

**WYLLOW BREWER**

17-0463

AUTOPSY REPORT

PIMA COUNTY, ARIZONA

PIMA COUNTY SHERIFF'S OFFICE

CASE # 170219080

FEBRUARY 21, 2017

17-0463

Re: WYLLOW BREWER

Page 2

**FINAL DIAGNOSES:**

- I. Sepsis
  - A. Diffuse microthrombi with bacterial colonies
  
- II. Blunt force injuries, head
  - A. Abrasions of the nares, lips and chin
  - B. Laceration of the mandibular frenulum, infected
  - C. Abrasions and contusions of the head
  - D. Subgaleal hemorrhages
  
- III. Blunt force injuries, extremities
  - A. Displaced fractured distal right humerus, infected
  - B. Fracture of the distal left radius with soft tissue hemorrhage
  - C. Fracture of the distal left femur
  - D. Contusions and abrasions of the extremities
  
- IV. Malnutrition (Based on CDC birth to 36 month: Girls growth chart)
  - A. Birth weight: 3340 grams – 55<sup>th</sup> percentile
  - B. Death weight: 5800 grams – less than 5<sup>th</sup> percentile
  - C. Birth length: 52.1 cm – 90<sup>th</sup> percentile
  - D. Death length: 63 cm – 20<sup>th</sup> percentile

**OPINION:**

The autopsy revealed a malnourished female infant with blunt force injuries of the head and extremities. Histologic examination of the tissues surrounding the blunt force injuries of the mouth and fractured right arm show evidence of infection as characterized by bacterial colonies and inflammation. Additionally, there are microthrombi and bacterial colonies involving multiple organs, consistent with sepsis. Toxicologic analysis of the blood was negative for medications and drugs. In consideration of the known circumstances surrounding this death, the available medical history, and the examination of the remains, the cause of death is ascribed to infectious complications of blunt force injuries with malnutrition as a significant contributing factor.

The manner of death is homicide.

17-0463

Re: WYLLOW BREWER

Page 3

**DATE OF DEATH:** February 19, 2017      **TIME OF DEATH:** 1242 Hours

**DATE OF AUTOPSY:** February 21, 2017      **TIME OF AUTOPSY:** 1000 Hours

**PLACE OF AUTOPSY:** Pima County Office of the Medical Examiner  
2825 E District Street  
Tucson, Arizona 85714

**PERFORMED BY:** Christopher P. Geffre, M.D., Ph.D.  
Forensic Pathology Fellow

**WITNESSED BY:** Cynthia Porterfield, D.O.  
Forensic Pathologist

Kayla Hare, Jeremy Cox  
Pathology Assistants

Detectives Rodriguez and Palomino  
Pima County Sheriff's Office

Crime Scene Technician Gruenwald  
Pima County Sheriff's Office

Investigator Huicochea  
Office of Child Welfare Investigation

Diane Kerrihard NP  
Forensic Nurse Children's Advocacy Center

### **HISTORY**

This 6-month-old infant was transported to Banner University Medical Center in Tucson, Arizona with reported fractures and contusions. Past medical history is significant for incisions of the lingual and upper labial frenula in September 2016.

### **PHOTOGRAPHS**

Photographs are taken during the autopsy by Christopher P. Geffre, M.D., Ph.D., Forensic Pathology Fellow and Crime Scene Technician Gruenwald, Pima County Sheriff's Office.

### **IDENTIFICATION**

The body is identified by Pima County Sheriff's Office investigators.

17-0463

Re: WYLLOW BREWER

Page 4

### **CLOTHING**

The body is received wrapped in:

- 1) A white hospital blanket
- 2) A cream colored knitted blanket

### **EVIDENCE OF MEDICAL INTERVENTION**

- 1) Intraosseous catheter in the left tibia
- 2) Hospital identification bracelet on the right ankle
- 3) Endotracheal tube
- 4) Orogastric tube
- 5) Venous puncture site in the right tibia consistent with intraosseous catheter

### **EXTERNAL EXAMINATION**

The body is received in the supine position within a white body bag with intact Pima County seal numbered 08531. The body is that of a well-developed, female infant without dysmorphic features, of stated age of 6 months who weighs 5800 gm (less than the 5<sup>th</sup> percentile for age), has a crown heel length of 63 cm (at the 20<sup>th</sup> percentile for age), a head circumference of 42.3 cm (at the 50<sup>th</sup> percentile for age), a chest circumference of 41 cm, and an abdominal circumference of 36.6 cm. The body is cold. Rigor mortis is fully fixed in the muscles of the jaw and extremities. Fixed pink livor mortis extends over the anterior and posterior surfaces of the body, except in areas exposed to pressure. There is early postmortem change as evidenced by blue-green discoloration over the abdomen.

The scalp hair is blonde, wavy, and approximately 8 cm in length over the crown. The hair growth pattern is normal. The anterior fontanelle is mildly sunken. The irides appear blue. The corneas are translucent. The sclerae and the conjunctivae are clear. No petechial hemorrhages are identified on the sclerae or conjunctivae. The nose is in the midline. A few anterior teeth are present, natural and appropriate for the age of the child. The palate is intact and normal arched. No petechial hemorrhages are on the mucosal surfaces. The ears are unremarkable. No petechial hemorrhages are on the facial skin. The neck organs are in the normal midline and appear unremarkable.

The thorax is well-developed and symmetrical. The skin overlying the intercostal spaces between the ribs is sunken. The abdomen is flat. The external genitalia are those of a normal female infant. The anus is free of lesions.

The upper extremities are well-developed and without absence of digits. The hands have moderately long, dirty, trimmed fingernails. The lower extremities are well-developed and without absence of digits. The spine is normally formed.

**IDENTIFYING MARKS AND SCARS**

No identifying marks, scars or tattoos are readily apparent.

**EVIDENCE OF INJURY**

**I. Blunt Force Injuries, Head:**

Surrounding the nares of the nose is a 2.5 x 1.7 cm dried red abrasion. On the chin at the midline is a 1.2 x 0.7 cm red-black abrasion. On the lower lip involving the mucosal surface is a 2 x 1.6 cm laceration with granulation tissue. On the right forehead is a 0.3 x 0.1 cm red abrasion. On the right eyebrow is a 0.6 x 0.5 cm red abrasion. Lateral to the right eyebrow is a 0.6 x 0.5 cm blue contusion. On the left forehead are two red contusions measuring 1.2 x 0.7 cm and 0.5 x 0.4 cm. On the right parietal scalp are multiple red contusions measuring 2.5 x 0.8 cm, 1.1 x 0.8 cm, 1 x 0.4 cm and 0.6 x 0.6 cm. On the parieto-occipital scalp at the midline is a 4.3 x 3 cm red contusion within which is a 1.1 x 0.9 cm tan-brown contusion. On the posterior left ear is a 0.1 x 0.1 cm red abrasion.

Reflection of the scalp demonstrates right frontal subgaleal hemorrhage (0.6 x 0.5 cm) and left frontal subgaleal hemorrhages (1 x 1 cm, 0.7 x 0.4 cm, 0.6 x 0.3 cm and 0.5 x 0.5 cm).

**II. Blunt Force Injuries, Extremities:**

On the medial aspect of the right elbow is a 3.5 x 1.5 cm yellow-brown contusion. On the dorsum of the right elbow is a 1.2 x 1 cm brown-black contusion. On the dorsum of the right wrist are multiple red abrasions measuring up to 0.1 x 0.1 cm. On the dorsum of the second digit of the right hand is a 0.2 x 0.1 cm red abrasion.

On the palmar surface of the left hand overlying the thenar eminence is a 0.2 x 0.1 cm red abrasion. On the dorsum of the fifth digit of the left hand surrounding the fingernail is a 0.7 x 0.7 cm red abrasion.

On the right buttock is a 0.4 x 0.4 cm red abrasion.

Reflection of the skin overlying the posterior left elbow reveals a 1 x 0.9 cm area of hemorrhage. Longitudinal incisions over the right humerus reveal a displaced fracture with surrounding hemorrhage and purulent exudate. Removal of the left radius shows an area of hemorrhage involving the periosteum and surrounding soft tissue.

**III. Blunt Force Injury, Torso:**

Reflection of the skin over the back reveals a 0.2 x 0.2 cm area of hemorrhage on the right lower back.

17-0463

Re: WYLLOW BREWER

Page 6

### **INTERNAL EXAMINATION**

The body is opened with a routine thoracoabdominal incision. The skeletal muscle has a dark red-brown color and a normal smooth texture.

### **BODY CAVITIES**

No adhesions or abnormal collections of fluid are in the pleural spaces or peritoneal cavity. All body organs are in a normal and anatomic position. The serous surfaces and pericardium are smooth and glistening. The intact diaphragm separates the thoracic and peritoneal cavities. Expected visceral weights and standard deviations for female infants of 6 months of age are cited in brackets following measured weights.

### **CARDIOVASCULAR SYSTEM**

The heart weighs 42 grams [37+/-7 grams]. The shape and size of the heart are not unusual. The pericardial sac is free of significant fluid or adhesions. The pericardial surfaces are smooth and glistening. The coronary arteries arise normally and follow a right dominant distribution. The chambers are nondilated and have the usual size and position relationships. The chambers and valves are proportionate. The valves are normally formed, thin and pliable. The myocardium is dark red-brown, firm, and unremarkable. The atrial and ventricular septa are intact and the septum and free walls are free of muscular bulges. The foramen ovale is closed. The pulmonary artery, aorta and their major branches arise normally and follow the usual course without thrombotic obstruction or coarctation. The ductus arteriosus is closed. The vena cava and its major tributaries are patent and return to the heart in the usual distribution and are unremarkable.

### **RESPIRATORY SYSTEM**

The left and right lungs weigh 87 and 101 grams, respectively [111+/-30 grams, combined]. The upper and lower airways are patent and unobstructed and the mucosal surfaces are smooth and yellow-tan. The pleural surfaces are smooth, glistening, and unremarkable. The pulmonary parenchyma is red-purple and free of consolidation and masses. The cut surfaces of the lungs exude moderate amounts of blood and frothy fluid. The pulmonary arteries are normally developed and unremarkable.

### **HEPATOBIILIARY SYSTEM AND PANCREAS**

The liver weighs 312 grams [242+/-58 grams]. The hepatic capsule is smooth, glistening, and intact, covering a red-brown parenchyma. A thin-walled gallbladder contains approximately 1 ml of bile. The pancreas has a normal size, shape, position, and tan lobulated appearance.

### **GASTROINTESTINAL SYSTEM**

The esophagus courses to the stomach without fistulae and is lined by a gray-white smooth mucosa. The gastroesophageal junction is unremarkable. The gastric mucosa is arranged in the usual rugal folds, and the lumen contains approximately 5 ml of liquid. The pylorus is patent

17-0463

Re: WYLLOW BREWER

Page 7

and without muscular hypertrophy. The small and large bowel are of appropriate caliber and without interruption of luminal continuity. The vermiform appendix is present.

### **GENTOURINARY SYSTEM**

The left and right kidneys weigh 31 and 28 grams, respectively [58+/-20 grams, combined]. The renal capsules are smooth, thin, semitransparent, and strip with ease from the underlying smooth, red-brown, firm, cortical surfaces. The cortices are of normal thickness and delineated from the medullary pyramids. The calyces, pelves, and ureters are non-dilated. The urinary bladder contains scant urine. The bladder mucosa is gray-tan and smooth. The uterus, fallopian tubes, ovaries, and vagina are unremarkable.

### **RETICULOENDOTHELIAL SYSTEM**

The spleen weighs 29 grams [18+/-8 grams] and has a smooth intact capsule covering a red-purple moderately firm parenchyma. Regional lymph nodes are grossly unremarkable. The thymus weighs 16 grams [10+/-6 grams] and is pink-tan, lobulated, symmetrical and without petechial hemorrhages.

### **ENDOCRINE SYSTEM**

The thyroid gland is of normal position, size and texture. The adrenal glands have normal cut surfaces with yellow cortex and brown medulla. The pituitary gland is grossly unremarkable.

### **NECK**

Examination of the soft tissues of the neck, including strap muscles and large vessels, reveals no abnormalities. The hyoid and thyroid cartilage are intact. The laryngeal mucosa is unremarkable. The tongue is normal.

### **HEAD**

The skull is of normal thickness and without fracture. The brain weighs 788 grams [730+/-85 grams]. The dura mater and falx cerebri are intact, and not adherent to the brain. The leptomeninges are thin and transparent. There is no subdural or subarachnoid hemorrhage. The cerebral hemispheres are symmetrical with a normal gyral pattern. The structures at the base of the brain, including cranial nerves and blood vessels, are free of abnormality. Sections through the brain reveal no contusions, hemorrhage or mass lesions within the cerebral hemispheres, brainstem or cerebellum. The cerebral ventricles are of normal caliber. The eyes and optic nerves are examined. The optic nerve sheaths are free of hemorrhage.

### **MUSCULOSKELETAL SYSTEM**

The cervical spinal column is stable on internal palpation.

17-0463

Re: WYLLOW BREWER

Page 8

### **SPECIMENS**

At the time of autopsy, heart blood and two DNA blood cards are procured. An EDTA preserved tube of heart blood is retained. A sexual assault kit is collected.

### **EVIDENCE**

See "Property/Evidence Release Log Form" for evidence transferred to the investigating agency.

### **RADIOGRAPHS**

Total body radiographs demonstrate fractures of the distal right humerus and distal left radius. Dual-energy X-ray absorptiometry imaging shows fractures of the distal left radius with adjacent periosteal reactive bone and a metaphyseal fracture of the medial distal left femur.

### **HISTOLOGY**

#### **MICROSCOPIC EXAMINATION**

Thirty-one glass slides are reviewed by Christopher P. Geffre, M.D., Ph.D., Forensic Pathology Fellow and Cynthia Porterfield, D.O., Forensic Pathologist on 4/3/2017. A review of the iron stain control slide shows stainable iron.

#### **SLIDE INDEX**

Slide #1	Heart, Mandibular frenula
Slide #2	Right lung, Kidneys
Slide #3	Left lung, Liver
Slide #4	Pancreas, Adrenals, Skin
Slide #5	Neck
Slide #6	Spinal cord dura, Right arm musculature
Slide #7	Infected right arm soft tissue and muscle
Slide #8	Left leg soft tissue adjacent to the femur fracture
Slides #9-11	Right eye and optic nerve
Slides #12-14	Left eye and optic nerve
Slide#15	Spinal cord
Slide#16	Vertebrae
Slide#17	Right humerus

#### **MICROSCOPIC DESCRIPTION**

**Cardiovascular System:** Sections of the right ventricle, left ventricle and interventricular septum show well delineated areas of myocytes with pale staining cytoplasm located primarily in the subendothelial area and within the papillary muscles. A focus of chronic inflammation involves the endocardium of the left ventricle.

**Respiratory System:** Sections of the right and left lungs show multiple intravascular



17-0463

Re: WYLLOW BREWER

Page 9

microthrombi and abundant intravascular megakaryocytes and immature blood cells. Scattered intravascular fat cells are noted. Bacterial colonies are noted throughout.

**Kidneys:** Sections of the right and left kidneys show scattered glomeruli with microthrombi and scattered bacterial colonies. No polarizable material is seen.

**Liver:** A section of the liver shows abundant extramedullary hematopoiesis and sinusoidal congestion with immature blood cells. Bacterial colonies are noted.

**Pancreas:** A section of pancreas shows no significant histopathologic abnormalities.

**Adrenals:** Sections of the right and left adrenals show bacterial colonies.

**Neck:** A section of neck shows patchy chronic inflammation within the submucosa of the trachea, intravascular microthrombi and bacterial colonies.

**Spinal Cord Dura:** A section of spinal cord dura shows congested vessels with focal extravasation of red blood cells. Bacteria and microthrombi are within the vasculature.

**Central Nervous System:** Sections of the right eye and optic nerve show no significant histopathologic abnormalities. Review of the iron stain shows no intracellular stainable iron.

Sections of the left eye and optic nerve show no significant histopathologic abnormalities. Review of the iron stain shows no intracellular stainable iron.

Sections of the spinal cord show intravascular microthrombi. Review of the iron stain shows no intracellular stainable iron.

**Musculoskeletal:** A section of the mandibular frenula shows loss of the overlying mucosal layer with abundant underlying granulation tissue composed of a few acute inflammatory cells and abundant chronic inflammatory cells, bacterial colonies, fibroblasts and capillaries. The muscle cells in this area show loss of cell structure. Review of the iron stain shows a few cell with intracellular stainable iron.

Sections of soft tissue of the right arm adjacent to the humerus fracture show hemorrhage, chronic inflammation, interstitial edema, bacterial colonies, enlarged endothelial cells of the small vasculature and necrosis of the muscle fibers. Review of the iron stain shows intracellular stainable iron.

Sections from the displaced fractured right humerus shows hemorrhage, granulation tissue with

17-0463

Re: WYLLOW BREWER

Page 10

acute and chronic inflammation and focal areas of reactive bone.

A section of the left leg adjacent to the femur fracture shows patchy chronic inflammation. Review of the iron stain shows a few cells with intracellular stainable iron.

A section of the vertebral column shows no significant histopathologic abnormalities.

**Skin:** A section of skin shows a blood vessel with a fibrin thrombus.

**TOXICOLOGY**

See separate toxicology report.