



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

Name: [b)(6)-4]	Autopsy No.: ME04-435
National Detainee Reporting System: [b)(6)-4]	AFIP No.: 2931952
Date of Birth: 7 January 1952	Rank: Iraqi civilian
Date of Death: 10 June 2004	Place of Death: Abu Ghraib, Iraq
Date of Autopsy: 19 June 2004	Place of Autopsy: Baghdad, Iraq
Date of Report: 22 September 2004	

Circumstances of Death: This 52 year-old male Iraqi civilian collapsed while speaking to other detainees while in US custody at the Baghdad Central Confinement Facility in Abu Ghryeb, Iraq, and resuscitative efforts were unsuccessful.

Authorization for Autopsy: The Armed Forces Medical Examiner, IAW 10 USC 1471.

Identification: Visual and documentation accompanying the body; fingerprints and DNA sample obtained

CAUSE OF DEATH: Atherosclerotic Cardiovascular Disease

MANNER OF DEATH: Natural

FINAL AUTOPSY DIAGNOSES:

- I. Atherosclerotic Cardiovascular Disease
 - a. Severe coronary atherosclerosis with calcification
 - i. Left main coronary artery, 50% luminal narrowing by fibrocalcific plaque
 - ii. Total occlusion of proximal left anterior descending artery (LAD) with healed plaque rupture and organized thrombus; 75% narrowing of mid LAD by fibroatheroma; 65% narrowing of distal LAD by fibrocalcific plaque; total occlusion of ramus intermedius by healed rupture with fibrointimal thickening and smooth muscle proliferation
 - iii. Total occlusion of proximal to mid left circumflex artery (LCA) by organized and recanalized thrombus; 70% fibrocalcific narrowing of distal LCA; 90% narrowing of obtuse marginal artery with fibrointimal thickening and smooth muscle proliferation
 - iv. Right coronary artery (RCA), 25% narrowing of proximal RCA by fibrocalcific plaque; 40% narrowing of mid RCA by fibroatheroma; 70% fibrocalcific narrowing of distal RCA; 95% narrowing of posterior descending artery by fibrocalcific plaque and smooth muscle proliferation
 - b. Healed transmural myocardial infarction
 - i. Involves anterior, septal and lateral left ventricle mid ventricle to apex
 - ii. Microscopically, transmural fibrosis and fat replacement in anterior, septal and lateral walls of left ventricle
 - iii. Aneurysmal dilatation
 - iv. Epicardial fibrous adhesions at apex of left ventricle
 - c. Cardiomegaly with biventricular hypertrophy
 - i. Heart 666 gm (predicted normal value 343 gm)
 - ii. Left ventricular cavity diameter 60 mm
 - iii. Left ventricular free wall thickness 10 mm
 - iv. Microscopically, biventricular myocyte hypertrophy with subendocardial and perivascular interstitial fibrosis
 - d. Moderate to severe atherosclerosis of the aorta
 - i. Diffuse calcific intimal plaque formation
 - ii. Focal plaque rupture with associated hemorrhage
 - e. Pulmonary edema
 - i. Right lung 965 grams
 - ii. Left lung 818 grams
- II. No evidence of any significant trauma
 - a. Abrasion, 4 x 3 cm on back of right forearm
 - b. Contusion, 7 x 4 cm on back of right hand

b6
b7C-4**III. Additional Findings**

- a. Subcutaneous lipoma of anterior left side of neck
- b. Right renal calculus (kidney stone)
- c. Prostatic hypertrophy
- d. Symmetrically enlarged thyroid gland

IV. Medical Intervention

- a. Endotracheal tube in place
- b. Three adhesive EKG tabs on body

V. Early to moderate decomposition

- a. Diffuse marbling of body
- b. Corneal opacification

VI. Toxicology (AFIP)

- a. Volatiles: Heart blood and urine negative for ethanol
- b. Cyanide: Heart blood negative
- c. Drugs: Heart blood negative for screened medications and drugs of abuse

EXTERNAL EXAMINATION

The body is that of a well developed, well-nourished male clad in a previously cut, white long sleeve shirt-dress ("dish dash") and white boxer shorts. The body weighs approximately 170 pounds, is 71" in height and appears compatible with the reported age of 52 years. The body is cold, the temperature that of the refrigeration unit. Rigor is waning. Lividity is present and fixed on the posterior surface of the body, except in areas exposed to pressure, and is especially pronounced on the face.

Early to moderate decompositional changes are present, consisting of diffuse marbling and discoloration of the body and corneal opacification.

The scalp is covered with black and grey hair in a normal distribution, averaging 4 cm in length. Facial hair consists of a dark mustache and grey facial stubble. The irides appear dark, but are partially obscured by corneal clouding. The sclerae and conjunctivae are congested, especially on the left, with no 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.

Examination of the neck reveals the trachea to be midline and mobile. There is a palpable 3 x 2 cm subcutaneous nodule on the anterior left side of the neck. The chest is symmetric and well developed. No injury of the ribs or sternum is evident externally. The abdomen is slightly protuberant and soft. The extremities are well developed with normal range of motion. There is a 4 x 1.5 cm scar on the upper anterior aspect of the right forearm, and there are irregular scars over the left knee. The fingernails are short and intact. No tattoos are 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. Pubic hair is present in a normal distribution. The buttocks and anus are unremarkable. There is an identification tag on the first toe of the left foot.

EVIDENCE OF THERAPY

There is an endotracheal tube in place secured with white tape around the head, and there are three adhesive EKG tabs on the body, two on the upper chest and one on the left thigh. There is a band-aid on the right antecubital fossa over a needle puncture mark with surrounding ecchymosis.

EVIDENCE OF INJURY

There is a 4 x 3 cm abrasion on the back of the right forearm and there is a 7 x 4 cm contusion on the back of the right hand. On external and internal examination of the body, there is no other evidence of trauma.

INTERNAL EXAMINATION**BODY CAVITIES:**

The body is opened by the usual thoraco-abdominal incision, and the chest plate is removed. There is approximately 50 ml of serosanguinous fluid in each pleural space, and there are multiple pleural adhesions of the right chest cavity. No adhesions or abnormal collections of fluid are present in the peritoneal cavity. All body organs are present in the normal anatomical position. The subcutaneous fat layer of the abdominal wall is 4 cm thick. There is no internal evidence of blunt force or penetrating injury to the thoraco-abdominal region.

HEAD: (CENTRAL NERVOUS SYSTEM)

The scalp is reflected, and there is no subgaleal hemorrhage or skull fractures 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 dark with decompositional change, most prominent over the occiput; however, there is no evidence of any subarachnoid hemorrhage. 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. 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 1180 grams.

NECK:

On dissection of the soft tissue of the neck, there is a well-circumscribed yellow 3 x 2 cm nodule just under the skin on the anterior left side of the neck, adjacent to the thyroid cartilage. On sectioning, the nodule is uniformly fatty, consistent with a lipoma. Examination of the soft tissues of the neck, including strap muscles, thyroid gland and large vessels, otherwise 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 large but 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:

There are dense apical adhesions of the heart to the pericardial sac, and there is marked aneurysmal dilatation of the left ventricle. See "Cardiovascular Pathology Report" below. A moderate amount of epicardial fat is present, and the heart weighs 666 grams. The aorta and its major branches arise normally and follow the usual course. There is diffuse moderate to severe atherosclerosis of the aorta with extensive calcific intimal plaque formation and focal plaque rupture with associated hemorrhage. The venae cavae and their major tributaries return to the heart in the usual distribution and are free of thrombi.

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RESPIRATORY SYSTEM:

The upper airway is clear of debris and foreign material; the mucosal surfaces are smooth, yellow-tan and unremarkable. There are scattered pleural adhesions of the right chest cavity. The pleural surfaces are otherwise smooth, glistening and unremarkable bilaterally. The pulmonary parenchyma is red-purple and edematous, exuding a moderate amount of bloody fluid; no focal lesions are noted. The pulmonary arteries are normally developed, patent and without thrombus or embolus. The right lung weighs 965 grams; the left 818 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 5 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 1498 grams.

ALIMENTARY TRACT:

The tongue exhibits no evidence of recent injury. The esophagus is lined by gray-white, smooth mucosa. The gastric mucosa is arranged in the usual rugal folds and the lumen contains 100 ml of dark fluid. 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.

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. There is a single dark calculus in the right renal pelvis. The calyces, pelves and ureters are otherwise unremarkable. White bladder mucosa overlies an intact bladder wall. The urinary bladder contains 50 ml of cloudy, yellow urine. The prostate gland is enlarged but symmetrical with lobular, yellow-tan parenchyma and no nodules or masses. The seminal vesicles are unremarkable. The testes are free of mass lesions, contusions, or other abnormalities. The right kidney weighs 207 grams; the left 235 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 278 grams.

ENDOCRINE SYSTEM:

The pituitary and adrenal glands are unremarkable. The thyroid gland is symmetrically enlarged, but free of nodules or masses.

MUSCULOSKELETAL SYSTEM:

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

MICROSCOPIC EXAMINATION

Heart: See "Cardiovascular Pathology Report" below.

Selected portions of other organs are retained in formalin, without preparation of histologic slides.

CARDIOVASCULAR PATHOLOGY REPORT

Department of Cardiovascular Pathology, AFIP:

"AFIP DIAGNOSIS: ME04-435"

1. Severe coronary atherosclerosis with calcification, three vessel disease
2. Healed transmural infarction with aneurysmal dilatation, anterior, septal, and lateral left ventricle
3. Cardiomegaly with biventricular hypertrophy

History: 52 year old male Iraqi detainee, 5'11", 170 lbs, found dead in bed

Heart: 666 grams (predicted normal value 343 grams, upper limit 453 grams for a 170 lbs male); focal epicardial fibrous adhesions at apex of left ventricle; closed foramen ovale; aneurysmal dilatation of left ventricle: left ventricular cavity diameter 60 mm, left ventricular free wall thickness 10 mm, ventricular septum thickness 10 mm; right ventricle thickness 4 mm; endocardial thickening in left atrium and left ventricle; unremarkable valves; healed transmural infarct, anterior and septal walls of left ventricle, mid ventricle to apex; subendocardial hyperemia, anterior and lateral walls of left ventricle; histologic sections show biventricular myocyte hypertrophy with subendocardial and perivascular interstitial fibrosis; transmural fibrosis and fat replacement in anterior, septal, and lateral walls of left ventricle.

Coronary arteries: Normal ostia; right dominance; severe calcific atherosclerosis:

Left main coronary artery: 50% luminal narrowing by fibrocalcific plaque

Left anterior descending artery (LAD): Total occlusion of proximal LAD with healed plaque rupture and organized thrombus; 75% narrowing of mid LAD by thin capped fibroatheroma and 65% narrowing of distal LAD by fibrocalcific plaque; total occlusion of ramus intermedius by healed rupture with fibrointimal thickening and smooth muscle proliferation

Left circumflex artery (LCA): Total occlusion of proximal to mid LCA by organized and recanalized thrombus, 70% fibrocalcific narrowing of distal LCA; 90% narrowing of obtuse marginal artery with fibrointimal thickening and smooth muscle proliferation

Right coronary artery (RCA): 25% narrowing of proximal RCA by fibrocalcific plaque, 40% narrowing of mid RCA by thin capped fibroatheroma, and 70% fibrocalcific narrowing of distal RCA; 95% narrowing of posterior descending artery by fibrocalcific plaque and smooth muscle proliferation."

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ADDITIONAL PROCEDURES

- Full body radiographs are obtained and show no evidence of trauma.
- Documentary photographs are taken by OAFME photographers
- Specimens retained for toxicologic testing and/or DNA identification are: vitreous fluid, heart blood, urine, and bile
- The dissected organs are forwarded with the body
- Personal effects are released to the appropriate mortuary operations representative

OPINION

This 52 year-old male Iraqi civilian in US custody in Iraq died of atherosclerotic cardiovascular disease, with severe coronary artery disease and a healed myocardial infarction (previous heart attack), extensively involving the left ventricle. There is no evidence of any significant trauma.

The manner of death is natural.

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LtCol, USAF, MC, FS
First Chief Deputy Medical Examiner