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AUTOPSY REPORT

Name Warren, Keith Autopsy No. C-94-202
Age 19 Race African Am Sex Male Hospital No. N/A
Attending Physician/Coroner Family Date Admitted transported LVH 5/25/94
Pathologist I. Mihalakis, M.D. Date of Death 7/29/86
Autopsy Protocol Completed 5/26/94 Date of Autopsy 5/26/94
Autopsy 8 Years Hrs. After Death

ANATOMICAL DIAGNOSES

CAUSE OF DEATH - UNDETERMINEDFINAL ANATOMIC DIAGNOSES:

- I. Cause of death undetermined in spite of decedent found hanging from tree limb with feet touching the ground and knees bent because toxicologic findings are incompatible with the autopsy findings, and in fact do not support a hanging diagnosis.

OPINION:

After review of the history and complete autopsy of the body of Mr. Keith Warren, the cause of death is undetermined for the following reasons:

1. The autopsy findings on an anatomic basis showed a body hanging from a tree limb with feet touching the ground and the knees bent. There is nothing in the autopsy findings which will distinguish whether he was alive or dead when the hanging occurred.
 - A. The clinical history is in contention between the investigators and the family.
 - B. The scene investigation and the handling of the body immediately afterward, based on my previous communicate was inappropriate and not in accordance with accepted standards of a good medical-legal investigation system (medical examiner office).

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2. Subsequent toxicologic findings after exhumation and complete autopsy of the body as well as preliminary literature review indicate the presence of substances which would not be expected to be found in a body that has been buried and taken into consideration the eight years that it has been interred. Such substances are not normal constituents of embalming fluids or decomposition effect. The substance that most stands out is 1,1,1-Trichloroethane. Based on the levels noted, I do not believe he would have the ability to hang himself, and for that matter, he would in all likelihood not even have the ability to make a decision about hanging himself. It is even possible that he may have been dead and subsequently hung by other(s) to make it look like a suicide. He may have also been near death, unconscious and hung by other(s). If he did it to himself then I would think that the utensils used in terms of canisters, rags, etc. would have been noted by the investigators when they arrived at the scene. By this scenario, one would presuppose that he put a noose about his neck in the manner in which he was found and then took the suspect substances until he passed out at which point the hanging would cause his death.

Under the circumstances in a good medical-legal investigation system a case such as Keith Warren's must be considered and investigated as a homicide until proven otherwise.

The funeral director handling the case was queried and representatives of the family and denies having infused the body with anything other than embalming fluid. The substances recovered from Keith are solvents found in various solvents, paints, lacquers, thinners and similar substances.

The possibility of ground water contamination was entertained by this pathologist, however, so far as we know, there is no such contamination of the cemetery, the vault and casket were sealed, and personally I do not believe that the distribution levels would have been as found on Keith. Unfortunately, the casket broke in the process of the exhumation and Keith was placed in a new casket and transported to Allentown.

A commentary on the toxicology may be seen on pages 12-13 of this report.


Isidore Mihafakis, M.D.
Forensic Pathologist

IM/msm

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CLINICAL HISTORY:

The patient was a nineteen year old, African American male found hanging from a small tree in a park behind his house in Silver Spring, Maryland, where he lived with his mother and sister. The Montgomery County, Maryland, detectives feel that he had been distraught over his parent's divorce years earlier and just before his death, he had fought with them over the insurance on his 1976 Corvette. The car was a high school graduation gift from his father, Mr. Cleo Warren, a former major in Durham, North Carolina, Police Department. Police had claimed that there were no signs of a struggle at the suburban park where his body was found. They say that the evidence shows Keith jumped from a log and hanged himself. The family feels that Keith was a victim of a homicide and the Maryland authorities mishandled the investigation. The parents also feel that race played a significant role in the way the case was handled. They maintain that Keith was not suicidal and no suicide note was found. The family feels that the most glaring mistake was in not ordering an autopsy despite the fact that Keith was found in an area of the county known for hate crimes against Blacks and Jews. On April 9, 1992, on what would have been Keith's twenty-fifth birthday, his mother, Mary Couey, arrived at her Maryland home to find an envelope on the doorstep. Inside were five black and white photographs of Keith where he was hanging from a tree with his head bent to the right.

The chronology of the high points of his life include:

1. Birth-April 9, 1967, in Topeka, Kansas, to Mary and Cleo Warren.
2. November 1967: Warren family moves to Durham, North Carolina.
3. August 21, 1979: Keith moves north with his mother and sister to Silver Springs, Maryland, a suburb of Washington, D.C., after his parent's divorce.
4. Keith graduates from Kennedy High School in Montgomery County, Maryland, and prepares to return to Durham to attend North Carolina Central University.
5. July 29, 1986: Keith disappears from his Maryland home.
6. July 31, 1986: Keith is found hanging from a small tree in a park behind his house. He was nineteen years old at the time. Authorities ruled the death as suicide and no autopsy was ordered.
7. April 9, 1992: Copies of police photos showing Keith hanging are mysteriously left on mother's doorstep.
8. May 25, 1994: The funeral home exhumes Keith's remains and the body is flown to Bethlehem, Pennsylvania.

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A month before his death Keith graduated Kennedy High School and planned to return to Durham to attend North Carolina Central University. He hoped to mend his relations with his father that had suffered since the divorce almost ten years earlier. Keith was preparing to drive to North Carolina and then two days later he was dead. When found, one end of the rope was tied around his neck and the other to a small tree. A medical examiner ruled it as suicide on the spot and police closed the case. Police state the following:

1. They saw no signs of trauma to the body.
2. Relatives told police that he had fought with his parents about keeping his car.
3. He had just changed jobs and a two thousand dollar car insurance payment was looming.

Other evidence to bolster the suicide includes:

1. A year earlier police state that he had been hospitalized at Duke University Medical Center after he became distraught following an argument with his father.

The family thinks Keith was murdered because shortly before his death he had started going around with a tougher crowd and the family wondered as to whether he got mixed up with drugs.

With respect to the scene, the rope used in the hanging was thrown through a crook where a branch came off a tree approximately 18 feet above the ground. The tree was four to six inches in diameter at the base. At the base of the tree, the rope was wound around the trunk several times and from there it went fifteen to twenty feet away remaining about a foot off the ground and was tied to another larger tree.

There is a history of a very brief hospitalization termed more of a reactive-type phenomenon referable to the breakup of his parent's marriage but the word depression is not used. So far as his friends know, he was not depressed, there was no suicide note. The family is upset that no autopsy and no toxicology were performed. As a consequence, through private funding such is being carried out.

EXTERNAL EXAMINATION:

The body was brought to Lehigh Valley Hospital in a new brown metal casket. It had been transferred to that casket from the casket

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unearthed from the cemetery. There are no plaques or markings on the casket. The body is dressed in a blue jacket and matching vest, blue trousers, black socks, striped long sleeve shirt, dark blue tie with lighter blue dots, T-shirt and a plastic body suit that extends from just below the nipples to the lower thigh level. The body measures five feet ten inches tall and at this time weighs approximately 140 to 150 pounds. The body was previously embalmed. An embalming button for trocar purposes is noted in the left upper quadrant of the abdomen, embalming incisions are noted in both groins and in the right subclavian region. These have been stitched.

The hair is black, bushy and up to about 5 cm long. There is easy removal of the hair as a result of postmortem autolytic changes. The face and neck show diffuse early skin slippage. The eyebrows and eyelashes are easily removed. The globes of the eyes are collapsed and the area filled with cotton. Other than easy skin slippage, no lesions are noted of the nose or of the ears. The nasal septum is intact. Dentition is natural and in good repair. No lesions are noted of the cheeks, labial or buccal mucosa. There is diffuse skin slippage on the face. The neck shows diffuse skin slippage. The neck shows remnants of a noose mark with an inverted V shaped pattern with the apex of the V being immediately behind the lower half of the left ear just behind the left mastoid protuberance. In this area, there is a depressed area about 15 by 20 mm in greatest dimension. From this area, there is a remnant of a furrow that extends sharply downward, behind the left angle of the jaw, crosses the neck above the thyroid protuberance and reaches the right side. The furrow mark is most pronounced along the right anterior and right lateral neck. It then curves along the right side of the base of the skull, along the posterior, and subsequently beginning in the mid portion of the back of the neck turns upward toward the apex of the V as previously described. The noose mark is least well delineated along the back of the neck. There is a somewhat more darkly pigmented darker area that extends from the upper right neck posteriorly just beneath the curvature of the occipital skull more or less transversely and terminates just above the mid portion of the right body of the mandible. This mark measures 5 to about 8 mm wide. It has no pronounced depression. Incision through this area shows no hemorrhaging. The depression of the noose mark on the anterior and right neck measures up to 10 mm wide. As a result of decompositional effect, there is some gas in the lower face and neck area. The chest is symmetrical and unremarkable anteriorly and on the sides. The abdomen is flat and free of any obvious scars. The pubic hair has a male pattern of distribution. The penis is circumcised. The scrotum is mildly

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distended with postmortem gaseous formation. On incision, a shrunken right testicle is identified but on the left side an obvious testicle is not visually apparent. There is extensive putrefactive change. The lower extremities reveal some diffuse subcutaneous gas, skin slippage but they are also wrinkled indicating that the maximum bloating had occurred and there is now collapse. The lower extremities are unremarkable. There is diffuse skin slippage in the lower extremities including the feet and including the soles of the feet. The toes are without note. The nails are easily removed. The upper extremities also show some residual gas formation, more on the right than the left, diffuse skin slippage throughout. The hands, fingers and fingernails are otherwise without note. The nails are easily removed. All nails are removed and retained. The back is unremarkable and the lumbar and thoracic back shows the least amount of skin slippage.

Prior to the autopsy, total body x-rays were performed. The skin is scraped in the legs, the back and the arms in an effort to look for any possible undue hemorrhages indicative of any bruising and no such hemorrhages are identified. The hands, arms, forearms and legs show no bruises or defensive-type injuries. There are no subcutaneous hemorrhages to indicate any injection sites, and there are no ligature marks about the wrists or ankles.

INTERNAL EXAMINATION, ORGAN SYSTEMSORGAN WEIGHTS AND FLUID VOLUMES:

| | |
|------------------|--|
| Brain: | 550 grams |
| Heart: | 300 grams with a left ventricle 9 to 14 mm thick and right ventricle 1 to 3 mm thick |
| Right Lung: | 420 grams |
| Left Lung: | 390 grams |
| Liver: | 1300 grams |
| Pancreas: | 50 grams |
| Spleen: | 160 grams |
| Right Kidney: | 140 grams |
| Left Kidney: | 120 grams |
| Prostate: | 3 cm in diameter |
| Stomach: | minimal granular non-recognizable material |
| Gallbladder: | empty |
| Urinary Bladder: | empty |

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HEAD AND CENTRAL NERVOUS SYSTEM:

The scalp is unremarkable and there are no bruises. The cranial vault is intact but shows area of yellow discoloration commonly seen in families with diabetes tendencies. The dura is without note. The brain is an autolyzed mass of tissue that has sunk to the posterior and middle cranial fossa, is very soft and friable. As best can be ascertained, the cranial nerves and blood vessels are normally distributed. Multiple coronal sections to the brain show no extraneous lesions, no hemorrhages and no obvious tumors. The spinal cord is dissected using a posterior approach. The paraspinal musculature is unremarkable. The spinal cord itself and the cervical vertebrae are without note and there are no soft tissue hemorrhages. The cord is removed to about the mid thoracic level.

NECK:

The neck is dissected in its entirety. There are no fractures or dislocations or hemorrhages. The tongue, larynx, laryngeal cartilages, hyoid bone and soft tissues of the neck as well as the cervical vertebral column visually are without note other than some autolytic changes with a soft pasty appearance and texture to the tissues. There are no undue hemorrhages. In the region of the ligature groove, no hemorrhages are noted circumferentially about the neck. The hyoid bone and the horns are intact as is the thyroid cartilage and its horns.

BODY CAVITIES:

All the viscera are extensively trocared with some leakage of contents. There are no tumors, rib fractures, dislocations or bruises.

CARDIOVASCULAR SYSTEM:

There is gaseous distension of mild amount in the pericardial sac and the major vessels show some remnants of clot as a result of the reaction of formalin with blood. Otherwise, the pericardial sac is empty. The coronary ostia arise normally and the vessels are normally distributed. On section, all vessels are thin, pliable, patent and of adequate luminal caliber. Sections through the left and right ventricular myocardium reveal no lesions. The atria and their appendages are normal. The foramen ovale is closed and the coronary sinus is normal. The valve leaflets, chordae tendineae, and papillary muscles are normal as are the inflow and outflow

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vascular tracts of the heart. The aorta and its branches show adequate luminal patency. The superior and inferior vena cavae and their tributaries are normal and the pulmonary arteries are patent.

RESPIRATORY SYSTEM:

The tracheobronchial tree is normally distributed and unremarkable. There is no aspiration or mass lesion. The lungs bilaterally are grayish, show some autolytic changes, but basically on section they are without note.

HEPATOBIILIARY SYSTEM:

The leading edge of the liver is slightly rounded and the surface is smooth. On section, the parenchyma is dark brown and the lobular architecture has been retained. The gallbladder and extrahepatic biliary tree are normal.

PANCREAS:

Postmortem autolysis; no other lesions.

SPLEEN:

No lesions are noted of the capsule, pulp, trabeculae or follicles.

HEMATOPOIETIC SYSTEM:

No lesions are noted.

LYMPHATIC SYSTEM:

No lesions are noted.

ENDOCRINE SYSTEM:

The pituitary gland and adrenal glands show autolytic changes. The thyroid gland is unremarkable.

URINARY SYSTEM:

The capsule of each kidney strips easily and the cortical surface is smooth. On section, the parenchyma is somewhat softer than normal consistent with autolytic changes, but otherwise it is reasonably well preserved, there is good corticomedullary demarcation and the linear cortical and medullary markings have

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been retained. The cortex averages roughly 40% of the total parenchyma thickness. The collecting systems and ureters are without note. The urinary bladder is empty but otherwise unremarkable.

REPRODUCTIVE SYSTEM:

The prostate is unremarkable on section.

GASTROINTESTINAL TRACT:

The esophagus and cardioesophageal junction are normal. The rugal pattern and mucosa of the stomach are normal. The antrum and the duodenal bulb are not deformed. The entire small and large bowel show some sloughing of the mucosa as a result of postmortem autolytic changes, but otherwise no lesions are noted. The appendix is present and unremarkable.

MUSCULOSKELETAL SYSTEM:

There is excellent growth and development.

MISCELLANEOUS:

Photographs were taken under the direction of this prosector.

Specimens are retained for toxicology including coagulated blood, brain, liver and kidney.

Specimens are retained for microscopy, and in addition especial sections are taken as follows:

- A. The darker, lower, facial, transversely oriented mark
- B. Larynx
- C. Skin and soft tissues from the nose groove.

Present at the autopsy in addition to this prosector was Mr. Donald Riley, autopsy assistant.

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MICROSCOPIC DESCRIPTIONSCARDIOVASCULAR SYSTEM:

Sections of the coronary artery show mild focal atherosclerosis in one section. Sections of heart show postmortem degenerative change.

RESPIRATORY SYSTEM:

Sections of lungs show congestion and edema and postmortem degenerative change. A section of trachea shows moderate postmortem changes and evidence of aspiration.

LIVER:

Moderate postmortem degenerative changes.

SPLEEN:

Normal with mild postmortem degenerative change.

PANCREAS:

Severe autolysis.

ENDOCRINE SYSTEM:

Sections of adrenals show mild postmortem degenerative change.

GASTROINTESTINAL TRACT:

Sections of stomach show mild autolysis. Sections of small intestine show moderately severe autolysis.

GENITOURINARY SYSTEM:

Sections of kidneys show mild postmortem degenerative changes while sections of prostate also show degenerative changes.

SKIN:

Sections of skin contain epidermis, dermis and skeletal muscle that are essentially unremarkable except for postmortem degenerative change.

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CENTRAL NERVOUS SYSTEM:

Severe postmortem degenerative change.

SPECIAL SECTIONS:

- SLIDE A:** The darker, lower, facial, transversely oriented mark: Tissues consist of fibrofatty tissue with postmortem degenerative change.
- SLIDE B:** Larynx: Slide consists of tissue showing severe postmortem degenerative change and aspirated material.
- SLIDE C:** Skin and soft tissues from the noose groove: Fibrofatty tissue and skeletal muscle with no unusual histologic features other than postmortem degenerative changes.

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| | KEITH | VALUE MCG/G OR ML | REPORTED FATALITIES MCG/G OR ML | BASELT 3RD EDITION RANGE |
|---------|-------------|----------------------|------------------------------------|--------------------------------|
| Toluene | Brain | 1.9 | | 19 (10-44) |
| | Muscle | 1.2 | | |
| | Kidney | 0.4 | | 21 (11-39) |
| | Liver | 1.6 | | 30 (13-47) |
| | Dried Blood | 0.8 | 10 (Winek); (Whole Blood) | 13 (10-20) (Whole Blood) |

COMMENT: Toluene should not be present; levels non-fatal

| | | | | |
|---------|-------------|-----|--|--|
| Xylenes | Brain | 20 | | |
| | Muscle | 10 | | |
| | Kidney | 2.1 | | |
| | Liver | 10 | 1-110 (Baselt 3rd Edition) | |
| | Dried Blood | 1.4 | 3-40 (Baselt & Winek); (Whole Blood Values) | |

| | | | | |
|------------------|-------------|-----|-----------------------------|--|
| Ethyl Benzene | Brain | 6.6 | | |
| | Muscle | 4.7 | Has not been measured | |
| | Kidney | 0.7 | in blood of exposed workers | |
| | Liver | 2 | | |
| | Dried Blood | 0.8 | | |

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| | KEITH | VALUE | REPORTED FATALITIES | | | | | | | | |
|-----------|-------------|-------|---------------------|-------|---------------|-----|-----|-----|------------|-----|-------------|
| | | | MCG/ML | MCG/G | OR | ML | | | | | |
| 1,1,1,TCE | Brain | 310 | 1230 | 80 | 27 | 3.2 | 93 | 590 | 560 | 500 | |
| | Muscle | 130 | | | | | | | | | |
| | Kidney | 83 | | | | | | | | | 56 |
| | Liver | 80 | 80 | 98 | 4.9 | 132 | 220 | 110 | 120 | | (2.6-120) |
| | Dried Blood | 60 | 42 | 18 | 1.3 | 120 | 62 | 60 | 100-1000 | | 102 |
| | | | | | (Whole Blood) | | | | Winek (WB) | | (4.9-220) |
| | | | | | | | | | | | 126 |
| | | | | | | | | | | | (105-720) |
| | | | | | | | | | | | Baselt (WB) |

Reference Archives of Environmental Health, 1983, VOLUME 38, No. 1
Military Medicine, 1974, Volume 139, pages 889-890.

| | | | | | | | | | | |
|---------|-------------|----|--------------------------------|--|--|--|--|--|--|--|
| 1,1,DCE | Brain | 88 | | | | | | | | |
| | Muscle | 32 | Cannot find toxic levels; only | | | | | | | |
| | Kidney | 22 | found permissible industrial | | | | | | | |
| | Liver | 44 | exposure limits | | | | | | | |
| | Dried Blood | 14 | | | | | | | | |

| | | | NORMAL RANGE | FATAL WHOLE BLOOD/LIVER |
|-----------------|---|-----------|----------------------------------|---|
| Arsenic | Dry Blood/Liver | 0.28/0.17 | 0.02-0.062 | 3.3 (0.6-9.3)/29 (2-120) (Baselt) |
| <u>Comment:</u> | Insecticide workers found to have up to 0.27 without symptoms; while apparently Keith's levels are elevated, they are nowhere near the lethal levels reported | | | |
| Selenium | Dry Blood/Liver | 0.36/0.19 | 0.182/2.3 (0.9-6.2) | |
| <u>Comment:</u> | Range is reasonably close to normalcy in view of the decomposition delay in embalming, etc. | | | |
| Boron | Dry Blood/Liver | 3.5/4.7 | Borates average 1.43 (0-7.15) | >400-500mcg/mL/610mcg/g Polson 3rd Edition and Baselt 3rd Edition |
| Copper | Dry Blood/Liver | 5.4/2.2 | 1.09/5.1 (3-9.5) | |
| <u>COMMENT:</u> | Obviously in the normal range. | | | |

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NORMAL RANGE

| | | | |
|------|-----------------|-------|---|
| Zinc | Dry Blood/Liver | 29/38 | Red blood cell levels average about 12.25 (Baselt 3rd Edition) |
|------|-----------------|-------|---|

COMMENT: Reasonably close to normal in view of the postmortem changes noted above.

| | | | |
|--------|-----------------|----------|--|
| Nickel | Dry Blood/Liver | 5.5/0.25 | average 2.1 (1.4-3.4)/ average 8.2 (5.2-13.2) (Baselt 3rd Edition) |
|--------|-----------------|----------|--|

COMMENT: Sufficiently close to normal range to preclude deductions