

HOSA State Topic: Version A: 2021-2022

Forensic Science Case Study

Instructions to Competitors

You will have a maximum of six (6) minutes to examine the crime scene and written information. You will then have thirty (30) minutes to review the autopsy report, and to complete your written analysis.

Case Study Analysis

Date: July 23, 2021

Location: Chicago, Illinois

Time: 1130 hours

Detective's Report:

Police received a call at about 2321 hours on 22July2021 from Methodist Hospital reporting a patient with a gunshot wound. Upon Detective Harper's arrival, Dr. Mould reported that S. Vasquez was driven to the emergency room 2245 hours by her girlfriend T. Martin. S. Vasquez was unresponsive and her girlfriend told hospital staff that she was shot while they were stopped at a red light. Resuscitative efforts were unsuccessful and S. Vasquez was pronounced dead.

Upon being questioned, T. Martin stated she was driving S. Vasquez home from a late dinner at The Capital Grille, celebrating their two year anniversary together, when they stopped for a red light. An unknown black SUV drove by them on the passenger side and began firing. T. Martin stated that she could not see the assailants and cannot find any reasons for anyone wanting to harm them. Blood evidence supported S. Vasquez being in the passenger seat when she was shot.

Upon interviewing food servers at The Capital Grille, the waiter stated that it appeared the two women were friendly at first but then got into a heated discussion by the end of dinner. After being shown photos, the waiter identified S. Vasquez as 'storming out' of the restaurant with T. Martin following closely behind. A dishwasher at the restaurant recalled hearing a couple loud bangs during his shift, but dismissed it as the lid to the garbage bin slamming closed outside the back door of the restaurant. He was working the 3:00pm to midnight shift on the day in question.

| SUMMARY REPORT OF AUTOPSY | |
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| Name: S. R. Vasquez | Medical Examiner's Case #: 00721835 |
| Date of Birth: 11.23.1995 | Age: 25 |
| Race: Other- Asian Pacific Islander | Sex: F |
| Date of Report: 7.23.21 | Body Identified by: Girlfriend |

EXTERNAL EXAMINATION - SUMMARY

Examination performed at Methodist Hospital at 0800 hours on 23July2021.

The body is that of a well-developed, well-nourished 64 inch, adult 122lb Hispanic female. Lividity is fixed on the posterior aspect of the torso, upper legs, and feet. Rigor is present and symmetrical on all extremities. Body temperature is 30° C.

The scalp is covered with black hair up to 40 cm in length. The irises are brown and the pupils are round and equal in diameter. The conjunctivae have no petechial hemorrhages. The external nose has no trauma and the nasal septum is intact. The frenula are intact and there is no trauma to the oral mucosa. The teeth are natural and unremarkable.

The neck is straight, and the trachea is midline and mobile. The breasts are symmetric with no palpable masses. The abdomen has no congenital deformities, scars or tattoos. The genitalia are those of a normal adult female. The buttocks and anus are otherwise unremarkable.

There are no injuries, congenital deformities, or tattoos to the extremities.

CLOTHING AND PERSONAL EFFECTS

At the time of examination, the deceased is attired in a cut black dress, beige bra, black underwear and no shoes. Personal effects are not present with the body at the time of autopsy.

EVIDENCE OF MEDICAL INTERVENTION

Electrocardiogram pads are on the right chest, left chest, right thigh, and left thigh. External defibrillator pads are on the right chest and left abdomen. An intravenous catheter is in the left antecubital fossa. A chest tube is in the left pleural cavity through the 5th intercostal musculature. A chest tube is in the right pleural cavity through the 7th intercostal musculature. A hospital identification band is around the right ankle.

EVIDENCE OF INJURY

Head: A 1 x 1 cm round entrance gunshot wound with a 0.3cm abrasion at the right temporal scalp, 2.5 inches below the top of the head and 6 inches right of the anterior midline. A stippling pattern is adjacent to the gunshot wound spreading 8 cm from the edge of the entrance wound at the 3 o'clock position, 4 cm from the edge of the entrance wound at the 2 o'clock position, and 1 cm from the edge of the entrance wound at the 6 o'clock position. Soot and muzzle print are absent.

The wound path is hemorrhagic and crosses the skin of the left temporal scalp, left temporalis muscle, left temporal bone, left temporal lobe, and left occipital bone. A partially deformed, lead projectile is recovered from the posterior scalp, adjacent to the outer edge of the left occipital bone.

The direction of the wound path is front to back, left to right, and slightly downward. Linear and comminuted fractures of the left temporal and occipital bone are associated with the wound path, as well as contusions and lacerations of the base of the left temporal lobe.

Torso: A 1 x 1 cm entrance gunshot wound with a 0.15 cm red abrasion rim is found on the left chest, 13.5 inches below the top of the head, 1.5 inches left of the anterior midline. There are no visible stippling, soot, or muzzle imprints noted. There is a purple contusion adjacent to the entrance wound at the 6 o'clock position.

The wound path is hemorrhagic and crosses the musculature of the left chest, anterior to the 5th left rib, the lower left lung lobe, the pericardial sac, the left atrium of the heart, the posterior aspect of the left 8th intercostal muscle, and the musculature of the left side of the back. A deformed lead projectile is recovered from the subcutaneous soft tissue of the left back, 13.5 inches below the top of the head, and 1.5 inches left of the anterior midline.

Associated with the wound path are lacerations and hemorrhage of the musculature of the left chest. Approximately 18 ml of blood are noted in the pericardial sac, 1500 ml of blood are noted in the left pleural cavity and 120 ml of blood are noted in the right pleural cavity. The direction of the wound path is front to back, right to left and straight without up or down trajectory.

INTERNAL EXAMINATION – SUMMARY

HEAD: Injuries to the head have been previously described. The brain is 1082 grams. Epidural hemorrhage is not present. The leptomeninges are thin, transparent and have no exudate. The vessels at the base of the brain are normally formed and patent. The uninjured portions of the cerebral hemispheres are symmetric. Coronal sections of the cerebrum and transverse sections of the cerebellum and brainstem show no necrosis.

NECK: The anterior muscles and surrounding soft tissue of the neck have no hemorrhage. The hyoid bone and thyroid cartilage are intact.

RESPIRATORY SYSTEM: Injury to the left lung has been described. The left and right lungs weigh 175 and 350 grams, respectively. The pleural surfaces are pink, smooth, and glistening. The lung parenchyma is pink to red, soft, and focally hemorrhagic. The larynx and trachea are patent and lined by intact mucosa. The pulmonary vessels are patent.

CARDIOVASCULAR SYSTEM: The 245 gm heart shows normal distribution of epicardial fat. The coronary arteries are present in a normal distribution, with a right-dominant pattern. The myocardium is dark red, firm and without scars. The walls of the left and right ventricles are 3.0 and 0.3 cm thick, respectively. The tricuspid, pulmonary, mitral, and aortic valves are pliable with no vegetations. The aorta is elastic and has a smooth lining.

LIVER & BILIARY SYSTEM: The 880 gm liver has an intact, smooth capsule. The parenchyma is tan-brown and firm. The gallbladder contains 5 ml of dark green bile and no choleliths. The mucosal surface is green and velvety.

SPLEEN: The 120 gm spleen has a wrinkled, intact, purple capsule. The parenchyma is dark red and soft. The abdominal lymph nodes are not enlarged.

ENDOCRINE SYSTEM: The right and left adrenal glands are symmetric, with yellow cortices and grey medullae. The pancreas is unremarkable, and the thyroid is dark red, uniform and not enlarged.

GENITOURINARY SYSTEM: The right and left kidneys weigh 100 gms each. The external surfaces are intact and smooth. The bladder contains approximately 20 ml of yellow urine. The uterus, fallopian tubes, and ovaries are unremarkable.

GASTROINTESTINAL TRACT: The tongue has no bite marks or hemorrhage. The esophagus is intact and lined by smooth, tan mucosa. The stomach contains approximately 5 ml of green fluid and partially digested chewing gum. The gastric mucosa is tan, has unremarkable rugal folds, and is intact. The intestines are tan and have no palpable masses. The appendix is tan and glistening.

BLOOD TOXICOLOGY:

Caffeine, POSITIVE

Ethanol, POSITIVE 0.05 g/dL

Cannabinoids, NEGATIVE

Opiates, NEGATIVE

Amphetamines, NEGATIVE

