



City and County of Denver

OFFICE OF THE MEDICAL EXAMINER
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CONFIDENTIAL

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AUTOPSY REPORT

Name of decedent: MICHAEL MARSHALL ME#: 2015-4067
Date and time of death: NOVEMBER 20, 2015; 1823 HOURS Age: 50 YEARS
Date and time of autopsy: NOVEMBER 21, 2015; 1000 HOURS Sex: MALE

FINDINGS

- I. Complications of positional asphyxia to include aspiration pneumonia:
 - A. History that the decedent was in the custody of law enforcement when he presented with agitation due to acute psychosis and was restrained in a prone position
 1. During restraint he was witnessed to vomit after which bronchospasm/rales were noted
 2. Subsequently became unresponsive and suffered cardiopulmonary arrest
 3. Emesis in airway during resuscitation attempt
 - B. Subsequent prolonged hospitalization in a comatose state:
 1. Clinical diagnoses of anoxic encephalopathy and respiratory failure
 2. Aspiration pneumonia and bacteremia with positive cultures during admission
 3. Autopsy findings of:
 - a. Organizing aspiration pneumonia with patchy hemorrhagic necrosis and fibrinous adhesions
 - b. Pleural effusions (right 300 ml serosanguineous, left 10 ml serous)

II. Blunt force injuries:

- A. Abrasions of the face, chest, back, and extremities
- B. Irregular abraded contusion of the back
- C. Focal contusions and lacerations of the extremities
- D. Abrasions and subcutaneous hemorrhages of the wrists and ankles
- E. Focal subcutaneous hemorrhage of the lower back
- F. Focal intramuscular hemorrhage of the left buttock

III. Hypertensive and atherosclerotic cardiovascular disease:

- A. Cardiac hypertrophy (300 grams) with left ventricular/septal thickening
- B. Coronary artery atherosclerosis, moderate to severe
- C. Aortic atherosclerosis, mild
- D. Renal arteriolonephrosclerosis
- E. Remote basal ganglia lacunar infarcts in setting of diffuse gyral atrophy

IV. Chronic obstructive pulmonary disease/emphysema

TOXICOLOGY Not performed; adequate specimen not available

OPINION

Based on the examination findings and history available to me at this time, it is my opinion that Michael Marshall, a 50-year-old male, died as a result of complications of positional asphyxia to include aspiration pneumonia due to physical restraint by law enforcement due to agitation during acute psychotic episode in the setting of [REDACTED]. It is also my opinion that hypertensive and atherosclerotic cardiovascular disease and chronic obstructive pulmonary disease/emphysema contributed to his death. Investigation reveals that the decedent vomited during a state of agitation and while being restrained in a prone position. During the episode he suffered cardiopulmonary arrest, and he subsequently developed pneumonia with bacteremia suggestive of aspiration. Findings at autopsy confirm presence of aspiration pneumonia with evidence of organization in a background of emphysematous changes. Given that the decedent collapsed unresponsive and suffered cardiopulmonary arrest during an event which involved the actions of another individual(s), the manner of death is homicide.

Meredith A. Frank M.D. 1/7/2016
Meredith A. Frank, M.D.
Forensic Pathologist
City and County of Denver

REVIEW OF CIRCUMSTANCES OF DEATH: The decedent has history of [REDACTED] and polysubstance abuse. He was in the custody of law enforcement when he presented with aggressive behavior towards another inmate. He was separated from the other inmates and presented with worsening agitation. He reportedly was not responding to verbal commands and attempted to exit a doorway to a restricted hallway. His behavior became combative; officers placed him in a prone position on the floor. He was held in this position for several minutes, during which he vomited. He continued to resist. Wrist and ankle restraints and a spit mask were placed. Medical personnel noted presence of bronchospasm/rales. He continued to resist with combative and aggressive behavior, then found to be unresponsive and in cardiopulmonary arrest. 911 was called and resuscitative measures were performed. Copious emesis was noted in the airway requiring suction. He was transported by ambulance to a nearby medical center where he was diagnosed with diffuse anoxic brain injury, respiratory failure, acidosis, mild rhabdomyolysis, hypertension, and pneumonia. Blood and respiratory cultures were positive, consistent with aspiration. Admission urine toxicology screen was negative. After several days in the ICU his prognosis remained poor; after discussion with family, he was transitioned to comfort care. Death was pronounced soon after extubation, 9 days after admission.

IDENTIFICATION: Fingerprints and digital photographs are obtained at the time of examination. Identification is obtained by visual means per family at the hospital and confirmed by fingerprint comparison.

EXTERNAL EXAMINATION

GENERAL DESCRIPTION: A postmortem examination on the body of Michael Marshall is performed at the Denver Office of the Medical Examiner commencing on November 21, 2015 at 1000 hours, with Ms. B. Criter assisting. Also present at the time of autopsy are Dets. J. Castro (Denver Police Department) and L. Munoz and S. McGlawn (Denver Crime Lab).

The body is received in an unsealed body bag. When first viewed, the hands are not bagged. Postmortem radiographs are not obtained. A yellow band with barcodes and white identification band with "KKTANGO THIRTY 3793856" are on the left wrist. A white identification band with "MARSHALL, MICHAEL 3793856 11/11/15," a red band inscribed "NKDA," and a purple band inscribed "DNR/DNI" are on the right wrist. A white band inscribed with the decedent's name is on the left ankle. The body is received nude. Personal effects are absent.

The body is that of a normally developed adult male which appears consistent with the recorded age of 50 years. The body is 64 inches in length and weighs 112 pounds. The body is cool to palpation, subsequent to refrigeration. Rigor mortis is slight. Postmortem lividity is posterior, light purple, and fixed.

The hairline shows mild receding on the frontal scalp. The scalp is without palpable lesions or notable irregularities. The scalp hair is curly, black-grey, and approximately 1/4 inch in length. The facial hair is short, black-grey, and in a full beard distribution; there are patchy pock-like scars on the cheeks. The irides appear light brown, and there are no petechiae of the bulbar or palpebral surfaces of the conjunctivae. The sclerae are off-white and the corneas are clear. The nasal septum and facial skeleton are intact to palpation. The forehead and face show evidence of injury as described below. The ears, nose, and lips are normally formed. The mouth contains natural dentition, which is in good condition. The oral mucosa shows focal evidence of injury as described below. The frenula are intact; petechiae are absent. The neck is without palpable masses or unusual mobility; a film of adhesive residue and mild light brown encrustation lines the nape of the posterior neck. The chest and breasts are symmetric and without palpable lesions; there is focal evidence of injury as described below. The abdomen is flat and soft, and has focal evidence of injury and treatment as described below. The back is normally formed and with evidence of injury as described below. The top of the left shoulder has 2 1/2 x 1 1/2 inch, patchy brown hyperpigmentation. The extremities are normally developed, symmetric, and with evidence of injury as described below. Edema is absent. The fingernails are short. The tip of the right thumb has an up to 3/16-inch dried callus with fissure. The toenails are markedly thickened and darkened; the heels and plantar surfaces of the feet are callused. The penis is circumcised and two testes are palpable within the scrotal sac. The external genitalia, perineum, and anus are unremarkable.

IDENTIFYING MARKS AND SCARS: The right lower forehead has a 1/4-inch horizontal linear scar. The medial left eyebrow has a 5/8-inch vertical linear scar. The lateral left arm has a 1/2 x 1/4-inch ovoid scar. Several small irregular scars and a 2 3/4-inch oblique linear scar are on the right lower back to the right of midline. An approximately 1/2-inch brown birthmark is on the right lower back. The anterolateral right thigh and anterior legs have irregular dark brown scars/hyperpigmentation. The right knee has tiny, irregular hypopigmented scars.

EVIDENCE OF TREATMENT: An intravascular catheter is taped in the right neck, with surrounding tiny, crusted, brown puncture marks and a red, slightly hemorrhagic puncture mark. The lower abdomen has numerous, tiny purple puncture marks. The anterior right arm has 2 crusted brown puncture marks. An intravascular catheter is in the right antecubital fossa. The left antecubital fossa has several apparent dried, brown puncture marks.

EVIDENCE OF INJURY:

BLUNT FORCE INJURIES

Head/Neck: Irregular crusted brown abrasions are on the right temporoparietal scalp (1/4 x 1/8-inch), midline frontal scalp (3 1/4 x 1/2-inch area which contains several, up to 3/8-inch abrasions), lower mid-forehead (3/8 x 5/16-inch), lower right forehead (3/4 x 1/2-inch area which contains several tiny abrasions), lower left forehead (1/4 x 3/8-inch), and the lateral right temporal scalp (1/2 x 1/4-inch area at the hairline which contains several tiny abrasions). The right lower lip has a tiny brown abrasion. The inner mucosa of the upper lip, just to the left of midline, contains a tiny minimally hemorrhagic and superficial laceration. Internally, there are no injuries of the head and neck.

Trunk: The upper left chest has a 5/8 x 1/4-inch, crusted brown abrasion. The lateral left abdomen has a 1 x 1/16-inch, interrupted, linear, crusted brown abrasion. The upper left back has a 1 3/4 x 3/4-inch, somewhat rectangular, purple-brown, focally abraded contusion. The lower back has a 2 3/4 x 1 1/4-inch, crusted brown abrasion, which is 26 inches below the top of the head and on the posterior midline. The upper left buttock has a 2 1/4 x 1 3/4-inch area which contains several irregular, up to 3/8-inch, crusted brown abrasions with focal scarring. The upper right buttock has a 1 3/4 x 1/4-inch area, which contains parallel, interrupted and a few haphazard, crusted linear abrasions which range from 3/8 to 1 1/2 inches in greatest dimension. Internally, there is mild hemorrhage of the lower anterior chest wall. A layered dissection of the soft tissues of the posterior neck, back, and buttocks reveal focal purple hemorrhage in the superficial connective tissue over the sacrum and within the superficial left buttock musculature.

Extremities:

Upper Extremities - The anterior right arm has a 1/2-inch, vertical, linear, crusted brown abrasion. The right wrist has parallel and linear, dried and crusted, circumferential, brown and pink-grey

abrasions which are up to 1 1/2 inches wide, and which are centered 9 3/4 inches from the tip of the right middle finger dorsally and 8 inches proximal to the tip of the right middle finger ventrally. The distal and ventrolateral aspect of the right wrist has a few grouped, up to 1/8-inch, thin, crusted, brown abrasions. The dorsal right hand has a 3 x 2 3/4-inch, dark brown, possible contusion with focal, crusted brown abrasion. The dorsal right fourth finger over the distal interphalangeal joint has a 1/4-inch, dried, nonhemorrhagic, superficial laceration. The anterior left shoulder has a 1/2 x 1/8-inch, crusted brown abrasion. The posterior left shoulder has a 1/2 x 1/2-inch, irregular, crusted brown abrasion. The anterior left arm has a 1/4 x 1/4-inch, irregular, crusted brown abrasion. The lateral left forearm has a 2 x 1/2-inch area, which contains patchy purple contusion with tiny brown abrasions which range 1/8 to 1/4 inch in greatest dimension. The posterior midline of the left wrist has an up to 3/4-inch, slightly curvilinear abrasion, which arises 6 inches proximal to the tip of the left middle finger. The dorsolateral aspect of the left wrist has a 3/4 x 1/4-inch, irregular, dried brown abrasion. The medial aspect of the wrist has a 5/16 x 3/16-inch, irregular, crusted brown abrasion. The dorsal left hand over the second knuckle has a 1 1/2 x 1/2-inch area which contains numerous grouped, tiny, crusted, dried brown abrasions. The dorsolateral and proximal aspect of the left hand has two oblique linear abrasions which are 1/4 to 1/2 inch in greatest dimension. The base of the left thumb has a 3/8 x 1/4-inch, irregular, crusted brown abrasion. Incision of the wrists reveals patchy, red hemorrhage within the subcutaneous tissues.

Lower Extremities - The posterior right leg has a 1/2 x 1/4-inch area which contains several small, irregular, crusted brown abrasions. The ankles have oblique, brown, crusted, somewhat parallel abrasions which are up to 3 1/4 x 3/4 inch, located between 5 inches and 5 3/4 inches above the bottom of the right heel and between 4 3/4 inches and 5 1/2 inches above the bottom of the left heel. The lateral right ankle has a 5/16 x 1/4-inch, crusted brown abrasion. The dorsal right foot has an approximately 1/2 x 1/4-inch, faint brown discoloration suggestive of contusion, with tiny crusted brown abrasion. The posterior aspect of the distal right leg has a 1 1/4 x 1-inch, curvilinear brown abrasion. The medial left ankle has a 1 1/4 x 1 inch, irregular, crusted brown abrasion. Incision of the ankles reveals focal light purple subcutaneous hemorrhage.

These injuries, having once been described, will not be repeated.

INTERNAL EXAMINATION

BODY CAVITIES: The thoracic and abdominal organs appear normally developed, and retain their normal anatomic positions. The right pleural cavity contains fibrinous, hemorrhagic adhesions and approximately 300 ml of serosanguineous fluid. The left pleural cavity contains approximately 10 ml of clear, straw-colored fluid. Further adhesions or abnormal collections of fluid are absent.

HEAD: The scalp, subgaleal tissues, and skull are unremarkable. The dura and dural sinuses are unremarkable externally and upon sectioning. There are no epidural, subdural, or subarachnoid hemorrhages. The leptomeninges are moderately congested, thin, and delicate. The cranial nerves and blood vessels on the base of the brain are unremarkable. The brain weighs 1160 grams. The cerebral hemispheres have moderate, diffuse and symmetric gyral atrophy. Sections through the cerebral hemispheres reveal diffuse congestion with a few scattered petechial hemorrhages within the caudate nuclei bilaterally. There is indistinct softening and dusky discoloration and loss of demarcation of the cortical ribbon and deep grey-white matter junctions. Further focal lesions are absent; the corpus callosum is intact. Herniation is absent. Sections of the cerebellum and brainstem are unremarkable. The lateral ventricles are symmetric and normally formed, and contain no blood. The upper portion of the cervical spinal cord, as viewed from the cranial cavity, is unremarkable.

NECK: The neck organs are removed *en bloc* with the tongue. The tongue is unremarkable externally and upon sectioning. The soft tissue and strap muscles of the anterior neck are unremarkable. The lumen of the larynx is not obstructed. The epiglottis and laryngeal mucosa are pale pink, smooth, and unremarkable. Petechiae are absent. The hyoid bone and laryngeal cartilages are intact. The prevertebral fascia is unremarkable. The cervical spine is intact and appropriately aligned to palpation.

CARDIOVASCULAR SYSTEM: The heart weighs 300 grams. The pericardium is smooth and unremarkable. The epicardial surfaces are smooth and contain a mild amount of fat. The coronary arterial system displays a right-dominant distribution, and on sectioning there is significant yellow-pink, firm intramural atherosclerotic plaque within the epicardial arteries, with associated stenoses of up to 75-80% of the right coronary artery and left circumflex coronary artery, and up to 60% stenosis of the left anterior descending coronary artery. The coronary ostia are unremarkable. The endocardium is intact and free

of mural thrombi. The foramen ovale is sealed. The cardiac valves are normally formed and mild thickening of the aortic valve is noted; the papillary muscles and chordae are intact. The atrial and ventricular septae have no notable abnormalities. Serial sections reveal a firm, red-brown myocardium without focal gross abnormalities. There is concentric thickening of the left ventricle, with increased thickness of the left ventricular free wall at 1.6 cm, interventricular septum 1.7 cm, and right ventricular free wall 0.5 cm. The aorta and its major branches, and the great veins are normally distributed and unremarkable. Thromboemboli are absent. The intimal surface of the abdominal aorta has mild atherosclerosis.

RESPIRATORY SYSTEM: The right lung weighs 875 grams. The left lung weighs 800 grams. The pleural surfaces of the right lung are slightly irregular with adhesions. Both lungs exhibit diffuse cobblestone change and blebbing on the upper lobes. Patchy, moderate grey-black anthracotic discoloration is present. The major bronchi and hilar vessels are unremarkable. Thromboemboli are absent. Sections of the right lower lobe drain a profuse, frothy, brown-green fluid and both lungs have patchy red friable consolidation. The remainder of the lung parenchyma is purple-grey, with marked congestion and edema and mild collapse of the cut surfaces. Further focal lesions are absent.

HEPATOBIILIARY SYSTEM: The liver weighs 1750 grams. The liver capsule is smooth and intact. The parenchyma is dark red-brown and with minimal congestion. The gallbladder has an unremarkable wall and mucosa, and the fundus contains approximately 40 ml of dark green bile, with no calculi.

ENDOCRINE SYSTEM: The pituitary, thyroid, and adrenal glands are unremarkable. Upon sectioning, the pancreas is tan and firm, and without focal lesion.

LYMPHORETICULAR SYSTEM: The spleen weighs 80 grams. The spleen is covered by a smooth, grey, intact capsule. Upon sectioning, the parenchyma is dark red-purple and firm. The cervical, hilar, and peritoneal lymph nodes are not enlarged.

GASTROINTESTINAL SYSTEM: The esophageal mucosa is gray, smooth, and unremarkable. The stomach contains a scant amount of light yellow, thick mucus. There are no distinct tablets or capsules. The gastric mucosa contains a normal rugal architecture, and there are no ulcers within the gastric or proximal duodenal mucosa. The small and large

intestines are unremarkable externally. The appendix is present and unremarkable.

GENITOURINARY SYSTEM: The right kidney weighs 160 grams. The left kidney weighs 180 grams. The capsules strip with ease to reveal mildly granular and slightly lobulated cortical surfaces. On sectioning, the cortices are of normal thickness, and there is fair demarcation of the corticomedullary junctions. The papillae are intact, and the calyces, pelves, and ureters are unremarkable. The urinary bladder contains 10 ml of clear, yellow urine. The bladder mucosa has a few, tiny punctate hemorrhages along the posterior wall, consistent with catheter placement; further focal lesions are absent. The prostate gland is unremarkable, both externally and upon sectioning. Incision of the testes reveals a friable, tan parenchyma without focal lesions.

MUSCULOSKELETAL SYSTEM: See Evidence of Injury. The clavicles, ribs, sternum, and pelvis have no palpable fractures or abnormalities. The anterior surface of the thoracic and lumbar spine has moderate palpable lipping; fractures are absent. The diaphragm is normally formed and intact.

SPECIMENS RETAINED

EVIDENCE: Two DNA standard cards (blood) are retained.

SAMPLES: Samples of postmortem peripheral (leg) blood, vitreous humor, and urine are retained. Antemortem serum/plasma labeled with the decedent's name and medical record number, which are dated 11/20/2015 "0321" and "1215" are retained.

FROZEN SAMPLES: Samples of brain, heart, liver, and kidney are retained.

STOCK: Samples of organs examined are retained in formalin.

HISTOLOGY: Paraffin blocks are submitted (H&E):

1. Heart (left ventricle), right coronary artery, right lung
2. Heart (interventricular septum), left anterior descending coronary artery, left lung
3. Heart (right ventricle), left circumflex coronary artery, liver, kidney, brain (basal ganglia/periventricular white matter)
4. Right wrist
5. Right ankle; soft tissue/fascia of right buttock

6. Left wrist
7. Left ankle; soft tissue/fascia of left buttock

MICROSCOPIC EXAMINATION

HEART: patchy mild to moderate myocyte hypertrophy and moderate diffuse interstitial fibrosis; a section of right and left circumflex coronary arteries reveals mature, fibrous atheroma with focal mineralization; a tangential cut section of left anterior descending coronary artery reveals no significant histopathologic abnormality

LUNGS: bilateral early organizing pneumonia with widespread mixed inflammation containing neutrophils, pigmented/foamy macrophages, and lymphomonocytes; foreign body (apparent vegetable) material in section of right lung; patchy hemorrhagic necrosis; expansion of alveoli with interstitial fibrosis and clubbing of the septae; mild thickening of the pulmonary arterioles

LIVER: no significant histopathologic abnormality

KIDNEY: marked thickening of the arterioles; occasional distal tubules with atrophic flattening of the epithelium and pigmented intraluminal collections

BRAIN: periventricular grey matter with gliovascular proliferations and rarefaction of the neuropil within deep grey matter; rare intraparenchymal petechiae

SKIN, WRISTS: focal epidermal necrosis/crusting and widespread dermal fibrosis; intradermal and subcutaneous hemorrhage with minimal reaction (scant fibrin collection and occasional perivascular chronic inflammation)

SKIN, ANKLES: subcutaneous hemorrhage; mild erythrocytolysis present; significant inflammation absent

MUSCLE/CONNECTIVE TISSUE, BUTTOCKS: hemorrhage within skeletal muscle and adipose; mild erythrocytolysis present; significant inflammation absent

-END OF REPORT-