

POSTMORTEM EXAMINATION

Tapia, Lyndis

OMI Case Number: 2023-03522

Year of Birth: 2022

Age: [REDACTED]

Date/Time of Death Pronouncement: 5/16/2023 9:27:00 AM

County Pronounced: Sandoval

Law Enforcement:

Agent:

Central Office Deputy Medical Investigator (FDMI): Cassandra Toledo

Type of Examination: Autopsy

Date of Examination: 5/17/2023

CAUSE OF DEATH:

Asphyxial injuries in the setting of an unsafe sleep environment and the toxic effects of ziprasidone

MANNER OF DEATH:

Undetermined

DGV

Daniel Gallego M.D.

06/20/2023 05:03:11 PM

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FINAL PATHOLOGIC DIAGNOSIS:

- I. Asphyxial injuries in the setting of an unsafe sleep environment
 - A. Found unresponsive prone, next to a co-sleeping adult, with surrounding bedding, and against a couch
 - B. Anterior livor with perioral and perinasal blanching
 - C. Cerebral and pulmonary edema
- II. Toxic effects of ziprasidone
 - A. Comprehensive postmortem toxicology testing performed on heart blood
 - i. Ziprasidone 43 ng/mL

NARRATIVE SUMMARY AND OPINION:

Lyndis Tapia was a [REDACTED] female baby that was staying with her grandparents and having minor respiratory complaints [REDACTED]. She was put to sleep in a couch with her grandmother at around 10 pm, next to each other, on lateral decubitus. She was found unresponsive at 6 am in a prone position on the grandmother's feet, surrounding by bedding, and against the couch. [REDACTED]

An autopsy examination revealed a well-developed, well-nourished female baby with no injuries/trauma. The livor of the face is consistent with the position on which the body was found. The brain and lungs were heavy and congested.

Examination of the tissues under the microscope was largely unremarkable.

Refer to the separate neuropathology report for details about the brain exam.

Viral testing of the nasopharynx and both lungs was negative for SARS-CoV-2 (the virus responsible for COVID-19) and negative for Influenza.

Screening for an underlying metabolic disorder was negative.

Analysis of the fluid of the eye (vitreous screen) revealed very mild low sodium. This is a non-specific electrolytic change.

Comprehensive toxicology testing of the blood revealed ziprasidone. Refer to the separate NMS laboratories report for details.

Review of skeletal survey and postmortem computed tomography images did not show signs of acute or healing internal trauma.

Bacterial cultures of the cerebrospinal fluid were negative and the blood and lungs grew multiple organisms that in the absence of significant inflammation are favored to represent polymicrobial growth/postmortem contamination.

Re-enactments of the circumstances, investigative reports, and examination findings, are most consistent with asphyxial injuries in the setting of an unsafe sleep environment. Asphyxia is a broad term used to describe the body's inability to use or uptake oxygen; in this case, due to compression/covering of her body by the body of another person/objects and surrounding items. With overlay and obstruction of the airways, the ability to breathe is affected. If this is not reversed, it can lead to death.

The current recommendations are that infants should sleep alone, on their backs, without soft blankets or bedding. In

addition, sleeping with adults, particularly if they are under the influence of drugs, medications, or alcohol, poses a risk of placement of other objects or the adult themselves in a way that compromises the baby's ability to breathe.

In addition, toxicology revealed ziprasidone. Ziprasidone is an antipsychotic medication prescribed for mental health issues and that can cause adverse effects of the respiratory, cardiac, and nervous systems to include somnolence, sedation, low blood pressure, arrhythmias, serotonin syndrome, coma, and death (see references 1 and 2).

Currently, it is still unclear how and why ziprasidone was found on Lyndis's body, and therefore, the manner of death is best certified as undetermined. If additional information becomes available in the future, the case may be re-evaluated as appropriate.

References: 1. Fasano CJ, et al. Pediatric ziprasidone overdose. *Pediatr Emerg Care*. 2009 Apr;25(4):258-9

2. Elbe D, et al. Focus on ziprasidone: a review of its use in child and adolescent psychiatry. *J Can Acad Child Adolesc Psychiatry*. 2008 Nov;17(4):220-9

EXTERNAL EXAMINATION

GENERAL

An autopsy is performed on the body identified as Lyndis Tapia at the Office of the Medical Investigator, State of New Mexico, on May 17 2023, beginning at 10:00 am. The body is that of a well-developed, well-nourished, infant female who weighs 10.075 kg (92th percentile for age), has a crown-heel length of 77 cm (92th percentile for age), has a head circumference of 48 cm (>99th percentile for age), and appears compatible with the reported age [REDACTED]. Encircling the right ankle is an identification band bearing the decedent's name. The body is received partially clad. Personal effects are listed in the "Personal Effects" inventory. The diaper is clean.

POSTMORTEM CHANGES

The body is cool subsequent to refrigeration. Rigor is partially fixed. Livor mortis is blanchable, purple, and distributed on the anterior and posterior surfaces of the body, except in areas exposed to pressure. There is sparing of areas of the face to include perioral and perinasal.

EXAMINATION

The head is normally formed. The scalp hair is brown and medium in length. The anterior fontanelle is neither depressed nor bulging. There is no facial hair. The irides are blue. The corneas are clear. The sclerae and conjunctivae are white. No petechial hemorrhages are identified on the sclerae, conjunctivae, facial skin, or oral mucosa. The nose and ears are normally formed and normally placed. The palate is intact and neither high nor arched. The frenula are intact. The neck is unremarkable.

The thorax is well-developed and symmetrical. The abdomen is flat. The spine is normally formed. The anus is unremarkable.

The upper and lower extremities are well-developed and symmetrical without absence of digits. Palmar creases are unremarkable.

The external genitalia are that of an infant female and are unremarkable.

There are hairs covering the body in the anterior and posterior surfaces.

MARKS, SCARS, AND COSMETIC PIERCINGS

There are no readily apparent significant scars. There are no piercings.

TATTOOS

There are no readily apparent tattoos.

MEDICAL INTERVENTION

None.

EVIDENCE OF INJURIES

There is no evidence of injuries/trauma.

INTERNAL EXAMINATION

GENERAL

There are no internal injuries or evidence of decomposition.

BODY CAVITIES

No adhesions or abnormal collections of fluid are present in any of the body cavities. All body organs are present in the normal anatomical positions.

CENTRAL NERVOUS SYSTEM

The brain weighs 1180 grams (fixed, >99th percentile for age). The dura mater and falx cerebri are intact and not adherent to the brain. The leptomeninges are thin and transparent. There are no epidural, subdural, or subarachnoid hemorrhages. The cerebral hemispheres are symmetrical. There is narrowing of the sulci and widening of the gyri. The structures at the base of the brain and the cranial nerves are free of abnormality. Sections through the cerebral hemispheres reveal no lesions within the cortex, subcortical white matter or deep parenchyma of either hemisphere. The cerebral ventricles are unremarkable. Sections through the brainstem and cerebellum reveal no lesions..

NECK

Examination of the soft tissues of the neck, including the strap muscles and large vessels, reveals no abnormalities. The hyoid bone and larynx are intact. The tongue is normal.

CARDIOVASCULAR SYSTEM

The heart weighs 52 grams (69th percentile for age) and is conical. The pericardial sac is free of significant fluid or adhesions. The pericardial surfaces are smooth and glistening. The coronary arteries arise normally and follow the distribution of a right dominant pattern. The coronary arteries are widely patent. There are no coronary arterial thrombi, plaque hemorrhages or dissections. The coronary ostia are patent and appropriately placed. The heart valves are unremarkable. The myocardium is dark red-brown, firm, and free of focal or regional fibrosis, erythema, pallor, or softening. The atrial and ventricular septa are intact. The chambers are not dilated. The left ventricle is 0.4 cm in thickness, and the right ventricle is 0.3 cm in thickness, as measured 1 cm below the respective atrioventricular valve annulus. The interventricular septum is 0.4 cm in thickness.

The aorta and its major branches arise normally and follow the usual course without significant atherosclerosis. The ductus arteriosus is anatomically closed. The orifices of the major aortic vascular branches are patent. The vena cava with its major tributaries are patent, return to the heart in the usual distribution, and are unremarkable.

RESPIRATORY SYSTEM

The right and left lungs weigh 123 and 102 grams (>99th percentile for age), respectively. The upper and lower airways are unobstructed with smooth, yellow-tan mucosal surfaces. The pleural surfaces are smooth, glistening, and have scattered bilateral petechia. The pulmonary parenchyma is dark red-purple, and the cut surfaces exude moderate amounts of blood and frothy fluid. The pulmonary arteries are normally developed without atheromas. There is no saddle embolus on in situ examination of the pulmonary trunk.

HEPATOBIILIARY SYSTEM

The liver weighs 360 grams (88th percentile for age). The hepatic capsule is smooth, glistening and intact covering moderately firm, red-brown parenchyma. The gallbladder contains watery, green-brown bile; the mucosa is velvety and unremarkable. The extrahepatic biliary tree is patent and without evidence of calculi.

GASTROINTESTINAL SYSTEM

The esophagus is lined by gray-white, smooth mucosa. The gastric mucosa is autolyzed, and the lumen contains 100 mL of partially digested food. The serosa of the small bowel is smooth and glistening. There are no lesions of the duodenal or colorectal mucosa. There is mild focal erythema and areas of white plaques. The colon contains formed stool. The appendix is unremarkable. The pancreas has a normal tan-purple, lobulated appearance.

GENITOURINARY SYSTEM

The right and left kidneys weigh 28 and 28 grams (20th percentile for age), respectively. The renal capsules are smooth, thin, and semitransparent and strip with ease from the underlying smooth, red-brown, firm cortical surfaces. The cortices are of normal thickness and well-delineated from the medullary pyramids. The calyces, pelves, and ureters are non-dilated and free of stones. The urinary bladder is devoid of urine; the bladder mucosa is gray-tan and smooth.

REPRODUCTIVE SYSTEM

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The internal reproductive organs are without note.

RETICULOENDOTHELIAL SYSTEM

The spleen weighs 35 grams (81th percentile for age) and has a smooth, intact capsule covering red-purple, moderately firm parenchyma. The bone marrow (rib) is red-purple. Lymph nodes are not enlarged. The thymus is enlarged and weighs 20 grams (87th percentile for age).

ENDOCRINE SYSTEM

The pituitary gland is of normal size. The thyroid gland is of normal position, size, and texture. The adrenal glands have normal cut surfaces with yellow cortices and gray medulla.

MUSCULOSKELETAL SYSTEM

The bony framework, supporting musculature, and soft tissues are unremarkable. The cervical spinal column is stable on internal palpation.

ANCILLARY STUDIES

POSTMORTEM COMPUTED TOMOGRAPHY

There is no evidence of significant natural disease or radiological evidence of injuries/trauma.

RADIOLOGY

The skeletal survey is reviewed and there no radiological evidence of healing or acute skeletal trauma.

HISTOLOGY

Histology key slide:

- A1 - Bilateral kidneys and bilateral adrenals
- A2 - Pancreas, spleen, and thyroid
- A3 - Epiglottis and trachea
- A4 - Thymus, ovary, cervix, and uterus
- A5 - Liver
- A6 - Upper gastrointestinal tract
- A7 - Heart
- A8 - Right lung
- A9 - Left lung
- A10 - Lower gastrointestinal tract

HEART: Sections are unremarkable.

LUNGS: Sections show congestion.

TRACHEA AND EPIGLOTTIS: Sections show chronic mucosal and submucosal inflammation.

KIDNEYS: Sections are unremarkable.

LIVER: Sections are unremarkable.

PANCREAS: Sections are unremarkable.

GASTROINTESTINAL TRACT: Sections are unremarkable.

THYMUS: Sections are unremarkable.

ADRENALS: Sections are unremarkable.

UTERUS, CERVIX, AND OVARIES: Sections are unremarkable.

MICROBIOLOGY - see separate reports from State Laboratories Division (SLD).

CSF cultures: no growth.

Heart blood cultures: *Streptococcus mitis* group, *Streptococcus salivarius* group

Left lung: *Streptococcus mitis* group, *Streptococcus salivarius* group, *Staphylococcus aureus*

Right lung: *Streptococcus mitis* group, *Streptococcus salivarius* group, *Staphylococcus aureus*

Nasopharyngeal and bilateral lung swabs: negative for COVID-19 and influenza.

METABOLIC SCREEN - see separate report from the Mayo Clinic Laboratory.

The acetylcarnitine profile showed no biochemical evidence indicative of an underlying metabolic disorder.

TOXICOLOGY - see separate report from NMS Labs.

VITREOUS SCREEN - Analysis of the vitreous fluid reveals:

Sodium: 134 mmol/L (reference range = 135-150 mmol/L)

Potassium: >15 mmol/L (reference range = <15 mmol/L)

Chloride: 124 mmol/L (reference range = 105-135 mmol/L)

NEUROPATHOLOGY - Histology key slide: B1: left frontal, B2: corpus callosum, B3: left basal ganglia, B4: right thalamus, B5: bilateral hippocampus, B6: midbrain, B7: left amygdala, B8: right amygdala, B9: left occipital lobe, B10: periventricular white matter at centrum semiovale, A11: pons, A12: cerebellum with dentate, A13: cervicomedullary junction, A14: dura matter and pituitary gland

Refer to the separate neuropathology report for details.