



ARMED FORCES INSTITUTE OF PATHOLOGY
Office of the Armed Forces Medical Examiner
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 Rockville, MD 20850
 301-319-0000



AUTOPSY EXAMINATION REPORT

Name: (BTB) MOSHIN, Ra'ad Sa'ad
 ISN/TMEP: (b)(6)
 Date of Birth: (b)(6) JAN 1987
 Date of Death: (b)(6) 2007

Autopsy No.: (b)(6)
 AFIP No.: (b)(6)
 Rank: Civilian Detainee
 Place of Death: Baghdad, Iraq

Date/Time of Autopsy: 20 DEC 2007 @ 0930
 Place of Autopsy: Port Mortuary, Dover AFB, DE

Date of Report: 01 JUL 2008

Circumstances of Death: This Civilian Detainee was admitted to the 31st CSH intensive care unit at Camp Cropper, Baghdad, Iraq on 12 DEC 2007 due to complications of end stage liver disease of an unknown etiology. He first came to the attention of the medical staff at Camp Cropper in October 2007 with complaints of nausea and fatigue, and was diagnosed with viral syndrome. His past medical history was significant only for a dermatitis for which he used topical medications and occasional oral prednisone. He developed progressive weight loss and jaundice with rising bilirubin, liver enzymes and ammonia levels in November 2007. He denied exposure to chemicals, medications, alcohol or herbal preparations. Viral markers for hepatitis A, B, C and HIV were negative. His condition progressively deteriorated to multi-organ system failure and he expired on (b)(6) 2007.

Authorization for Autopsy: Armed Forces Medical Examiner, per U.S. Code 10, Section 1471

Identification: Presumptive identification is made based upon identification bracelets on the body. Positive identification the ISN is confirmed by the comparison of an antemortem DNA reference and a postmortem DNA sample. Fingerprints are taken for comparison to an exemplar if one becomes available.

CAUSE OF DEATH: LIVER FAILURE DUE TO CRYPTOGENIC HEPATITIS

MANNER OF DEATH: NATURAL

EXTERNAL EXAMINATION

The body is that of a well-developed, well-nourished Caucasoid male received unclad and wrapped in two sheets. The body weighs 183-pounds, is 66-inches in length and appears older than the reported age of 20-years. The body is cold. Rigor is passing 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 body is jaundiced and anasarctic, with 4+ pitting edema over the entire torso and all extremities. The skin appears pale and dry with flaking, most notably on the scalp. Large bullae are present on the skin, mostly on the dependent portions of the body. Some skin slippage is present.

The head is normocephalic, and the scalp hair is sparse, short and brown. Facial hair consists of a sparse beard and moustache. The irides are brown, the corneae are cloudy, and the conjunctivae are edematous and otherwise unremarkable. The sclerae are icteric. The external auditory canals, external nares and oral cavity are free of foreign material and abnormal secretions. The earlobes are not pierced. The nasal skeleton and maxilla are palpably intact. The lips are without evident injury. The teeth are natural and in good condition. Examination of the neck reveals no evidence of injury.

The chest is unremarkable. No evidence of injury of the ribs or the sternum is evident externally. The abdomen is markedly protuberant with striae and an obvious fluid wave. The external genitalia are those of a normal adult circumcised male. The anus is without note. There is a partial thickness decubitis ulcer in the natal cleft on the left buttock that measures ½ x 3/8-inch. Healed surgical scars are not noted on the torso.

The extremities show the presence of a few healed scars on the shin and a few bruises, but no evidence of fractures, lacerations or deformities. The fingernails are trimmed and intact. A tattoo is noted (b)(6) An irregular scar is noted on the medial left ankle region that measures 1 ½ x ½-inch. There are numerous pustules associated with hair follicles on the extremities in various stages of healing.

CLOTHING AND PERSONAL EFFECTS

No clothing or personal effects are received with the body.

MEDICAL INTERVENTION

- Intravenous line inserted in the right subclavian region
- Urinary bladder catheter
- Nasogastric tube inserted into the left naris, properly located
- Medical dressing on decubitis ulcer, left buttock

RADIOGRAPHS

A complete set of postmortem radiographs and CT images are obtained and demonstrates the following:

- Medical therapy
- Bilateral pleural effusions
- No old or recent fractures of the skull, axial skeleton or extremities
- No metallic foreign bodies

EVIDENCE OF INJURY

There is no evidence of old or recent injury.

INTERNAL EXAMINATION

BODY CAVITIES:

The body is opened by the usual thoraco-abdominal incision and the chest plate is removed. The ribs, sternum, and vertebral bodies are visibly and palpably intact. No adhesions are present in any of the body cavities. Both pleural cavities contain 300-milliliters of serosanguinous fluid. The pericardial sac contains 80-milliliters of serosanguinous fluid, and the abdominal cavity contains 3,400-milliliters of yellow serous fluid. All body organs are present in normal anatomical position.

The subcutaneous fat layer of the abdominal wall is 1-inch thick at the umbilicus.

HEAD AND CENTRAL NERVOUS SYSTEM:

The scalp is reflected. The galeal and subgaleal soft tissues of the scalp are free of injury. There are no skull fractures. 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 cerebral hemispheres are symmetrical. The structures at the base of the brain, including cranial nerves and blood vessels are intact.

Clear cerebrospinal fluid surrounds the 1,590-gram brain, which has unremarkable gyri and sulci. Coronal sections through the cerebral hemispheres reveal no lesions. Transverse sections through the brain stem and cerebellum are unremarkable. The atlanto-occipital joint is stable.

NECK:

The anterior strap muscles of the neck are homogenous and red-brown, without hemorrhage by layer-wise dissection. The thyroid cartilage is soft and the hyoid bone is intact and unfused. The larynx is lined by intact white mucosa. The tongue is free of bite marks, hemorrhage, or other injuries.

CARDIOVASCULAR SYSTEM:

The 330-gram heart is contained in an intact pericardial sac. The epicardial surface is smooth, with minimal fat investment. The coronary arteries are present in a normal distribution, with a right-

dominant pattern. Cross sections of the vessels show no luminal narrowing and are widely patent.

The myocardium is homogenous, red-brown, and firm. The valve leaflets are thin and mobile. The walls of the left ventricle, inter-ventricular septum, and right ventricle are 1.0, 0.3 and 1.0-centimeters thick, respectively. The endocardium is smooth and glistening.

The aorta gives rise to three intact and patent arch vessels; mild atherosclerosis (fatty streaks) is noted. The renal and mesenteric vessels are unremarkable.

RESPIRATORY SYSTEM:

The upper airway is clear of debris and foreign material: the mucosal surfaces are smooth, yellow-tan and unremarkable. The parietal pleural surfaces are smooth, glistening and unremarkable bilaterally.

The pulmonary parenchyma is diffusely congested and edematous, exuding moderate to large amounts of blood and frothy fluid; no focal lesions are noted. The visceral pleural surfaces are smooth, glistening and unremarkable bilaterally.

The pulmonary arteries are normally developed, patent and without thrombus or embolus. The right lung weighs 800-grams; the left 790-grams.

HEPATOBIILIARY SYSTEM:

The 2,340-gram liver has an intact smooth capsule covering very soft, yellow to tan parenchyma with no focal lesions noted. The expected liver weight for body weight is 2,315-grams.

The gallbladder contains 20-milliliters of green-brown, mucoid bile; the mucosa is velvety and unremarkable. The extrahepatic biliary tree is patent, without evidence of calculi.

GASTROINTESTINAL SYSTEM:

The esophagus is lined by gray-white, smooth mucosa; no varices are noted. The gastric mucosa is arranged in the usual rugal folds and the lumen contains 60-milliliters of tan, semi-solid material.

The small and large bowels are unremarkable. The pancreas is soft and autolyzed and the ducts are clear. The appendix is present.

GENITOURINARY SYSTEM:

The right kidney weighs 120-grams; the left 110-grams. The renal capsules are smooth and thin, semi-transparent and strip with ease from the underlying smooth, dusky red-brown cortical surface.

The cortex is sharply delineated from the medullary pyramids, which are red-purple to tan and unremarkable. The calyces, pelves and ureters are unremarkable.

White bladder mucosa with focal hemorrhage overlies an intact bladder wall. The bladder contains approximately 10-milliliters of cloudy yellow urine. The testes, prostate gland and seminal vesicles are without note.

LYMPHORETICULAR SYSTEM:

The 210-gram spleen has a smooth, intact capsule covering red-purple, moderately firm congested parenchyma; the lymphoid follicles are unremarkable.

Lymph nodes in the hilar, periaortic and iliac regions are not enlarged.

ENDOCRINE SYSTEM:

The pituitary gland is left *in situ* and is grossly unremarkable. The thyroid gland is symmetric and red-brown, without cystic or nodular change. The right and left adrenal glands are slightly autolyzed and symmetric, with bright yellow cortices and red-brown medullae. No masses or areas of hemorrhage are identified.

MUSCULOSKELETAL SYSTEM:

No non-traumatic abnormalities of muscle or bone are identified. Skin incisions with undermining subcutaneous dissection in areas of ecchymosis are negative for traumatic injury.

SLIDE KEY AND MICROSCOPIC EXAMINATION

Selected portions of organs are retained in formalin, with preparation of histology slides.

1. Lung :} {Vascular congestion and desquamation of pneumocytes into the alveolar
2. Lung :} {spaces. There is no evidence of acute infection.
3. Kidney: Autolysis.
4. Kidney: Autolysis.
5. Spleen: Congestion, otherwise unremarkable.
6. Liver: Severe macrosteatohepatitis, bridging fibrosis, bile stasis and biliary hyperplasia, with remarkably little inflammation.
7. Pancreas: Autolysis.
8. Heart (Left Ventricle): No pathologic diagnosis.
9. Heart: (Septum and Right Ventricle): No pathologic diagnosis.
10. Adrenal Glands: Autolysis.
11. Brain (Hippocampus): Hypoxic changes of the neurons in the CA-1 region.
12. Brain (Cerebellum): No pathologic diagnosis.
13. Brain (Pons): Hypoxic changes of the neurons in the periaqueductal gray matter.
14. Spinal Cord: No pathologic diagnosis.
15. Lymph Node: No pathologic diagnosis.
16. Thyroid Glands: No pathologic diagnosis.

ADDITIONAL PROCEDURES

1. Documentary photographs are taken by AFMES staff photographer.
2. Personal effects are released to the appropriate mortuary operations representatives.
3. Specimens retained for toxicology testing and/or DNA identification are: vitreous fluid, blood, urine, bile, gastric contents, spleen, liver, lung, kidney, brain, myocardium, adipose tissue and skeletal muscle.
4. The dissected organs are forwarded with body.

5. Histological sections of the liver are submitted to the Department of Hepatic Pathology, AFIP for expert consultation. The results are described above (see "Slide Key and Microscopic Examination" (6. Liver).
6. Body fluids and tissue is submitted to the Department of Environmental and Infectious Disease Sciences, AFIP for heavy metal analysis. The results are described below (see "Toxicology").

FINAL AUTOPSY DIAGNOSES

I. Natural Disease

- A. Anasarca
- B. Pulmonary edema and congestion, bilateral
- C. Pleural effusions, bilateral
- D. Pericardial effusion
- E. Ascites
- F. Hepatomegaly and severe macrosteatohepatitis with bridging fibrosis, bile stasis and biliary hyperplasia
- G. Decubitus ulcer, left buttock
- H. Icterus and jaundice

II. There is no evidence of physical abuse.

III. Evidence of Medical Therapy

- A. Intravenous line inserted in the right subclavian region
- B. Urinary bladder catheter
- C. Nasogastric tube inserted into the left naris

IV. Post-Mortem Changes

- A. Rigor is absent and equal in all extremities
- B. Lividity is posterior and fixed except in areas exposed to pressure
- C. The body temperature is cold to touch
- D. Skin slippage

V. Identifying Body Marks

- A. Tattoo (b)(6)
- B. Scar on the medial left ankle region

VI. Toxicology

- A. The blood is tested for carbon monoxide and the carboxyhemoglobin saturation is less than 1%.
- B. The blood is tested for cyanide and none is detected.
- C. The blood and vitreous fluid are tested for volatile compounds including ethanol and none are found.
- D. The urine is screened for medications and drugs of abuse and the following medications are found:
 1. Lidocaine (an anti-arrhythmic medication) is present in the urine but not quantitated.

2. Morphine (a narcotic analgesic medication) is present in the urine and is quantitated in the blood at a level of 0.57 milligrams per liter.
 3. Promethazine (an anti-emetic medication) is present in the urine and is quantitated in the blood at a level of 0.16 milligrams per liter.
- E. The liver, kidney, urine, blood and bile are tested for heavy metals including aluminum (Al), antimony (Sb), arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), manganese (Mn), mercury (Hg), molybdenum (Mo), nickel (Ni), thallium (Tl), tin (Sn), titanium (Ti), uranium (U), vanadium (V), tungsten (W) and zinc (Zn) and the following are detected:
1. The liver and kidney did not contain elevated levels of any tested metals.
 2. The blood contained elevated levels of cadmium (Cd), manganese (Mn) and tungsten (W). See the attached toxicology report for details.

OPINION

This 20-year-old male civilian detainee, (believed to be) (b)(6) died of liver failure. The liver failure progressed to multi-organ system failure over a period of approximately 2 months. The cause of the liver failure is unknown; viral markers were negative (by review of the medical records) and by history the deceased denied chemical or drug exposure. Routine toxicological testing for ethanol and screened drugs of abuse was negative. Carbon monoxide and cyanide were not detected in the blood. The medications morphine and promethazine were present in the blood at therapeutic levels, consistent with hospitalization. Extended toxicological testing for heavy metal exposure was inconclusive. Although elevated levels of cadmium (Cd), manganese (Mn) and tungsten (W) were present in the blood, they were not present in the liver and kidney tissues tested and likely represent post-mortem re-distribution or artifact. The microscopic appearance of the liver tissue is a general pattern and an etiology of the liver failure cannot be determined with certainty. Based on the current investigation, laboratory studies and autopsy findings, the manner of death is best classified as natural.

(b)(6)

(b)(6) Medical Examiner

CERTIFICATE OF DEATH (OVERSEAS) Acte de décès (D'Outre-Mer)			
NAME OF DECEASED (Last, First, Middle) Nom du décédé (Nom et prénoms) BTB Mosin, Raad, Saad		GRADE Grade	BRANCH OF SERVICE Arme Civilian
ORGANIZATION Organisation		NATION (e.g. United States) Pays Iraq	SOCIAL SECURITY NUMBER Numéro de l'Assurance Social (b)(6)
		DATE OF BIRTH Date de naissance	SEX Sexe <input checked="" type="checkbox"/> MALE <input type="checkbox"/> FEMALE
RACE Race		MARITAL STATUS État Civil	
<input checked="" type="checkbox"/> CAUCASOID Caucasique		<input type="checkbox"/> SINGLE Célibataire	<input type="checkbox"/> DIVORCED Divorcé
<input type="checkbox"/> NEGROID Négride		<input type="checkbox"/> MARRIED Marié	<input type="checkbox"/> SEPARATED Séparé
<input type="checkbox"/> OTHER (Specify) Autre (Spécifier)		<input type="checkbox"/> WIDOWED Veuf	<input type="checkbox"/> JEWISH Juif
RELIGION Culte		OTHER (Specify) Autre (Spécifier)	
<input checked="" type="checkbox"/> PROTESTANT Protestant		<input checked="" type="checkbox"/>	
<input type="checkbox"/> CATHOLIC Catholique		<input type="checkbox"/>	
<input type="checkbox"/> JEWISH Juif		<input type="checkbox"/>	
NAME OF NEXT OF KIN Nom du plus proche parent		RELATIONSHIP TO DECEASED Parenté du décédé avec le sus	
STREET ADDRESS Domicile à (Rue)		CITY OR TOWN OR STATE (Include ZIP Code) Ville (Code postal compris)	
MEDICAL STATEMENT Déclaration médicale			
CAUSE OF DEATH (Enter only one cause per line) Cause du décès (N'indiquer qu'une cause par ligne)			INTERVAL BETWEEN ONSET AND DEATH Intervalle entre l'attaque et le décès
DISEASE OR CONDITION DIRECTLY LEADING TO DEATH ¹ Maladie ou condition directement responsable de la mort			Pending
ANTECEDENT CAUSES Symptômes précurseurs de la mort	MORBID CONDITION, IF ANY, LEADING TO PRIMARY CAUSE Condition morbide, s'il y a lieu menant à la cause primaire		
	UNDERLYING CAUSE, IF ANY, GIVING RISE TO PRIMARY CAUSE Condition morbide, s'il y a lieu menant à la cause primaire		
OTHER SIGNIFICANT CONDITIONS ² Autres conditions significatives			
MODE OF DEATH Condition de décès	AUTOPSY PERFORMED Autopsie effectuée <input checked="" type="checkbox"/> YES OUI <input type="checkbox"/> NO NON	CIRCUMSTANCES SURROUNDING DEATH DUE TO EXTERNAL CAUSES Circonstances de la mort suscitées par des causes extérieures	
<input checked="" type="checkbox"/> NATURAL Mort naturelle	MAJOR FINDINGS OF AUTOPSY Conclusions principales de l'autopsie		
<input type="checkbox"/> ACCIDENT Mort accidentelle			
<input type="checkbox"/> SUICIDE Suicide	NAME OF PATHOLOGIST Nom du pathologiste (b)(6)		
<input type="checkbox"/> HOMICIDE Homicide	SIGN (b)(6)	DATE 20 December 2007	AVIATION ACCIDENT Accident à Avion <input type="checkbox"/> YES OUI <input checked="" type="checkbox"/> NO NON
DATE OF DEATH (day, month, year) Date du décès (jour, le mois, l'année) (b)(6) 2007 (b)(6)	Lieu de décès Camp Bucca Iraq		
I HAVE VIEWED THE REMAINS OF THE DECEASED AND DEATH OCCURRED AT THE TIME INDICATED AND FROM THE CAUSES AS STATED ABOVE. J'ai examiné les restes mortels du défunct et conclus que le décès est survenu à l'heure indiquée et à la suite des causes énumérées ci-dessus.			
NAME OF MEDICAL OFFICER Nom du médecin militaire ou du médecin sanitaire (b)(6)		TITLE OR DEGREE Titre ou diplôme Medical Examiner	
GRADE Grade (b)(6)	INSTALLATION OR ADDRESS Installation ou adresse Dover AFB, Dover DE		
DATE Date 12/20/2007	SIGN (b)(6)		
¹ State disease, injury or complication which caused death, but not ² State conditions contributing to the death, but not related to the it 1 Précisez la nature de la maladie, de la blessure ou de la complication qui a causé la mort, mais non le processus ou l'issue de l'un d'eux, etc. 2 Précisez la condition qui a contribué à la mort, mais n'écrivez aucun élément avec le caractère ou à la condition qui a provoqué la mort.			

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REPLACES DA FORM 1345, 1 JAN 72 AND DA FORM 1345-R(PAS), 26 SEP 75, WHICH ARE OBSOLETE.

MEDCOM 0696