



ARMED FORCES INSTITUTE OF PATHOLOGY
Office of the Armed Forces Medical Examiner
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FINAL AUTOPSY REPORT

Name: (b)(6)-4
Alternate spellings: (b)(6)-4
Date of Birth: unknown
Date of Death: 5 April 2004
Date of Autopsy: 26 April 2004
Date of Report: 22 November 2004

Autopsy No.: ME 04-309
AFIP No.: 2924040
Rank: Civilian, Iraqi National
Place of Death: Mosul, Iraq
Place of Autopsy: Mosul, Iraq

Circumstances of Death: This approximately 27 year-old male civilian, presumed Iraqi national, died in US custody approximately 72 hours after being apprehended. By report, physical force was required during his initial apprehension during a raid. During his confinement, he was hooded, sleep deprived, and subjected to hot and cold environmental conditions, including the use of cold water on his body and hood.

Authorization for Autopsy: Office of the Armed Forces Medical Examiner, IAW 10 USC 1471

Identification: Visual, per detention facility records; postmortem fingerprints and DNA profile obtained

CAUSE OF DEATH: Undetermined

MANNER OF DEATH: Undetermined

FINAL AUTOPSY DIAGNOSES:

- I. Evidence of restraint
 - a. White plastic "Flexcuffs" around each wrist
 - b. Abrasions and contusions around wrists

- II. Evidence of injury
 - a. Minor abrasions and contusions of extremities
 - b. Laceration above right eyebrow, 1 cm
 - c. Contusion of right side of neck
 - d. Minor abrasions of left side of forehead
 - e. Subgaleal hemorrhage of bilateral frontal regions of scalp
 - f. Intramuscular hemorrhage of anterior aspect of right shoulder
 - g. No internal evidence of trauma

- III. No evidence of significant natural disease within the limitations of the examination
 - a. Cardiovascular System: No specific pathologic changes (AFIP Cardiovascular Pathology consultation)
 - i. Heart weight, 450 gm
 - ii. Histologically, left ventricular myocyte hypertrophy with focal mild subendocardial interstitial fibrosis
 - iii. Contraction band necrosis, anterior right ventricle
 - iv. Mildly thickened intramural coronary arteries
 - v. Mild medial thickening of the sinus nodal artery
 - vi. Focal mild dysplasia of penetrating branches of the AV nodal artery without increased fibrosis in the crest of the ventricular septum
 - b. Neuropathology System: (AFIP Neuropathology Consultation)
 - i. Cerebral edema, brain 1400 gm
 - ii. Early acute neuronal injury
 - c. Liver (AFIP Hepatic Pathology Consultation)
 - i. Microvesicular steatosis, etiology undetermined
 - ii. Marked congestion, likely agonal
 - d. Pulmonary edema; right lung 700 gm, left lung 900 gm

- IV. Early to moderate decomposition
 - a. Green discoloration of abdomen
 - b. Focal skin slippage

- V. Evidence of medical intervention
 - a. Endotracheal tube in place
 - b. Intravenous catheter in the left antecubital fossa
 - c. Intravenous catheter in the right inguinal region
 - d. Three adhesive EKG tabs on anterior torso
 - e. Pulse oximeter on left index finger

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- f. Curvilinear abrasion on upper chest, consistent with defibrillation
 - g. Fractures of anterior aspect of left 3rd rib and right 2nd-4th and 6th ribs, consistent with CPR efforts
- VI. Toxicology (AFIP)
- a. Volatiles: Mixed volatiles consistent with postmortem production; mg/dL
 - i. Blood: acetone 20, 2-propanol 7
 - ii. Urine: acetone 67, 2-propanol 3
 - b. Drugs: Consistent with resuscitation efforts
 - i. Lidocaine detected in the urine
 - ii. Urine negative for other screened medications and drugs of abuse

EXTERNAL EXAMINATION

The body is that of an unclad well-developed, well-nourished male. The body weighs approximately 190 pounds, is 72" in height and appears compatible with the reported age of 27 years. The body temperature is cold, that of the refrigeration unit. Rigor has dissipated, and the body is flaccid. Lividity is present and fixed on the posterior surface of the body, except in areas exposed to pressure.

There is early to moderate decomposition consisting of focal skin slippage of the arms, green discoloration of the abdomen, and early corneal clouding.

The scalp is covered with dark brown hair averaging 7 cm in length. Facial hair consists of a dark mustache and dark facial stubble. The irides are brown, and the corneae are slightly cloudy. The sclerae and conjunctivae are pale and free of petechiae. The earlobes are not pierced. The external auditory canals, external nares and oral cavity are free of foreign material and abnormal secretions. The nasal skeleton is palpably intact. The lips are without evident injury. The teeth are natural and in good condition.

The neck is straight and the trachea is midline and mobile. The chest is symmetric and well developed. No injury of the ribs or sternum is evident externally. The abdomen is flat and soft. Healed surgical scars are not noted. The extremities are well developed with normal range of motion. The fingernails are intact. Tattoos are not noted, and needle tracks are not observed. The external genitalia are those of a normal adult circumcised male. The testes are descended and free of masses. The pubic hair is shaved but is present in a normal distribution. The buttocks and anus are unremarkable.

A tag with the name of the decedent is secured to the right first toe.

EVIDENCE OF THERAPY

There is an endotracheal tube in place, and there are three adhesive EKG tabs on the body, two on the upper chest and one on the lower left side of the abdomen. There is an intravenous catheter in the left antecubital fossa, and there is an intravenous catheter in the right inguinal region. There is a 12 x 6 cm oval curvilinear abrasion on the upper right side of the chest, consistent with defibrillation attempts. There is a pulse oximeter taped over the end of the left index finger. There are fractures of the anterior aspect of the right 3rd rib and left 2nd-4th and 6th ribs, consistent with CPR efforts.

EVIDENCE OF INJURY

The ordering of the following injuries is for descriptive purposes only and is not intended to imply order of infliction or relative severity. All wound pathways are given relative to standard anatomic position.

There is bilateral periorbital ecchymosis, more pronounced over the lower lids and slightly more prominent on the left side. On the left side of the forehead, there are two

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diagonally oriented parallel, linear abrasions. The medial one measures 4 x 0.2 cm and the lateral one is 3 x 0.1 cm. There are multiple small, ill-defined areas of excoriation and superficial abrasion over the central forehead and bridge of the nose. There is a 1 cm laceration just above the lateral aspect of the right eyebrow. There is a 6 x 6 cm red brown contusion on the right lateral aspect of the neck, just below the angle of the mandible.

Upon reflecting the scalp, there is bilateral frontal subgaleal scalp hemorrhage. The most prominent area is 3 x 2 cm, surrounding the laceration near the left eyebrow.

There is an 8 x 1 cm faint abrasion of the anterior aspect of the right shoulder, and there is a faint 3 x 3 cm red contusion of the anterior aspect of the left shoulder. There is a 9 x 0.2 cm curved linear abrasion just to the left of the umbilicus. There is a 1 x 0.3 cm abrasion of the lower left aspect of the abdomen.

Upon opening the chest, there is intramuscular hemorrhage of the anterior aspect of the right shoulder.

There is a 12 x 8 cm area of contusion and faint abrasion on the anterior lateral aspect of the right upper arm. There is a 6 x 2 cm red contusion on the anterior medial aspect of the right upper arm. There are three ill-defined bands of erythema and red contusion over the back of the left wrist, 7 x 3 cm in aggregate.

INTERNAL EXAMINATION

BODY CAVITIES:

The body is opened by the usual thoraco-abdominal incision and the chest plate is removed. No adhesions are present in any of the body cavities. There is 100 ml of serosanguinous fluid in each pleural space. There is no significant pericardial or peritoneal fluid. All body organs are present in the normal anatomical position. The vertebral bodies are visibly and palpably intact. The subcutaneous fat layer of the abdominal wall is 2 cm thick. There is no internal evidence of blunt force or penetrating injury to the abdominal region.

HEAD: (CENTRAL NERVOUS SYSTEM)

The scalp is reflected, and no skull fractures are found. The calvarium of the skull is removed. The dura mater and falx cerebri are intact. There is no epidural or subdural hemorrhage present. The leptomeninges are thin and delicate. The cerebrospinal fluid is clear. The cerebral hemispheres are symmetrical. The structures at the base of the brain, including cranial nerves and blood vessels, are intact. Coronal sections through the cerebral hemispheres revealed no lesions, and there is no evidence of infection, tumor, or trauma. The ventricles are of normal size. Transverse sections through the brain stem and cerebellum are unremarkable. The dura is stripped from the basilar skull, and no fractures are found. The atlanto-occipital joint is stable. The brain weighs 1400 grams.

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NECK:

Examination of the soft tissues of the neck, including strap muscles, thyroid gland and large vessels, reveals no abnormalities. The anterior strap muscles of the neck are homogeneous and red-brown, without hemorrhage. The thyroid cartilage and hyoid bone are intact. The larynx is lined by intact white mucosa and is unobstructed. The thyroid gland is symmetric and red-brown, without cystic or nodular change. There is no evidence of infection, tumor, or trauma, and the airway is patent. Incision and dissection of the posterior neck demonstrates no deep paracervical muscular injury, hemorrhage, or fractures of the dorsal spinous processes.

CARDIOVASCULAR SYSTEM:

The pericardial surfaces are smooth, glistening and unremarkable; the pericardial sac is free of significant fluid and adhesions. A moderate amount of epicardial fat is present. The coronary arteries arise normally, follow the usual distribution and are widely patent, without evidence of significant atherosclerosis or thrombosis. The chambers and valves exhibit the usual size-position relationship and are unremarkable. The myocardium is dark red-brown, firm and unremarkable; the atrial and ventricular septa are intact. The left ventricle is 1.3 cm in thickness and the right ventricle is 0.4 cm in thickness. The aorta and its major branches arise normally, follow the usual course and are widely patent, free of significant atherosclerosis and other abnormality. The venae cavae and their major tributaries return to the heart in the usual distribution and are free of thrombi. The heart weighs 450 grams. See "Cardiovascular Pathology Report" below.

RESPIRATORY SYSTEM:

The upper airway is clear of debris and foreign material; the mucosal surfaces are smooth, yellow-tan and unremarkable. The pleural surfaces are smooth, glistening and unremarkable bilaterally. The pulmonary parenchyma is red-purple, exuding moderate amounts of bloody fluid; no focal lesions are noted. The pulmonary arteries are normally developed, patent and without thrombus or embolus. The right lung weighs 700 grams; the left 900 grams.

LIVER & BILIARY SYSTEM:

The hepatic capsule is smooth, glistening and intact, covering dark red-brown, moderately congested parenchyma with no focal lesions noted. The gallbladder contains 10 ml of green-brown, mucoid bile; the mucosa is velvety and unremarkable. The extrahepatic biliary tree is patent, without evidence of calculi. The liver weighs 1450 grams.

ALIMENTARY TRACT:

The tongue is free of bite marks, hemorrhage, or other injuries. The esophagus is lined by gray-white, smooth mucosa. The gastric mucosa is arranged in the usual rugal folds and the lumen is essentially empty with only a film of mucus. The small and large bowel are unremarkable. The pancreas has a normal pink-tan lobulated appearance and the ducts are clear. The appendix is present and is unremarkable.

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GENITOURINARY SYSTEM:

The renal capsules are smooth and thin, semi-transparent and strip with ease from the underlying smooth, red-brown cortical surfaces. The cortices are sharply delineated from the medullary pyramids, which are red-purple to tan and unremarkable. The calyces, pelvis and ureters are unremarkable. White bladder mucosa overlies an intact bladder wall. The urinary bladder contains 200 ml of clear, yellow urine. The prostate gland is normal in size, with lobular, yellow-tan parenchyma. The seminal vesicles are unremarkable. The testes are free of mass lesions, contusions, or other abnormalities. The right kidney weighs 150 grams; the left 160 grams.

RETICULOENDOTHELIAL SYSTEM:

The spleen has a smooth, intact capsule covering red-purple, moderately firm parenchyma; the lymphoid follicles are unremarkable. The regional lymph nodes appear normal. The spleen weighs 160 grams.

ENDOCRINE SYSTEM:

The pituitary, thyroid and adrenal glands are unremarkable.

MUSCULOSKELETAL SYSTEM:

Muscle development is normal. No bone or joint abnormalities are noted.

MICROSCOPIC EXAMINATION

HEART: See "Cardiovascular Pathology Report" below.

LUNGS: The alveolar spaces and small air passages are expanded and contain no significant inflammatory component or edema fluid. The alveolar walls are thin and slightly congested. The arterial and venous vascular systems are normal. The peribronchial lymphatics are unremarkable.

LIVER: The hepatic architecture is intact. The portal areas show no increased inflammatory component or fibrous tissue. The hepatic parenchymal cells are well-preserved with no evidence of cholestasis or sinusoidal abnormalities. See "Hepatic Pathology Report" below.

SPLEEN: The capsule and white pulp are unremarkable. There is minimal congestion of the red pulp.

TESTES: Unremarkable.

THYROID GLAND: Unremarkable.

ADRENALS: The cortical zones are distinctive, and the medullae are not remarkable.

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KIDNEYS: There is moderate autolysis. The subcapsular zones are unremarkable, and the glomeruli are mildly congested without cellular proliferation, mesangial prominence, or sclerosis. There is no interstitial fibrosis or significant inflammation. There is no thickening of the walls of the arterioles or small arterial channels.

BRAIN: See "Neuropathology Report" below.

CARDIOVASCULAR PATHOLOGY REPORT

Department of Cardiovascular Pathology, AFIP:

"AFIP DIAGNOSIS: ME-04-309 No specific pathologic changes

History: Arab male detainee, death in custody

Heart: 450 grams; normal epicardial fat; closed foramen ovale; normal cardiac chamber dimensions: left ventricular cavity diameter 30 mm, left ventricular free wall thickness 13 mm, ventricular septum thickness 15 mm; right ventricular dilatation: right ventricle thickness 4 mm, without gross scars or abnormal fat infiltrates; grossly normal valves and endocardium; no gross myocardial fibrosis or necrosis; histologic sections show left ventricular myocyte hypertrophy with focal mild subendocardial interstitial fibrosis; contraction band necrosis, anterior right ventricle; mildly thickened intramural coronary arteries

Coronary arteries: Normal ostia; right dominance; no gross atherosclerosis

Conduction system: The sinoatrial node is histologically unremarkable, but there is mild medial thickening of the sinus nodal artery. The compact atrioventricular (AV) node shows mild fragmentation (Mahaim fibers) within the central fibrous body, but is otherwise unremarkable. The penetrating bundle is centrally located without inflammation, increased fat, vascularity or proteoglycan. The proximal bundle branches are intact and unremarkable. There is focal mild dysplasia of penetrating branches of the AV nodal artery, but no significantly increased fibrosis in the crest of the ventricular septum.

Comment: The heart weight of 450 grams may reflect some degree of left ventricular hypertrophy, depending on the subject's body weight."

NEUROPATHOLOGY REPORT

Department of Neuropathology and Ophthalmic Pathology, AFIP:

"Neuropathology consult (2924040-01; ME04-309): We reviewed the five H&E stained microscopic sections submitted in reference to this case.

Microscopic sections demonstrate multiple sections of grey and white matter, cerebellum and spinal cord/medulla. Sections show widened pericellular and perivascular spaces and

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scattered neurons with cytoplasmic eosinophilia and shrunken, pyknotic nuclei, most prominent in the dentate nucleus and cerebellum. These morphologic features represent cerebral edema and early acute neuronal injury.

This material was reviewed in conference by the staff of the Department of Neuropathology and Ophthalmic Pathology.”

HEPATIC PATHOLOGY REPORT

Division of Hepatic Pathology, AFIP:

“Liver: (1) Microvesicular steatosis, etiology undetermined
(2) Marked congestion

Some toxins can cause microvesicular fat, usually associated with profound metabolic disturbances, but it can also be stress-related. There is no way to distinguish between these by histology alone. The congestion is presumably agonal. There is some lipofuscin pigment in centrilobular hepatocytes, but no bile stasis. The Masson stain shows no fibrosis to suggest underlying chronic liver disease. The PASD and iron stains show no lipofuscin or hemosiderin laden macrophages to suggest hepatocellular necrosis.”

ADDITIONAL PROCEDURES

- Documentary photographs are taken by OAFME photographers
- Specimens retained for toxicologic testing and/or DNA identification are: vitreous fluid, heart blood, urine, bile, spleen, liver, lung, brain, kidney, and psoas muscle
- The dissected organs are forwarded with the body

OPINION

Based on available investigation and complete autopsy examination, no definitive cause of death for this approximately 27 year-old male Iraqi civilian in US custody in Iraq could be determined. There is evidence of multiple minor injuries; however, there is no definitive evidence of any trauma significant enough to explain the death. The injuries include bilateral periorbital ecchymoses ("blackeyes"); abrasions and contusions of the face, torso, and extremities; contusion of the side of the neck; and subgaleal hemorrhage of the scalp.

There is evidence of restraint, consisting of "flexicuffs" around the wrists with associated minor contusions, and asphyxia from various means cannot be completely excluded in a restrained individual.

There are non-specific cardiac findings, including mild medial thickening of the sinus nodal artery and focal mild dysplasia of the penetrating branches of the atrioventricular nodal artery. However, there is no associated increased septal fibrosis, which can be a potential substrate for cardiac arrhythmia. There is no gross evidence of atherosclerosis of the coronary arteries. A cardiac arrhythmia related to various ion channelopathies or coronary vasospasm cannot be excluded.

The decedent was also subjected to cold and wet conditions, and hypothermia may have contributed to his death.

Therefore, the cause of death is best classified as undetermined, and the manner of death is undetermined.