#### STANFORD UNIVERSITY MEDICAL CENTER

300 PASTEUR DRIVE, EDWARDS BLDG R-241, STANFORD, CALIFORNIA 94305 TEL #: (650) 723-6041 FAX #: (650) 498-5394

Hannes Vogel, MD - Director

Patient: PADDOCK (TENT), STEPHEN CRAIG

Med. Rec. No.:

Sex: M Age: 64 Date of Birth: 4/9/1953

Account No.: Default

Pathology No: SHS-17-54361

Date of Procedure:

Date Received:

11/27/2017 1:24:00 PM

Physician(s):

LISA ANN GAVIN, M.D.

CLARK COUNTY CORONER / MEDICAL EXAMINER

1704 PINTO LANE LAS VEGAS, NV 89106

SPECIMEN SUBMITTED:

BRAIN AUTOPSY: CASE#17-10064

#### **DIAGNOSIS:**

- 1. AUTOPSY BRAIN, PREFIXATION WEIGHT 1410 GRAMS, AND PITUITARY GLAND
- 2. STATUS POST INTRAORAL GUNSHOT WOUND OF HEAD WITH PENETRATION OF BRAINSTEM, CEREBELLUM, LEFT OCCIPITAL LOBE
- 3. INTRACRANIAL HEMORRHAGE, ACUTE, SECONDARY TO #2
  - a. SUBDURAL
  - b. SUBARACHNOID
  - c. PARENCHYMAL, MULTIFOCAL, CONTUSIVE, PETECHIAL
  - d. PITUITARY GLAND
- 4. HYPERTENSIVE VASCULOPATHY AND ATHEROSCLEROSIS

#### VOGEL

**COMMENT:** The hypertensive changes are commensurate with the stated age of the deceased and evidence from the general autopsy of hypertensive cardiovascular disease.

The extent of formation of corpora amylacea as noted in the microscopic description is a known incidental finding in the brains of asymptomatic older adults. In this example of strikingly numerous corpora amylacea there is no apparent etiology, consistent with the lack of any published significance to this abundance in some individuals.

GROSS NEUROPATHOLOGY: (H. Vogel, M.D.)

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Received through the courtesy of Dr. Gavin of the Clark County Coroner Office, Las Vegas, NV and by direct transfer from Coroner John Fudenberg on Monday November 27, 2017, and designated with the decedent name Paddock (Tent), Stephen as well as an autopsy report and identifying paperwork is formalin fixed brain tissue in a sealed plastic container.

No dura is received. The prefixation weight of the brain is 1410 grams. The written record of the postmortem prosection of the brain is noted in the received autopsy report. An intraoral gunshot injury is described in which the trajectory included in sequence, the roof of the mouth, the base of the skull (with internal beveling), the brain stem, the cerebellum, the left occipital lobe and partially into the occipital bones. Also described are: contusions of the base of the brain with brain swelling; and subdural and subarachnoid hemorrhage, locations unspecified. The cerebral hemispheres were asymmetrical, prefixation, due to injury. Further quoting the autopsy report: "The uninjured structures at the base of the brain are free of abnormality. Sections through the uninjured cerebral hemispheres reveal no lesions within the cortex, subcortical white matter, or deep parenchyma of either hemisphere. Sections through the uninjured brain stem and cerebellum reveal no lesions. The spinal cord was not removed." Representative portions were retained for formalin fixation.

The fixed brain tissue is received in pieces of varying sizes, as follows, with gross abnormalities if present. Neuroanatomic origins of all portions were substantiated by Dr. Gavin. Photographs were taken for documentation.

- 1. Frontal lobe; subarachnoid and petechial parenchymal hemorrhages
- 2. Cingulate gyri
- 3. Corpus callosum and partial basal ganglia, two pieces. Thalamus appears slightly mottled
- 4. Hippocampus, two pieces, sides unspecified; one with fresh contusion
- 5. Splenium of the corpus callosum
- 6. Cerebellum and injured midbrain, pons; several pieces
- 7. Occipital lobe, side unspecified

Representative sections are submitted as follows: A) frontal lobe, B) frontal lobe, C) corpus callosum and cingulate gyrus, D) basal ganglia with probable anterior commissure, E) thalamus, F) thalamus G) possible amygdala, H) putamen, I, J, K, L) designated hippocampus, M) thalamus and claustrum, N) designated temporal lobe with contusion, O) occipital lobe, side unspecified, P) midbrain with red nucleus, Q) injured pons, R) medulla, S) cerebellum, T)injured vermis, U) pituitary, V) optic chiasm, W) basal ganglia and internal capsule, X) basal ganglia and anterior commissure, Y) basal ganglia and possible amygdala

MICROSCOPIC NEUROPATHOLOGY: (H. Vogel, M.D.)

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All sections are viewed with hematoxylin and eosin and Luxol fast blue/periodic acid Schiff (LFB/PAS). The histological sections of regions designated as injured or containing contused brain are confirmed microscopically, evidenced by perivascular microhemorrhage. Grossly identifiable subarachnoid hemorrhage is also confirmed microscopically as acute. The pituitary gland shows acute parenchymal hemorrhage.

Sections including hemispheric white matter demonstrate hyaline thickening of arterial vessels with focal perivascular hemosiderin deposition, characteristic of hypertensive vasculopathy. No microinfarcts are noted. Large subarachnoid arterial blood vessels show moderate atherosclerosis.

None of the sections show any evidence of an either acute or chronic inflammatory reaction, within brain parenchyma and leptomeninges, providing no support for a diagnosis of either an infectious or autoimmune encephalitis or meningitis. The cerebellum is histologically normal and shows no obvious neuronal loss or reactive changes.

The most striking abnormality in sections of the hippocampus, peri- third ventricular wall, optic nerve, corpus callosum, medial surfaces of frontal lobes are unusually large numbers of corpora amylacea in subpial, perivascular, and minor subependymal distributions characteristic of the usual age-related accumulation of corpora amylacea in these favored locations. Some of the subpial regions with numerous corpora amylacea display interface ("Chaslin's") gliosis. The LFB/PAS stains highlight the corpora amylacea. No abnormal accumulations of corpora amylacea are found in gray matter as seen in Lafora disease, or except in rare foci, in white matter as seen in polyglucosan body disease.

The following special stains and immunohistochemical stains were performed with results described.

- 1. LFB/PAS: no evidence of demyelination
- 2. Bielschowsky silver impregnation, block J: no neurofibrillary tangles or senile plaques of the Alzheimer type
- 3. Beta-amyloid, blocks B, G, J: no vascular or plaque deposition
- 4. AT8 (phosphor tau), blocks B, C, D, G, L, N: no neurofibrillary tangles or senile plaques of the Alzheimer type in the hippocampus; no subcortical expression of tau at depths of sulci or perivascular as seen in chronic traumatic encephalopathy, frontal lobe
- 5. Alpha-synuclein, blocks C, G, P: no Lewy body pathology
- 6. TDP-43, blocks B, G, N: no abnormal cytoplasmic staining as seen in frontotemporal lobar degeneration (FTLD)
- 7. Ubiquitin, blocks J, N, Y: no abnormal cytoplasmic staining as seen in FTLD



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8. GFAP, blocks C, E, F, M: some mild increase in perivascular and subpial astrogliosis, without obvious neuronal loss

9. Beta-amyloid precursor protein, block C: no axonal injury

### **CLINICAL HISTORY:**

64 year old man expired of self-administered intraoral gunshot wound. No known past medical history.

I have reviewed the specimen and agree with the interpretation above. HANNES VOGEL, M.D. Electronically signed 12/27/2017 1:34 PM