

FINAL DIAGNOSIS: ,I. Ligature strangulation.,A.

Circumferential ligature with associated ligature furrow of

neck.,B. Abrasions and petechial hemorrhages, neck.,C.

Petechial hemorrhages, conjunctival surfaces of eyes and

skin of face.,II. Craniocerebral injuries.,A. Scalp contusion.,B.

Linear, comminuted fracture of right side of skull.,C. Linear

pattern of contusions of right cerebral hemisphere.,D.

subarachnoid and subdural hemorrhage.,E. Small contusions,

tips of temporal lobes.,III. Abrasion of right cheek.,IV.

Abrasion/contusion, posterior right shoulder.,V. Abrasions of

left lower back and posterior left lower leg.,VI. Abrasion and

vacular congestion of vaginal mucosa.,VII. Ligature of right

wrist.,TOXICOLOGIC STUDIES ,Blood ethanol - none

detected.,Blood drug screen - no drugs

detected.,CLINOCOPATHOLOGICAL CORRELATION:, Cause

of death of this six year old female is asphyxia by

strangulation associated with craniocerebral trauma. ,The

body of this six year old female was first seen by me after I

was called to an address XYZ, on 12/26/96. I arrived at the

scene approximately 8 PM on 12/26 and entered the house

where the decedent's body was located at approximately 8:20

PM. ,A brief examination of the body disclosed a ligature

around the neck and a ligature around the right wrist. Also

noted was a small area of abrasion or contusion below the

right ear on the lateral aspect of the right cheek. A prominent

dried abrasion was present on the lower left neck. After

examining the body, I left the residence at approximately 8:30

PM. ,EXTERNAL EVIDENCE OF INJURY:, Located just

below the right ear at the right angle of the mandible, 1.5 inches below the right external auditory canal is a  $\frac{3}{8} \times \frac{1}{4}$  inch area of rust colored abrasion. In the lateral aspect of the left lower eyelid on the inner conjunctival surface is a 1 mm in maximum dimension petechial hemorrhage. Very fine, less than 1 mm petechial hemorrhages are present on the skin of the upper eyelids bilaterally as well as on the lateral left cheek. On everything the left upper eyelid there are much smaller, less than 1 mm petechial hemorrhages located on the conjunctival surface. Possible petechial hemorrhages are also seen on the conjunctival surfaces of the right upper and lower eyelids, but liver mortis on this side of the face makes definite identification difficult. ,A deep ligature furrow encircles the entire neck. The width of the furrow varies from one- eighth of an inch to five/sixteenths of an inch and is horizontal in orientation, with little upward deviation. The skin of the anterior neck above and below the ligature furrow contains areas of petechial hemorrhage and abrasion encompassing an area measuring approximately 3 x 2 inches. The ligature furrow crosses the anterior midline of the neck just below the laryngeal prominence, approximately at the level of the cricoid cartilage. It is almost completely horizontal with slight upward deviation from the horizontal towards the back of the neck. The midline of the furrow mark on the anterior neck is 8 inches below the top of the head. The midline of the furrow mark on the posterior neck is 6.75 inches below the top of the head. ,The area of abrasion and petechial hemorrhage of the skin of the anterior neck includes on the lower left neck, just to

the left of the midline, a roughly triangular, parchment-like rust colored abrasion which measures 1.5 inches in length with a maximum width of 0.75 inches. This roughly triangular shaped abrasion is obliquely oriented with the apex superior and lateral. The remainder of the abrasions and petechial hemorrhages of the skin above and below the anterior projection of the ligature furrow are nonpatterned, purple to rust colored, and present in the midline, right, and left areas of the anterior neck. The skin just above the ligature furrow along the right side of the neck contains petechial hemorrhage composed of multiple confluent very small petechial hemorrhages as well as several larger petechial hemorrhages measuring up to one-sixteenth and one-eighth of an inch in maximum dimension. Similar smaller petechial hemorrhages are present on the skin below the ligature furrow on the left lateral aspect of the neck. Located on the right side of the chin is a three-sixteenths by one-eighth of an inch area of superficial abrasion. On the posterior aspect of the right shoulder is a poorly demarcated, very superficial focus of abrasion/contusion which is pale purple in color and measures up to three-quarters by one-half inch in maximum dimension. Several linear aggregates of petechial hemorrhages are present in the anterior left shoulder just above deltopectoral groove. These measure up to one inch in length by one-sixteenth to one-eighth of an inch in width. On the left lateral aspect of the lower back, approximately sixteen and one-quarter inches and seventeen and one-half inches below the level of the top of the head are two dried rust

colored to slightly purple abrasions. The more superior of the two measures one-eighth by one-sixteenth of an inch and the more inferior measures three-sixteenths by one-eighth of an inch. There is no surrounding contusion identified. On the posterior aspect of the left lower leg, almost in the midline, approximately 4 inches above the level of the heel are two small scratch-like abrasions which are dried and rust colored. They measure one-sixteenth by less than one-sixteenth of an inch and one-eighth by less than one-sixteenth of an inch respectively. ,On the anterior aspect of the perineum, along the edges of closure of the labia majora, is a small amount of dried blood. A similar small amount of dried and semifluid blood is present on the skin of the fourchette and in the vestibule. Inside the vestibule of the vagina and along the distal vaginal wall is reddish hyperemia. This hyperemia is circumferential and perhaps more noticeable on the right side and posteriorly. The hyperemia also appears to extend just inside the vaginal orifice. A 1 cm red-purple area of abrasion is located on the right posterolateral area of the 1 x 1 cm hymeneal orifice. The hymen itself is represented by a rim of mucosal tissue extending clockwise between the 2 and 10:00 positions. The area of abrasion is present at approximately the 7:00 position and appears to involve the hymen and distal right lateral vaginal wall and possibly the area anterior to the hymen. On the right labia majora is a very faint area of violent discoloration measuring approximately one inch by three-eighths of an inch. Incision into the underlying subcutaneous tissue discloses no hemorrhage. A minimal

amount of semiliquid thin watery red fluid is present in the vaginal vault. No recent or remote anal or other perineal trauma is identified. ,REMAINDER OF EXTERNAL EXAMINATION:, The unembalmed, well developed and well nourished Caucasian female body measures 47 inches in length and weighs an estimated 45 pounds. ,No scalp trauma is identified. The external auditory canals are patent and free of blood. The eyes are green and the pupils equally dilated. The sclerae are white. The nostrils are both patent and contain a small amount of tan mucous material. The teeth are native and in good repair. The tongue is smooth, pink-tan and granular. No buccal mucosal trauma is seen. The frenulum is intact. There is slight drying artifact of the tip of the tongue. On the right cheek is a pattern of dried saliva and mucous material which does not appear to be hemorrhagic. The neck contains no palpable adenopathy or masses and the trachea and larynx are midline. The chest is symmetrical. Breasts are prepubescent. The abdomen is flat and contains no scars. No palpable organomegaly or masses are identified. The external genitalia are that of a prepubescent female. No pubic hair is present. The anus is patent. Examination of the extremities is unremarkable. ,The fingernails of both hands are of sufficient length for clipping. Examination of the back is unremarkable. There is dorsal 3+ to 4+ livor mortis which is nonblanching. Livor mortis is also present on the right side of the face. At the time of the initiation of the autopsy there is mild 1 to 2+ rigor mortis of the elbows and shoulders with more advanced 2 to 3+ rigor mortis of the joints of the lower extremities.

,INTERNAL EXAM:, The anterior chest musculature is well developed. No sternal or rib fractures are identified.

,MEDIASTINUM: ,The mediastinal contents are normally distributed. The 21 gm thymus gland has a normal external appearance. The cut sections are finely lobular and pink-tan. No petechial hemorrhages are seen. The aorta and remainder of the mediastinal structures are unremarkable. ,BODY

CAVITIES: ,The right and left thoracic cavities contain approximately 5 cc of straw colored fluid. The pleural surfaces are smooth and glistening. The pericardial sac contains 3-4 cc of straw colored fluid and the epicardium and pericardium are unremarkable. The abdominal contents are normally distributed and covered by a smooth glistening serosa. No intra-abdominal accumulation of fluid or blood is seen.

,LUNGS: ,The 200 gm right lung and 175 gm left lung have a normal lobar configuration. An occasional scattered subpleural petechial hemorrhage is seen on the surface of each lung. The cut sections of the lungs disclose an intact alveolar architecture with a small amount of watery fluid exuding from the cut surfaces with mild pressure. The intrapulmonary bronchi and vasculature are unremarkable. No evidence of consolidation is seen. ,HEART: ,The 100 gm heart has a normal external configuration. There are scattered subepicardial petechial hemorrhages over the anterior surface of the heart. The coronary arteries are normal in their distribution and contain no evidence of atherosclerosis. The tan- pink myocardium is homogeneous and contains no areas of fibrosis or infarction. The endocardium is unremarkable.

The valve cusps are thin, delicate and pliable and contain no vegetation or thrombosis. The major vessels enter and leave the heart in the normal fashion. The foramen ovale is closed.

,AORTA AND VENA CAVA: ,The aorta is patent throughout its course as are its major branches. No atherosclerosis is seen. The Vena Cava is unremarkable. ,SPLEEN: ,The 61 gm spleen has a finely wrinkled purple capsule. Cut sections are homogeneous and disclose readily identifiable red and white pulp. No intrinsic abnormalities are identified. ,ADRENALS: ,The adrenal glands are of normal size and shape. A golden yellow cortex surmounts a thin brown-tan medullary area. No intrinsic abnormalities are identified.