red-tan, slightly ragged gastric mucosa is free of ulcerations and is arranged with the usual folds. The stomach contains approximately 5 milliliters of red-brown, viscous liquid. The small intestine is normal in length, configuration, and diameter and has a smooth, shiny serosal surface. The mesentery has a normal insertion. The large intestine has a smooth, shiny serosal surface and no palpable masses or obstructions. The appendix is unremarkable.

The pink-tan pancreas has an intact lobular architecture, a patent duct, and no parenchymal masses, cysts, or hemorrhage.

The 61 gram spleen (normal range for the age: 23 – 29 grams) and the accessory spleen have intact capsules covering red-purple, homogenous, soft parenchymata. The bone marrow of the ribs is dark red and soft. The lymph nodes of the neck, chest, abdomen, and pelvis are unremarkable.

The adrenal glands (4 grams each) are unremarkable.

The right kidney is 45 grams (normal range for the age: 26 – 37 grams). The left kidney is 48 grams (normal range for the age: 27 – 39 grams). The surfaces are red-brown and smooth. The parenchyma has well-defined corticomedullary junctions. The renal vessels are patent. The calyces are not dilated and have no masses or calculi. The ureters have a normal course and caliber. The bladder is empty. The mucosa is tan, mildly trabeculated, and intact.

The vagina, cervix, uterus, bilateral ovaries, and bilateral fallopian tubes are unremarkable.

The musculoskeletal system is well developed. The muscles of the anterior neck, chest wall, abdomen, and iliopsoas are symmetrical, firm, and red-brown. The ribs, pelvic bones, and vertebral bodies of the cervical, thoracic, and lumbar spine are unremarkable.

The reflected scalp has no hematomas. The skull is intact and has no fractures of the calvarium or skull base. There is no epidural or subdural hemorrhage.

The brain is 1153 grams (normal range for the age: 790 – 1090 grams). The leptomeninges are thin and transparent. There is no subarachnoid hemorrhage. The cerebral and cerebellar hemispheres are symmetrical. The gyri are flattened, and the sulci are narrowed. The structures at the base of the brain, including cranial nerves and blood vessels, are intact. The thin-walled arteries at the base of the brain have no berry aneurysms or other obvious abnormalities. The mammillary bodies are not shrunken or discolored. The grey/white matter border is distinct. The corpus callosum is intact. The deep white matter has no softening, nodules, or masses. The pituitary gland has a normal size and shape, and sits normally in the sella turcica. The substantia nigra is appropriately pigmented. The symmetrical hippocampi are not shrunken, scarred, or ecchymotic. The pons, medulla, and midbrain are unremarkable. The dorsal cerebellar vermis is not atrophic. The cerebrospinal fluid is clear. The atlanto-occipital ligaments and proximal aspect of the cervical spine are intact and unremarkable.

TOXICOLOGY

Ocular fluid, iliac vein blood, subclavian vein blood, and hospital-obtained specimens are submitted to the laboratory for toxicologic analysis.

MICROBIOLOGY

Blood, nasopharyngeal swabs, and cerebrospinal fluid are collected and submitted to the Florida Department of Health Bureau of Public Health Laboratories for testing. Results below:

Blood culture aerobic isolate: positive for *Staphylococcus aureus* (not MRSA/VISA/VRSA) and *Enterococcus cloacae* complex (likely contaminant organisms)

Nasopharyngeal swab: positive respiratory syncytial virus by RT-PCR. Negative for influenza (A and B), COVID-19, human coronavirus (229E, OC43, NL63, and HKU1), enterovirus, adenovirus, parainfluenza (1, 2, and 3), human metapneumovirus, and rhinovirus.

Cerebrospinal fluid aerobic isolate: no aerobic bacteria isolated

HISTOLOGY

Heart, 3 sections: Normal cardiac parenchyma.

Lungs, 5 sections: Pulmonary edema. Focal inter-alveolar giant cells, septal syncytial change, and septal inflammation, consistent with respiratory syncytial virus infection. Focal intra-alveolar hemorrhage. Normal vessels and bronchioles.

Kidneys, 2 sections: Normal glomeruli, tubules, and vessels.

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Adrenal glands, 2 sections: Normal cortical and medullary parenchyma.

Liver, 1 section: Normal hepatic parenchyma, central veins, and portal tracts.

Spleen, 1 section: Slightly decreased white pulp. Normal red pulp and vessels.

Pancreas, 1 section: Normal pancreatic parenchyma.

Lymph node, 1 section: Normal lymph node parenchyma.

Thymus, 1 section: Normal thymic parenchyma.

Thyroid gland, 1 section: Normal thyroid parenchyma.

Trachea, 1 section: Normal tracheal mucosa with mixed submucosal inflammatory infiltrates composed of chronic inflammatory cells.

Esophagus, 1 section: Normal esophagus.

Ovary, 1 section: Normal ovarian parenchyma.

*Normal weights and measures from Connolly AJ et. al. Autopsy Pathology: A Manual and Atlas. 3rd ed., Elsevier, 2016.