

ROHRBOUGH, Daniel

Dr. Galloway

FINAL ANATOMIC DIAGNOSES:

1. Through and through large calibre gunshot wound involving the left chest associated with:
 - A. Laceration left lung
 - B. Laceration heart
 - C. Laceration aorta
 - D. Laceration esophagus
 - E. Laceration right lung
 - F. Bilateral hemothoraces
2. Large calibre gunshot wound involving the left mid-abdomen associated with:
 - A. Laceration stomach
 - B. Laceration liver
 - C. Laceration right hemidiaphragm
 - D. Intraperitoneal hemorrhage
3. Through and through large calibre gunshot wound involving the left lower extremity just below the knee

COMMENT: The autopsy findings in this case reveal that the cause of death is due to exsanguination secondary to extensive injuries involving the chest organs related to a through and through large calibre gunshot wound involving the left chest.

Ben Galloway M.D.
Ben Galloway, M.D.
Forensic Pathologist

This autopsy is performed at the request of Dr. Nancy Bodelson, the Coroner of Jefferson County. The external examination is performed on April 21, 1999 at 2:30 p.m. The identification is by personal effects and clothing characteristics. Members of the Jefferson County Sheriff's Department attended the autopsy. I am assisted in the autopsy by Mr. Rob Kulbacki.

HISTORY: This is the case of a 15-year-old, white male who was the victim of a shooting incident that occurred at Columbine High School in the late morning of 04/20/99. For location purposes, this individual is #15, and apparently was outside of the school building when he expired. No other history is available at the time of autopsy.

EXTERNAL EXAMINATION: The body is clothed in a green, blood-stained T-shirt that shows circular tears in the left shoulder and right upper back; "Big Dog" boxer shorts; Ralph Lauren jeans; white socks; and black shoes. There are circular tears in the left lower pant leg and there is also an additional circular tear in the front left lower aspect of the T-shirt. This is the unembalmed, well-developed, well-nourished body of a white male appearing consistent with the stated age of 15. Height is measured at 5'5-1/2"; weight is 150 pounds. Rigor is absent. Reddish-purple livor is well set over the anterior aspects of the body on the right side. There is also some livor posteriorly with appropriate blanching of the pressure points.

HEAD: The scalp is covered by short brown hair. Present in the right anterior hairline is a small area of reddish-purple contusion. There is also a small area of reddish-purple contusion just above the right eyebrow. No other external trauma involves the head. Palpating the head reveals no instability or soft tissue swelling. Ears - the ears are externally unremarkable and purple in color. Eyes - the eyebrows are brown. The sclerae are white with minimal congestion, greater on the right than the left. The irides are blue. The pupils are round, measure 9 mm, and are directed anteriorly. The conjunctivae are minimally congested, greater on the right than the left. Present over the right zygoma is a circumscribed area of reddish-brown abrasion which measures 3/4". There is some dirt clinging to the skin below this. Nose - the nose is externally unremarkable. The nasal passages contain some blood, and there is some blood smeared on the external surface of the right nostril. There is a dried blood flow pattern lateral to the right nostril. The septum is in the midline. Mouth - the lips are reddish-purple. The oral mucous membranes are tan and moist. The tongue is reddish-brown and finely granular. The teeth are in a good state of dental repair. There is some hemorrhagic fluid in the oral cavity. No injuries are observed.

NECK: The external surface of the neck reveals no evidence of trauma. The neck organs are in the midline without palpable masses.

CHEST: The chest demonstrates a normal anterior-posterior diameter. Present involving the left upper anterior chest, 4-1/2" below the sternal notch, 5" lateral to the left of the mid-sternal line, 49-1/2" above heel of the left foot, slightly above and lateral to the left nipple, is a circular, deeply penetrating, gunshot wound, showing no evidence of powder residue. Circumferential marginal abrasion is observed. The perforated area measures 5/16" in diameter. The abrasion measures 1/2" in diameter. For identification purposes, this wound will be referred to as "A". No other external trauma involves the chest. The breasts are normal for this age. Palpating the chest reveals no instability. The axillae are negative to observation and palpation.

ABDOMEN: The abdomen is flat. Present involving the left mid-abdomen, 2-1/2" above the horizontal plane of the umbilicus, 5" lateral to the left of the midline, 42" above the heel of the left foot, is a circular, deeply penetrating gunshot wound showing marginal abrasion which is greater on the lateral and inferior surface. The perforated area of this wound measures 5/16" in diameter; the abraded area 1/2" in diameter. For identification purposes, this wound will be referred to as "B". No other external trauma involves the abdomen. On deep palpation, no organomegaly or masses are noted grossly.

GENITALIA: A normal appearing male, brown, genital hair pattern is present. The penis is of normal size, shape, and position; circumcised. Both testicles are bilaterally descended in their respective scrotal sacs without palpable masses. There is some postmortem drying artifact on the anterior surface of the scrotum.

BACK: Present involving the right upper aspect of the back, 4" below the base of the neck, 7" lateral to the right of the mid-vertebral line, 52-1/2" above the heel of the right foot, in the horizontal plane of the apex of the right axilla, is a generally circular exit type of gunshot wound showing some irregular tearing of the margins. This wound measures 3/8" in diameter. There is no evidence of powder residue or abrasion involving the margins. For identification purposes, this wound will be referred to as "E". The anus is intact without any unusual dilatation or trauma.

EXTREMITIES: The upper extremities are intact. The nails are intact, short and clean. There is some blood staining on the anterior medial aspect of the right hand. The antecubital fossae reveal no evidence of recent needle puncture marks or scars. The upper arms are intact and unremarkable grossly. There is some blood staining on the anterior lateral aspect of the left shoulder. The lower extremities are intact. There is a small pigmented nevus on the anterior medial aspect of the right knee. There is a through and through gunshot wound involving the left lower extremity; with the entrance wound involving the lateral surface below the left knee; and the exit wound involving the

medial aspect of the upper portion of the left calf. The entrance wound, for identification purposes, is designated "C". The wound shows circumferential marginal abrasion and no evidence of powder residue. The perforated area measures 5/16" in diameter; the abraded area 1/2". The exit wound demonstrates no evidence of abrasion or powder residue. There is an irregular configuration that measures 5/8" in diameter. For identification purposes, this wound will be referred to as "D". The soles of the feet are intact and unremarkable grossly.

INTERNAL EXAMINATION: This internal examination is performed on 04/22/99 at 8:30 a.m. Through the usual Y-shaped incision, a thin layer of yellow subcutaneous adipose tissue and reddish-brown musculature are revealed. Diaphragms - the left hemidiaphragm is intact and arches to the level of the fifth left intercostal space; there is a circular laceration involving the right hemidiaphragm which arches to the level of the fourth right intercostal space. The peritoneal cavity contains 200 cc of blood. The peritoneum is smooth, gray and glistening. There is obvious injury to the liver. The viscera and omentum are otherwise normally disposed. The peritoneal surface is gray, smooth and glistening.

PLEURAL SPACES: The left pleural space contains 1000 cc of blood; the right pleural space contains 1200 cc of blood, and are one well-preserved, copper-jacketed, large calibre bullet. The parietal pleurae are smooth, gray and glistening. There is a circular laceration involving the parietal pleura of the left anterior chest wall associated with the third interspace. There is a circular laceration of the right parietal pleurae associated with the fourth interspace posterior-laterally. The bony structures of the chest are intact. There is a soft tissue wound tract involving the left mid-chest, overlying the third interspace. There is a soft tissue wound tract involving the right posterior chest wall adjacent to the fourth interspace. There are lacerations of the pericardial sac posteriorly. The pericardium is smooth, gray and glistening.

THYMUS: Ten (10) grams of pink, lobular, firm, thymic tissue is present in the anterior superior mediastinal space.

NECK: The lumen of the upper esophagus and pharynx is patent. The mucosal surface is tan and wrinkled. The lumen of the upper respiratory tract is patent. The mucosal surface is tan and smooth. The hyoid bone and cricothyroid cartilages are intact.

THYROID: The thyroid is of normal size, shape, and position, and has a reddish-purple, lobular, firm, gross appearance. The cervical vertebrae are intact. There is no obstruction to the posterior nasopharynx or the posterior aspect of the oral cavity. The major vessels of the neck are intact and unremarkable grossly. There is no soft tissue hemorrhage in the neck.

HEART: There is a large gaping laceration involving the

posterior wall of the left ventricle. The heart weighs 300 grams. The epicardial surface is reddish-brown, smooth, glistening, and blood stained. Minimal epicardial yellow fat is present. The myocardium is reddish-brown and firm without gross evidence of fibrosis or softening. The ventricular walls are of normal thickness. The endocardial surface is reddish-brown, smooth, and glistening. The cardiac valves - the posterior cusp of the mitral valve is lacerated; otherwise, the valves are intact. The valve leaflets are thin, delicate and fully pliable. The valve circumferences are normal for this size heart. The chordae tendineae are tan and delicate. The papillary muscles are intact. The foramen ovale is closed. The atrial septum is intact. The ventricular septum is intact. The coronary ostia are in a normal anatomic position and widely patent. The coronary arteries demonstrate a normal anatomic distribution with normal gross features.

AORTA: There is a through and through laceration involving the mid-aspect of the descending thoracic aorta. Otherwise, the aorta is intact and structurally unremarkable. The main abdominal tributaries are intact.

RESPIRATORY SYSTEM: The lumen of the lower respiratory tract contains hemorrhagic fluid. The mucosal surface is tan and smooth. The lungs are moderately well aerated. There are through and through circular lacerations involving the upper lobes of both lungs. Hemorrhage is observed in the margins of the injuries. The lungs together weigh 650 grams. The pleural surfaces are gray, reddish-purple, smooth and glistening. Serial sections reveal soft, spongy, lung tissue showing internal injury to the upper lobes of both lungs. The pulmonary arteries are intact without evidence of thromboembolic disease. The pulmonary veins empty into the left atrium in a normal fashion.

GASTROINTESTINAL SYSTEM: The esophagus is of normal course and calibre throughout. There is a laceration involving the posterior surface of the mid-portion of the esophagus. The lumen is patent. The mucosal surface is tan with longitudinal furrowing. The wall is thin. The stomach is in a normal anatomic position. There is a through and through laceration involving the anterior and superior margins of the stomach. The lumen contains 250 cc of thick, tan, liquid, gastric contents in which I can identify fragments of white meat, and some tan formed material which I am unable to further specify. The gastric mucosa is tan with intact rugae. No peptic ulcer disease or tumor are noted grossly. The small bowel demonstrates a normal anatomic distribution with normal gross features. The appendix is present and unremarkable grossly. The large bowel demonstrates a normal anatomic distribution with normal gross features.

SPLEEN: The spleen is intact and weighs 170 grams. The external surface is purple and smooth. Serial sections reveal a firm, reddish-purple, splenic parenchyma.

LIVER: There is a through and through, large laceration involving the upper portion of the left lobe of the liver. The liver weighs 1450 grams. Intact portions are reddish-brown, smooth and glistening. Serial sections reveal firm, reddish-brown lobular liver tissue.

GALLBLADDER: The gallbladder is intact. The lumen contains 8 cc of liquid, yellowish-brown bile. The mucosal surface is smooth and bile stained. The cystic duct and common bile duct are intact and patent throughout. The portal vein, splenic vein, and superior mesenteric vein are intact and patent.

PANCREAS: The pancreas is of normal size, shape, and position, and has a tan, lobular, partially autolyzed, gross appearance.

ADRENALS: Both adrenals are identified. Serial sections reveal a thin yellow cortex and gray medulla.

KIDNEYS: Both kidneys are identified. The capsules strip easily. The left kidney weighs 165 grams; the right kidney weighs 160 grams. The cortical surfaces are pale, reddish-brown and smooth. Bivalving of each kidney reveals a well-demarcated, pale, reddish-brown cortex and medulla. The renal papillae are normal. There is no calyceal scarring. There is no unusual pelvic dilatation. Both ureters are present, patent, and uniform in diameter throughout.

BLADDER: The bladder is intact. The lumen contains 30 cc of clear yellow urine. The bladder mucosa is tan and wrinkled. The prostate, seminal vesicles and testicles are intact and unremarkable grossly.

MUSCULOSKELETAL SYSTEM: There is a graze wound involving the anterior surface of the vertebral body of T4.

LYMPHATICS: No gross abnormality.

VENOUS SYSTEM: There is no evidence of hepatic vein, renal vein, or portal vein thrombosis. The superior and inferior vena cavae are intact.

CENTRAL NERVOUS SYSTEM: Reflection of the scalp reveals a small recent contusion involving the top of the head. The external cranium is intact. Removal of a portion of the calvarium reveals no evidence of epidural, subdural, or subarachnoid hemorrhage. The major cerebral vessels are intact. The brain weighs 1460 grams. The external convolutions are unremarkable. Serial sectioning the cerebral cortex, the midbrain, the pons, the medulla, the spinal cord, the cerebellum and the pituitary reveals diffusely soft brain tissue with otherwise normal gross features. The base of the skull is intact and unremarkable grossly. C1 and C2 are intact. The odontoid ligament and odontoid processes are intact.

TOXICOLOGY:

Blood: I obtained one gray-stoppered test tube of blood from the pectoral pool. I obtained one gray-stoppered test tube of blood from the right chest.

Urine: I obtained one gray-stoppered test tube of urine.

Vitreous Humor: I obtained one gray-stoppered test tube of vitreous humor.

Gastric Contents: I obtained one gray-stoppered test tube of gastric contents.

These will be submitted for routine toxicologic evaluation.

TRACE EVIDENCE:

The following trace evidence is obtained at the time of autopsy and given to the Jefferson County Sheriff's Officers in attendance at the autopsy:

1. Random samples of scalp and pubic hair.
2. Nail scrapings from both hands.
3. One bullet right chest cavity. This bullet, on close examination, is a copper-jacketed, large calibre bullet which is well preserved, and measures 5/8" in length and 5/16" in diameter.
4. Blood Samples: I obtained one yellow-stoppered test tube of blood, one purple-stoppered test tube of blood, and one red-stoppered test tube of blood, all from the right chest cavity.

X-RAY EXAMINATION: X-rays of the victim's head, neck, chest, abdomen and pelvis reveal a well-preserved, large calibre, apparently jacketed, bullet in the lower right chest cavity.

WOUND SUMMARIES:

Wound 1: Involves the entrance wound "A" observed in the left upper anterior chest. The projectile transected the anterior chest wall; entered the chest cavity through the third interspace; transected the upper lobe of the left lung; passed through the mediastinum; lacerating the heart, aorta, esophagus, and then transected the upper lobe of the right lung; exited the chest cavity through the fourth right posterior interspace; and exited the body through the wound designated "E" in the right upper back. The projectile traveled anteriorly-posteriorly, left to right at an angle of approximately 25 degrees in the horizontal plane, and traveled upward approximately 20 degrees in the vertical plane.

Wound 2: Involves entrance wound designated "B" in the left mid-abdomen. This projectile transected the abdominal wall; passed

through the stomach; left lobe of the liver; the right hemidiaphragm; and came to rest in the right pleural space. This projectile traveled anteriorly-posteriorly, left to right, in an upward direction.

Wound 3: Is a through and through large calibre gunshot wound involving the left lower leg (wounds "C" and "E").

The wounds are consistent with 9 mm type of ammunition.

MICROSCOPICS:

Thyroid: Normal histologic features.

Brain: Normal histologic features.

Liver: Normal histologic features.

Wound A: Sections are of skin demonstrating a central deeply penetrating wound without significant powder residue.

Pancreas: Autolyzed.

Kidney: Sections reveal early autolysis.

Thymus: Normal histologic features.

Heart: Normal histologic features.

Lungs: Sections reveal patchy atelectasis and foci of intra-alveolar hemorrhage.

Adrenal Gland: Normal histologic features.

Wound B: Sections are of skin showing a central deeply penetrating wound without significant powder residue.

TOXICOLOGY:

Blood Alcohol Negative

Urine Drug Screen Negative