



ARMED FORCES INSTITUTE OF PATHOLOGY
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AUTOPSY EXAMINATION REPORT

Name:	(b)(6)-4	Autopsy No.: A02-95 (Landstuhl R.M.C. Autopsy Number)
SSAN:		AFIP No.: 2859183
Date of Birth: Unknown, age approx. 35 yrs.		Rank: Civilian, Afghani national
Date/Time of Death: 10 Dec 2002/0200z		Place of Death: Bagram Collection Point, Bagram Air Field, Afghanistan
Date/Time of Autopsy: 13 Dec 2002/1000		Place of Autopsy: Bagram Air Field Afghanistan
Date of Report: 25 Feb 2003		

Circumstances of Death: Approximately 35 year old Afghan male detainee who was found unresponsive restrained in his cell in the Bagram Collection Point, and pronounced dead on arrival at the 339th CSH, Bagram Air Field, Afghanistan.

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

Identification: Visual; Post mortem dental examination performed; Fingerprints and DNA specimen obtained.

CAUSE OF DEATH: Blunt force injuries to lower extremities complicating coronary artery disease

MANNER OF DEATH: Homicide

FINAL AUTOPSY DIAGNOSES:

- I. Blunt force injuries to bilateral lower extremities with rhabdomyolysis
 - a. Extensive soft tissue hemorrhage with muscle necrosis
 - i. Involving bilateral legs, extending from upper thighs to upper calves and bilateral inguinal regions
 - ii. Nearly circumferential muscle damage, from subcutis to level of periosteum of femurs
 - iii. Histologically, extensive muscle destruction with necrosis

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- b. Rhabdomyolysis
 - i. Urine and serum positive for myoglobin
 - ii. Brown discoloration of urine
 - c. Hemorrhage of bilateral knee joint capsules
 - d. Diffuse erythema and contusions of skin of posterior and lateral thighs and upper calves, and bilateral inguinal regions
- II. Coronary artery disease
 - a. Atherosclerotic plaque of proximal left anterior descending coronary artery with 70-80% luminal occlusion; 50% mid LAD luminal occlusion
 - b. Histologically, myocardial sections show no significant histopathologic changes (Cardiovascular pathology consultation)
- III. Multiple superficial abrasions, contusions, and crusts of bilateral wrists, anterior ankles, nose, and ears
- IV. Toxicology, Armed Forces Institute of Pathology
 - a. Heart blood and vitreous fluid negative for ethanol
 - b. Urine negative for drugs of abuse

EXTERNAL EXAMINATION

The body is that of a thin, normally developed, unclad Afghan male. The body is 69" in height, appears consistent with a weight of 122 pounds as reported in the medical record, and appears compatible with the reported age of 35 years. The body is cold. Rigor is present to an equal degree in all extremities. Lividity is present and fixed on the posterior surface of the body, except in areas exposed to pressure. The skin is moderately pigmented. The head is normocephalic. The scalp hair is dark and shaved close, < 2mm in length. Facial hair consists of a dark brown beard and mustache. The irides are brown. The corneae are clear. The conjunctivae are pale and dry. The sclerae are white and free of petechia. 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, and both the upper and lower frenulum are intact. There are approximately 8 small petechia on the upper gingiva. The teeth are natural and in good condition. The chest is unremarkable. The abdomen is flat and soft. On the back of the head in the occipital scalp, there is a well-healed 2 cm curvilinear scar. There is a well-healed circular 1 cm diameter scar on the lateral upper right arm, and there is a 3 cm linear scar on the palmar base of the right thumb. On the back of the left elbow, there is a 1 cm diameter scar. Across the upper back, there are multiple punctate scars. The extremities show normal development and range of motion. The fingernails are short and intact. The external genitalia are those of a normal adult uncircumcised male with both testes descended. The posterior torso is without note.

EVIDENCE OF THERAPY

There is a nasogastric tube and an endotracheal tube secured with white tape, both appropriately placed. There are four EKG tabs on the upper right chest, upper left chest, mid chest, and lower left abdomen. Over the sternum, there is a 5 x 3 cm contusion, consistent with resuscitation efforts.

EVIDENCE OF INJURY

HEAD AND NECK: On the upper right forehead, there are two linear abrasions, 0.3 and 0.5 cm in length. On the upper left forehead, there is a 0.5 x 0.2 cm abrasion. Down the bridge of the nose, there is a vertically oriented 2 x 1.3 cm abrasion with crust formation. On the back of head in the upper central occipital scalp, there are three crusted abrasions, 0.3 cm, 0.2 cm, and 0.2 cm in diameter. Behind the pinna of the left ear, there are multiple curvilinear abrasions with crust formation and focal contusion, forming two vertically oriented parallel lines, 1.5 x 0.3 cm laterally and 1.0 x 0.2 cm medially. Behind the pinna of the right ear, there are two crusted abrasions, 0.5 x 0.2 cm and 0.3 x 0.2 cm. On the right anterior aspect of the neck, there is a faint, irregular contusion with focal excoriation and fine linear crust formation, 4 x 5 cm in aggregate dimension. On the left anterior neck, there is a 0.5 x 0.3 cm abrasion.

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CHEST: Upon reflection of the skin of the right lateral chest, there is a 15 x 7 cm area of hemorrhage within the superficial aspect of the intercostal muscles at the level of the 5-6th ribs. On dissection, there is no deep muscular hemorrhage, and there are no rib fractures or any evidence of any intrathoracic trauma.

ABDOMEN and BACK: On the lower right abdomen, there is a 0.4 x 0.2 cm abrasion with crust formation. On the lateral upper left buttock, there is a 6 x 0.2 cm linear abrasion with crust formation.

UPPER EXTREMITIES: On the back of the right elbow on the medial aspect, there is a 2 x 1.5 cm brown contusion. Around the ventral (palmar) and lateral (radial) right wrist, there is a 12 x 2 cm band of erythema and red-brown contusion, which is the widest at the lateral aspect. Within the lateral aspect of the contusion, there is focal superficial abrasion, up to 0.3 cm in diameter. On the back of the hand, there is a 0.3 cm diameter crusted abrasion.

On the back of the left elbow, there is a lateral 2 x 2 cm brown contusion and a medial 0.6 x 0.5 cm crust. Around the ventral and lateral left wrist, there is a 8 x 2 cm band of erythema and red-brown contusion. The contusion is widest at the lateral aspect, and there is a 0.3 cm diameter abrasion within the ventral lateral region. On the back of the left hand, beneath the index finger, there is a 0.5 x 0.3 cm crusted abrasion.

LOWER EXTREMITIES: There is bilateral contusion of inguinal regions. In the right inguinal region, there is a 30 x 7 cm region of erythema and red-brown contusion, extending from the lower abdomen down the medial thigh. In the left inguinal region there is a 30 x 15 cm region of erythema and red-brown contusion, extending from the lower abdomen down the anterior and medial thigh. Upon reflection of the skin, there is underlying diffuse, superficial and deep intramuscular hemorrhage bilaterally. There is no apparent contusion of the scrotum, and no evidence of testicular hemorrhage.

Over the lateral and posterior right leg, extending from the upper thigh down to just below the knee, there is a ill defined band of erythema and red-brown contusion. On the posterior aspect of the knee, the discoloration is the darkest, forming a more discrete brown-purple contusion. On the anterior right ankle, there is a 1.3 x 1 cm crusted abrasion.

Over the lateral and posterior left leg, extending from the upper thigh down to just below the knee, there is a similar ill defined band of erythema and red-brown contusion, which is most pronounced on the posterior knee. On the lateral left knee, there is also a 3 x 5 cm abrasion. Beneath the left knee, there is a 7 x 2 cm red-brown contusion. On the anterior left ankle, there is a 1.5 x 1 cm crusted abrasion. On the top of the right foot, at the base of the first toe, there is a 0.5 x 0.2 cm crusted abrasion.

Upon reflection of the skin of the legs, there is bilateral diffuse hemorrhage from the subcutis, through all of the muscle layers, extending to the periosteum. On the right, the hemorrhage extends over the entire posterior and lateral aspect of the leg from the upper thigh, just beneath the buttock, to the mid calf. On the left, the hemorrhage is nearly circumferential, with only slight sparing of the medial thigh, and extends from the upper thigh, just beneath the buttock, to the mid calf. Bilaterally, there is extensive muscle breakdown and grossly visible necrosis with focal crumbling of the tissue. There

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is bilateral intracapsular hemorrhage of the knee joints, but both knees are palpably stable.

INTERNAL EXAMINATION

BODY CAVITIES:

The body is opened by the usual thoraco-abdominal incision and the chest plate is removed. No adhesions or abnormal collections of fluid are present in any of the body cavities. All body organs are present in the normal anatomical position. The subcutaneous fat layer of the abdominal wall is 1/4" thick. There is no internal evidence of penetrating injury to the thoraco-abdominal region.

HEAD: (CENTRAL NERVOUS SYSTEM)

The scalp is reflected. The calvarium of the skull is removed. The dura mater and falx cerebri are intact. There is no epidural, subdural or subarachnoid hemorrhage present. The leptomeninges are thin and delicate. The cerebral hemispheres are symmetrical, and the gyri demonstrate the usual orientation and configuration. 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. The ventricles are normal. Transverse sections through the brain stem and cerebellum are unremarkable. The brain is of normal size, and there is no evidence of any brain swelling or herniation. The posterior fossa is unremarkable. The upper portion of the spinal cord viewed through the foramen Magnum is unremarkable.

NECK:

Examination of the soft tissues of the neck, including strap muscles, thyroid gland and large vessels, reveals no abnormalities. The hyoid bone and larynx are intact. A posterior neck dissection reveals no evidence of hemorrhage or trauma.

CARDIOVASCULAR SYSTEM:

The pericardial surfaces are smooth, glistening and unremarkable; the pericardial sac is free of significant fluid and adhesions. The heart appears to be of normal size and weight. The coronary arteries arise normally and follow the usual distribution. There is an atherosclerotic plaque within the proximal left anterior descending coronary artery, with approximately 70-80% occlusion and focal 50% occlusion of the mid LAD, but with no evidence of thrombus formation. The other coronary arteries 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 aorta and its major branches arise normally, follow the usual course, are widely patent with scattered fatty intimal streaks, and are free of any other abnormality. The venae cavae and their major tributaries return to the heart in the usual distribution and are free of thrombi. The left ventricle is 1.3 cm in thickness, and the right ventricle is 0.4 cm in thickness. (See Cardiovascular Pathology report)

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 slight amounts of bloody fluid; no focal lesions are noted. The pulmonary arteries are normally developed, patent and without thrombus or embolus.

LIVER & BILIARY SYSTEM:

The hepatic capsule is smooth, glistening and intact, covering dark red-brown, moderately congested parenchyma with no focal lesions noted. The liver is of normal size. The gallbladder contains 3 ml. of green-brown, mucoid bile; the mucosa is velvety and unremarkable. The extrahepatic biliary tree is patent, without evidence of calculi.

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 is essentially empty, containing only a film 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 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 kidneys are of normal size. The cortices are sharply delineated from the medullary pyramids, which are red-purple to tan and unremarkable. The calyces, pelves and ureters are unremarkable. The urinary bladder is distended, containing approximately 200 ml of dark brown urine. The bladder mucosa is gray-tan and unremarkable. The prostate is small and unremarkable, and the testes are free of hemorrhage or masses.

RETICULOENDOTHELIAL SYSTEM:

The spleen has a smooth, intact capsule covering red-purple, moderately firm parenchyma; the lymphoid follicles are unremarkable. The spleen is of normal size. The regional lymph nodes appear normal. There is minimal residual thymus present.

ENDOCRINE SYSTEM:

The pituitary, thyroid and adrenal glands are unremarkable.

MUSCULOSKELETAL SYSTEM:

See "Evidence of Injury". Otherwise, no bone or joint abnormalities are noted, and muscle development is normal.

MICROSCOPIC EXAMINATION

SKELETAL MUSCLE, LOWER EXTREMITIES: Multiple sections of skeletal muscle show extensive interstitial hemorrhage, widespread disruption of the myocytes, and focal areas of confluent muscle necrosis, with minimal inflammatory response.

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HEART: Sections of the myocardium reveal intact striated muscle fibers. There is no evidence of atrophy, hypertrophy, and recent or old myocardial infarction. (See Cardiovascular Pathology consult)

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 not 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, fatty metamorphosis, or sinusoidal abnormalities.

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

ADRENALS: The cortical zones are distinctive and well supplied with lipoid. The medullae are not remarkable.

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

BRAIN: Multiple sections of brain demonstrate an unremarkable configuration of gray and white matter, which is appropriate for age. There is no evidence of atrophy, inflammation, hemorrhage, or neoplasm.

OTHER PROCEDURES:

1. Blood, urine, vitreous, and tissue samples were submitted for toxicologic examination.
2. Tissue was retained for possible histological examination and DNA identification.
3. Documentary photographs and dental radiographs were taken.
4. The dissected organs were returned to the body.
5. Portions of heart and histological sections of myocardium submitted to Cardiovascular Pathology, AFIP, report below:

AFIP Cardiovascular Pathology Consultation, Dr. (b)(6)-2

“ Heart: Heart weight unknown (received in fragments); closed foramen ovale; normal valves; normal atrial and ventricular cavity dimensions; left ventricular free wall thickness

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1.3 cm; interventricular septum thickness 1.2 cm; right ventricle thickness 0.4 cm; grossly unremarkable myocardium; myocardial sections demonstrate no significant histopathologic changes.

Coronary arteries: Normal ostia; right dominant circulation; focal moderate-to-severe atherosclerosis; remaining gross arteries demonstrate 35% lumen area narrowing of the left main and 25% lumen area narrowing of the proximal left anterior descending; submitted histologic sections demonstrate 70% lumen area narrowing of the proximal left anterior descending."

OPINION: This approximately 35-year-old Afghan male detainee died of blunt force injuries to the lower extremities, complicating underlying coronary artery disease. The blunt force injuries to the legs resulted in extensive muscle damage, muscle necrosis, and rhabdomyolysis. Electrolyte disturbances, primarily hyperkalemia (elevated blood potassium level) and metabolic acidosis can occur within hours of muscle damage. Massive sodium and water shifts occur, resulting in hypovolemic shock and vasodilatation, and later, acute renal failure. The decedent's underlying coronary artery disease would compromise his ability to tolerate the electrolyte and fluid abnormalities, and his underlying malnutrition and likely dehydration would further exacerbate the effects of the muscle damage. The manner of death is homicide.

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