

GROSS DESCRIPTION:

Received from Jonathan Eisenstat, M.D., Associate Medical Examiner, Georgia Bureau of Investigation, Division of Forensic Sciences, 3121 Panthersville Road, Decatur, Georgia 30034, are three specimens: formalin fixed brain sections, post-mortem whole blood in a sodium fluoride bottle and formalin fixed archival/stock sections of the brain.

BRAIN:

Part A: Directly received from Dr. Eisenstat on July 2, 2007, at the Georgia Bureau of Investigation, Decatur, Georgia is a plastic 5 liter specimen container labeled "Chris Benoit". The container is ¾ filled with formalin, and contains one irregular piece of dura mater and 24 irregularly cut pieces and non-standard sections of the brain. The irregular fragment of dorsal dura mater reveals smooth and white-tan epidural and subdural surfaces without xanthochromia, membranes or hemorrhages. Identifiable dural venous sinuses are patent without intraluminal thromboemboli. There are 24 non-standard sections of the brain cut into coronal and irregular sections measuring from 3.5 x 2.5 x 1.2 cm to 14 x 11.5 x 2.7 cm. There are four irregular fragments of the cerebellum, one irregular and incomplete fragment of the rostral brainstem and 19 irregular sections of the cerebral hemispheres. All the brain sections weigh 1510 grams in aggregate. Examination of the brain sections reveals no gross meningeal or parenchymal hemorrhages. There is no parenchymal necrosis or infarcts. Diffuse early parenchymal decompositional changes are present without Swiss-cheese cavitations. The cortical gyri are not thinned out. The cortical sulci are not widened. There is no gross atrophy of the subcortical/basal ganglia. Cut sections of the brain containing the mesial temporal lobe, amygdala and hippocampus were not submitted and are not identified. There are diffuse, prominent, congested penetrating parenchymal vessels in the centrum semiovale. Digital images of the specimen are captured.

Representative topographically targeted sections of brain tissue are taken and submitted for routine histochemical, specialized histochemical and immunohistochemical stains in 20 tissue cassettes as follows:

- Cassette #1: Frontal cortex, middle gyrus
- Cassette #2: Cingulate gyrus and corpus callosum
- Cassette #3: Insula cortex, putamen and globus pallidus
- Cassette #4: Random section of neocortex
- Cassette #5: Thalamus
- Cassette #6: Irregular fragment of brainstem
- Cassette #7: Irregular fragment of brainstem
- Cassette #8: Random section of neocortex
- Cassette #9: Cerebellum
- Cassette #10: Dura mater
- Cassette #11: Parietal cortex
- Cassette #12: Superior temporal gyrus
- Cassette #13: Calcarine cortex
- Cassette #14: Caudate nucleus, internal capsule and putamen
- Cassette #15: Random section of neocortex
- Cassette #16: Small irregular fragments of brainstem and anterior perforated substance
- Cassette #17: Random section of neocortex
- Cassette #18: Basal ganglia, thalamus
- Cassette #19: Random section of neocortex
- Cassette #20: Random section of neocortex

Part B: Received via Federal Express from Dr. Eisenstat on July 13, 2007 is a plastic 500 ml specimen container labeled "Chris Benoit 40 Y W M DR. EISENSTAT FAYETTE COUNTY 2007-1014482 6/26/07". The container is ¾ filled with formalin, and contains 5 irregularly cut pieces and non-standard sections of the brain comprising one piece of cerebellum, two incomplete sections of the brainstem and two unspecified pieces of cerebral cortex measuring from 3 x 3 x 1 cm to 5 x 4 x 4 cm. Digital images of the specimen are captured.

Representative sections of brain tissue are taken and submitted for routine histochemical, specialized histochemical and immunohistochemical stains in 2 tissue cassettes as follows:

- Cassette #21: Unspecified irregular piece of brainstem
- Cassette #22: Irregular pieces of brainstem/basis pontis

The following histo-chemical and immunohistochemical stains are performed on all the submitted sections of the brain:

1. Hematoxylin and Eosin stains [H/E]
2. Bielschowsky Silver Impregnation stains
3. Immunostains for Tau protein
4. Immunostains for Beta-A4 Amyloid protein
5. Immunostains for Glial Fibrillary Acidic Protein [GFAP]
6. Immunostains for Alpha-synuclein protein
7. Immunostains for CD-68

WHOLE BLOOD:

Directly received from Dr. Eisenstat on July 2, 2007, at the Georgia Bureau of Investigation, Decatur, Georgia is a whole blood sample in a sodium fluoride specimen bottle labeled "Chris Benoit". The specimen is submitted to Professor M. Ilyas Kamboh's laboratory at the Department of Human Genetics, Graduate School of Public Health, University of Pittsburgh, for Polymerase Chain Reaction [PCR]-based DNA analysis [Restriction Fragment Length Polymorphism] to determine the Apolipoprotein-E genotype.

APOLIPOPROTEIN-E GENOTYPING

Genomic deoxyribonucleic acid (DNA) was extracted from whole blood using the QIAamp DNA Blood Mini Kit (Qiagen, Valencia, CA). Restriction Fragment Length Polymorphism analysis with Hha I (New England Biolabs, Beverly, MA) was completed using previously published protocols [see references listed above]. The genotype of the sample is still pending and will be reported in an addendum report.

HISTO-CHEMICAL AND IMMUNO-HISTOCHEMICAL MICROSCOPIC DESCRIPTION:

Examination of the histochemical and immuno-histochemical stains reveals the following topographic histo-morphology and immuno-phenotype: see pages 4 to 7. Ronald L. Hamilton, M.D. [Department of Pathology, University of Pittsburgh] has reviewed the slides in this case and concurs with the findings of a cerebral taupathy.