



**The North Carolina Baptist Hospitals, Inc.
Wake Forest University School of Medicine**

Department of Pathology

Medical Center Blvd

Winston-Salem, NC 27157

Tel: (336) 716-4311 Fax: (336) 716-7595

MEDICOLEGAL AUTOPSY REPORT

Prosecutor:		Patient Name::	STEWART, MATTHEW RYAN
Consultant:	P. E. Lantz, M. D.	Medical Record #:	
Autopsy Assistant:	Robert Clark	DOB/Age::	3/14/1978 (Age: 31)
Service:		Race/Gender:	W/M
Admitted:			
Expired:	6/9/2009		
Autopsied:	6/10/2009		
Reported:	7/15/2009		
Attending Physician:		NCBH Path #:	A09-821

Medical Examiner: Charles A. Tudor
Iredell County Medical Examiner

FINAL AUTOPSY DIAGNOSIS

- I. Gunshot wounds, head and neck
 - A. Medium caliber, exiting gunshot wound of face; indeterminate range
 1. Entrance: left corner of mouth
 - a) No adjacent soot or stippling
 2. Graze wound, skin and subcutaneous tissue
 3. Perforation, skin and subcutaneous tissue of left medial cheek
 4. Exit: left lateral cheek
 5. Surrounding subcutaneous ecchymosis, 8 x 6 cm
 6. Trajectory: front to back, to the left with minimal upward/downward deviation
 - B. Large caliber, exiting gunshot wound of neck; close range
 1. Entrance: right posterolateral neck below skull base
 - a) Surrounding soot: 2.5 cm
 - b) Surrounding stippling: 7 x 7 cm
 2. Perforation, skin and subcutaneous tissue
 3. Perforation and fracture: 1st and 2nd cervical vertebral arches
 4. Transection of medulla and cervical spinal cord junction
 - a) Contusions and hemorrhage of inferior cerebellar lobes
 - b) Subarachnoid hemorrhage
 5. Transection of vertebral arteries
 6. Perforation: subcutaneous tissue and skin
 7. Exit: left lateral neck below left ear
 8. Trajectory: right to left, back to front, slightly upwards
 9. 2 yellow metal jacket fragments recovered from soft tissue
 - a) 1.8 grains
 - b) 0.6 grains
- II. Gunshot wounds; thorax, abdomen, and back
 - A. Large caliber, non-exiting gunshot wound of chest and abdomen, intermediate range
 1. Entrance: right upper anterior chest, above and medial to right nipple
 2. Surrounding stippling, 9 x 9 cm
 3. Perforation: skin and subcutaneous tissue
 4. Perforation and fracture: inferior border of right anterior 5th rib
 5. Perforation: right middle lobe
 6. Perforation: anterior right hemidiaphragm
 7. Perforation: right lobe of liver
 8. Perforation: posterior right hemidiaphragm
 9. Penetration and fracture: right 11th rib
 10. Projectile (lead core and jacket) recovered in adjacent soft tissue
 - a) Weight: 122.6 grains
 - b) Base diameter: 10 mm
 - c) Expanded diameter of lead core: 1.7 cm

11. 5 jacket fragments recovered from wound tract in liver, 8.4 grains in aggregate
12. Trajectory: front to back, downwards, to the right
- B. Medium caliber, non-exiting gunshot wound of thorax/back; indeterminate range
 1. Entrance: right anterolateral chest in anterior axillary line below and right of right nipple
 - a) No soot or stippling
 2. Perforation: skin and subcutaneous tissue
 3. Perforation: musculature (trapezius and rhomboid major)
 4. Penetration and fracture: upper medial scapula
 5. Projectile recovered in adjacent soft tissue: minimal, distorted, copper-like jacket with lead core (70 grains)
 - a) Base: 9 mm
 - b) Concave lead core below leading edge of jacket
 - c) Dense white plastic sphere recovered in musculature of wound tract
 - (1) Weight: 2.8 grains
 - (2) Diameter: 7 mm
 6. Trajectory: front to back, upward, medial (to the left)
 - C. Medium caliber, non-exiting gunshot wound to back; indeterminate range
 1. Entrance: right upper lateral back, medial to axilla (armpit)
 - a) No soot or stippling
 2. Perforation: skin and subcutaneous tissue
 3. Perforation and fracture: spine of scapula
 4. Projectile fragments recovered
 - a) Jacket fragments (2): 16.2 and 5.8 grains
 - b) Lead fragments (2): 47.4 grains, combined
 - c) Base diameter of jacket: 9 mm
 5. Dense white plastic sphere recovered from wound
 - a) Dimensions: 8 x 7 mm
 - b) Weight: 2.8 grains
 6. Trajectory: back to front, medial (right to left), and upwards
 - III. Gunshot wound, upper extremities
 - A. Exiting gunshot wound of left upper arm
 1. Atypical entrance: left medial brachial (biceps) region
 2. Perforation: skin and subcutaneous tissue
 3. Perforation of musculature (biceps)
 4. Perforation: subcutaneous tissue and skin
 5. Shored exit: left posterior brachial (left posterior brachial region)
 6. Trajectory through arm: front to back, downwards, left
 - IV. Sharp force injury, head and neck
 - A. Superficial incised wound of right lower lateral neck
 - B. Single-edged stab wound of right neck, medial to sternomastoid muscle
 1. Perforation: skin, subcutaneous tissue, musculature
 2. Direction: medial and slightly downward
 - C. Superficial stab wound of right jaw
 - D. Stab wound, right preauricular area
 1. Perforation: skin and subcutaneous tissue
 2. Direction: medial and downward
 - E. Single-edged stab wound behind right ear
 1. Perforation: skin, subcutaneous tissue, musculature
 2. Direction: medial and downward
 - F. Single-edged stab wound of left temple
 1. Perforation: skin, subcutaneous tissue, musculature
 2. Penetration and fracture: left squamosal bone with associated 14 cm parietal skull fracture on outer table
 3. Direction: medial, forward, downward
 - G. Superficial incised wound below the left ear
 - V. Sharp force injury, upper extremities
 - A. Interrupted incised wound, right inner thumb
 - B. Incised wound with skin flap, right index finger at proximal interphalangeal joint
 - C. Incised wound, dorsal right hand
 - D. Incised wound, left hand between thumb and index finger
 - E. Incised wounds, left index finger (2)
 - VI. Blunt trauma, head and neck
 - A. Non-pattern, superficial abrasions, right side of head
 - B. Non-pattern, abrasions, right side of neck
 - VII. Blunt trauma, lower extremities
 - A. Abrasion, left dorsal foot, proximal to left little toe

Electronically Signed Out By: P. E. Lantz, M. D.

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Summary of Findings

Major findings at autopsy for this 31-year-old Caucasian male, Matthew Ryan Stewart, included multiple gunshot wounds and sharp force injuries. A medium caliber, exiting gunshot wound involved the face. The entrance was located at the left corner of the mouth. The projectile created a graze wound of the left medial cheek that exited the left lateral cheek. No projectile fragments were recovered. A large caliber, exiting gunshot wound involved the right posterolateral neck below the skull base. This wound had surrounding soot and stippling. The projectile perforated and fractured the 1st and 2nd cervical vertebrae, transected the brainstem and spinal cord, as well as the vertebral arteries; two yellow metal fragments of jacket were recovered from this wound. The chest had a large caliber, non-exiting gunshot wound. The entrance was located on the right upper anterior chest and had surrounding stippling. The projectile perforated and fractured the right 5th rib before perforating the right middle lobe, liver, and right 11th rib. Recovered from the adjacent soft tissue was a lead core and jacket; within the liver were 5 jacket fragments along the wound tract. The back on the right side had 2 medium caliber, non-exiting gunshot wounds. One was located on the right anterolateral chest wall in the anterior axillary line. The projectile went through the musculature of the back, penetrated and fractured the upper border of the scapula, and recovered was a minimally distorted semi-jacketed 9 mm projectile that had a concave lead core below the leading edge. Also, along the wound path in the musculature, was a dense white plastic sphere weighing 2.8 grains and having a diameter of 7 mm. The other medium caliber, non-exiting gunshot wound involving the back was located on the right upper lateral back, medial to the armpit. This projectile went through the soft tissue, perforated and fractured the spine of the right scapula, and recovered in the soft tissue were fragments of lead jacket and also a dense white plastic sphere measuring 8 x 7 mm and weighing 2.8 grains. An atypical gunshot involved the left upper arm; the atypical entrance was located on the upper inner aspect of the arm and the atypical short exit was lateral and below this. If the left arm was raised and approximated to the lateral left cheek, this would correspond to a re-entrance and re-exit wound from the wound of the left cheek. Sharp force injuries, including incised and stab wounds, involved the right lower lateral neck, the right side of the neck at the medial sternomastoid muscle, the right preauricular area, behind the right ear, posterior scalp/neck and back and left temple. The one in the left temple went down, penetrated and fractured the squamosal bone of the left side of the skull, and had an associated fracture of the left parietal bone. Stab wounds of the chest and back involved a stab wound of the right upper chest that penetrated the right costochondral cartilage of the 5th anterior rib and penetrated the right middle lobe. Other stab wounds involved the right upper shoulder, left chest at the costochondral margin, and above the right clavicle. Angulated stab wounds involved the upper back, lower neck, left upper back, right upper back, and right upper lateral back. The stab wounds penetrated skin and subcutaneous tissue, but other than the wound of the right upper chest, did not violate the chest wall. The upper extremities had incised wounds of the right inner thumb, right index finger at the proximal interphalangeal joint, the dorsal right hand, as well as the left hand between the thumb and index finger, and finger pads of the left index fingers. These incised wounds of the hands are characteristic of defense-type injuries. Blunt trauma was minimal with non-patterned abrasions of the right side of the head, right side of the neck, and a small abrasion of the foot proximal to the left little toe. The deceased had not been consuming alcoholic beverages immediately prior to death.

According to investigative reports, assailant(s) entered the decedent's home and shot him & his wife in the bedroom. She ran from the home with 2-year-old son and called for help from a neighbor's home. The decedent was found in the upstairs master bathroom with multiple gunshot wounds and stab wounds. He was pronounced dead at the scene.

Body Weight: 168 lb
Body Length: 69.5 in

EXTERNAL EXAMINATION

The body is that of a well developed, well nourished, adult Caucasian man, who appears compatible with the stated age. Body identification includes an ID tag bearing the decedent's name on the body bag.

The body is cool to touch. Rigor is full in all extremities and jaw. Diffuse, fixed, purple livor extends over the posterior surfaces of the body, except in areas subject to pressure.

The scalp hair is dark brown-black and measures to 0.2 cm in length over the sides; frontal pattern baldness is present. The irides are brown. The corneae are transparent. No fundal hemorrhages are evident. The sclerae and conjunctivae are unremarkable. No conjunctival petechiae are present. The nose and ears are not unusual. Except as noted, the lips and gums are pale. The teeth are in good repair. Facial hair includes a short dark brown-black beard and moustache. The neck is without masses, and the larynx is in the midline.

The thorax is symmetrical with an anteroposterior/lateral ratio of about 1:2. The abdomen is flat. The penis is circumcised; the testes are bilaterally descended within the scrotum. Except as noted, the anus and back are unremarkable.

The upper and lower extremities are well developed and symmetrical, without absence of digits. The fingernails are short and moist with dried blood present underneath, but no obvious fibers or hairs are present.

There are no identifying marks and scars.

There is no evidence of emergency resuscitation and/or medical therapy.

The body is received clothed in a short-sleeved gray t-shirt that is saturated in blood; defects are present in the posterior and anterior panel, corresponding to the underlying stab and gunshot wounds. The decedent is also clothed in blood-soaked underwear. A yellow metal ring is present on the left ring finger.

EVIDENCE OF INJURY

The gunshot wounds and sharp force injuries are numbered and listed for recording purposes only. They do not indicate the severity of injuries or the sequence in which the injuries were inflicted.

HEAD AND NECK

GUNSHOT WOUND

A medium caliber, exiting gunshot wound involves the left side of the face. The range of fire is indeterminate. The entrance is located on the left corner of the mouth. No soot or stippling surrounds the entrance wound. The entrance is a graze-type wound with a width at the corner of the mouth of 0.9 cm, extending along the skin surface for 3.5 cm, with skin tags with their points directed medially. The center point of the entrance is located 7 inches below the vertex of the head and 1.5 inches left of midline. The projectile then perforated the skin and subcutaneous tissue of the medial left cheek and exited the left lateral cheek through an irregular 1.5 x 0.9 cm defect. Surrounding subcutaneous ecchymoses measure 8 x 6 cm. No projectile fragments are present along the wound path or embedded within the soft tissue along the wound path. The trajectory through the face is front to back, then left with minimal upward/downward deviation. No projectile fragments are evident on postmortem anterior, posterior, or lateral radiographs of the

head.

A large caliber, exiting gunshot wound involves the neck. The range of fire is close range. The entrance is located on the right posterolateral neck below the skull base. The circular entrance perforation measures 1.0 cm (diameter) and has circumferential marginal abrasion measuring 1 mm. The center point of the gunshot wound of entrance is located 6 inches below the vertex of the head. Surrounding soot on the skin has a diameter of 2.5 cm from the center point of the entrance wound. Stippling surrounds the adjacent skin occupies a 7 x 7 cm area. A yellow metal, copper-like fragment of jacket is barely visible inside the entrance along the wound path. The projectile perforates skin and subcutaneous tissue before perforating and fracturing the 1st and 2nd vertebral arches. The projectile has then transected the upper spinal cord at the medullo-spinal cord (cervical) junction. The inferior cerebellar lobes have hemorrhage, softening, and subarachnoid hemorrhage involves the cerebellar lobes and lateral cerebral cortices. The projectile in fracturing and perforating the vertebral arches, has also transected both vertebral arteries. The projectile then perforates subcutaneous tissue and skin on the left side of the neck. The exit is located on the left lateral neck below the left ear. The exit wound is slightly irregular, measuring 1.5 x 1.0 cm and has no surrounding marginal abrasion. The center point of the entrance wound is located 5 inches below the vertex of the head. Recovered along the wound path and beneath the skin at the entrance wound are 2 yellow metal fragments of jacket, one weighing 1.8 grains and the other measuring 0.6 grains. The trajectory through the head/neck is right to left, back to front, and slightly upward.

SHARP FORCE INJURY

A superficial incised wound involves the right lower lateral neck. The length is 4.5 cm, the maximum width of the incision is 0.2 cm, the depth is 0.1 cm.

A single-edged stab wound involves the right neck, medial to the sternomastoid muscle. The stab wound is almost horizontal with the sharp extremity oriented anteriorly and the blunt extremity is oriented posteriorly. The wound length is 1.9 cm, the width at the squared-off blunt extremity measures 0.1 cm, the depth of the wound measures 4 cm. The stab wound perforated skin and subcutaneous tissue and the underlying musculature, but has not injured any of the great vessels of the neck. The trajectory through the neck is medially and slightly downwards.

A superficial stab wound involves the right jaw at the angle of the jaw. The wound length is 0.5 cm, the maximum width is 0.1 cm, the depth is 0.1 cm. The stab wound perforates only skin and subcutaneous tissue.

A stab wound involves the right preauricular area. The blunt and sharp extremities are not readily apparent. The wound length is 1.7 cm, the width is 0.1 cm, and the depth is 0.1 cm. The stab wound perforates skin and subcutaneous tissue and is directed medially and slightly downwards.

A single-edged, angulated stab wound is present behind the right ear. The sharp extremity is located anteriorly and the overall wound dimensions are 4 cm (length), 0.2 cm (width), and 5.0 cm (depth). The stab wound has perforated skin and subcutaneous tissue and underlying musculature, but has not injured any underlying major blood vessels. The direction of the stab wound is medially and downwards.

A single-edged stab wound involves the left temple, above and in front of the left ear. The blunt extremity is oriented superiorly and the sharp extremity inferiorly. The wound length is 1.4 cm. The width at the blunt extremity is 0.1 cm and the depth is 2 cm. The stab wound has

perforated skin, subcutaneous tissue, and underlying musculature before perforating and fracturing the left squamosal bone, creating a 1.5 cm defect in the bone and an associated 14 cm fracture that courses upwards and posteriorly across the left parietal bone. The fracture involves only the outer table and is not apparent on the inner table of the left parietal bone. The direction of the stab wound is medially forward and slightly downwards.

A superficial incised wound is located below the left ear. The wound length is 2 cm and the maximum width is 0.1 cm. The wound only perforates the skin and barely involves the underlying subcutaneous tissue.

A stab wound involves the left posterior neck just below the skull base. A distinct sharp and blunt extremity are not apparent. The stab wound measures 1.4 cm (length), has a maximum width of 0.1 cm, and a depth of 2.4 cm. The stab wound perforates skin and subcutaneous tissue and underlying musculature, but does not impact the vertebral bodies. The direction of the stab wound is forward and slightly downwards.

BLUNT TRAUMA

On the right side of the head, above the ear and behind the eyebrow, are a cluster of irregular abrasions; one is linear and measures 3 cm with a maximum width of 0.3 cm. Adjacent and anterior to this is a cluster of red-tan, non-patterned abrasions measuring 1.5 x 1.0 cm. Behind the linear abrasion, above the right ear, is a cluster of non-patterned red-tan abrasions measuring 3 x 0.6 cm. On the right neck below the angle of the jaw and behind the sternomastoid muscle is a cluster of abrasions measuring 3 x 0.5 cm and has a faint central incised wound that barely breaks the skin's surface. Below this is a 2 mm puncture.

CHEST AND ABDOMEN

GUNSHOT WOUNDS

A large caliber, non-exiting gunshot wound involves the chest and abdomen. The range of fire is intermediate. The entrance is located on the right upper anterior chest, above and medial to the right nipple. The entrance wound perforation measures 1.2 x 0.2 cm and has circumferential marginal abrasion measuring 1 mm except for the superior aspect between the 10:00 and 2:00 position where it measures slightly more than 1 mm, almost to 2 mm. The center point of the entrance wound is located 16.5 inches below the vertex of the head and 3 inches right of midline. No soot is on the adjacent skin; however, stippling is present and occupies a 9 x 9 cm area. The projectile has perforated the skin and subcutaneous tissue before perforating and fracturing the inferior border of the right 5th anterior rib, creating a 2 x 2.5 cm irregular defect. Surrounding soft tissue and intramuscular hemorrhage on the anterior chest walls measures 14 x 13 x 0.5 cm. The projectile then has perforated the right middle lobe, creating an irregular 2.0 x 3.5 cm ragged defect with surrounding intraparenchymal hemorrhage measuring to 7 cm. The projectile has then perforated the anterior right hemidiaphragm through a 2 cm defect. Within the right pleural cavity are 150 mL of liquid and clotted blood. The projectile then perforates the right lobe of the liver, creating a 2 cm to 4 cm hemorrhagic path of destruction through the parenchyma. Recovered along the wound tract within the liver are 5 yellow-metal, copper-like jacket fragments, having an aggregate weight of 8.4 grains. The projectile then perforates the posterior right hemidiaphragm, creating a 2 cm defect, then penetrates and fractures the right 11th rib, creating a 2 x 2.5 cm irregular defect with surrounding hemorrhage in the soft tissue and musculature measuring 9 x 8 x 2 cm. Recovered within the soft tissue, adjacent to the right 11th rib, is a projectile consisting of a lead

mushroom core and expanded jacket. The combined weight of the lead core and jacket recovered from the adjacent soft tissue weighs 122.6 grains. The base diameter of the jacket measures 10 mm. The expanded diameter of the lead core measures 1.7 cm. The trajectory through the body is front to back, downward, and to the right.

A medium caliber, non-exiting gunshot wound involves the thorax and back. The range of fire is indeterminate. The entrance wound is located on the right anterolateral chest in the anterior axillary line below and to the right of the right nipple. The entrance wound is oval with a central perforation measuring 0.9 x 1.1 cm and an abrasion collar located inferior and medial to the central perforation, measuring 10 x 8 mm. The center point of the entrance is located 19 inches below the vertex of the head. The projectile perforates skin and subcutaneous tissue before perforating the muscles of the right side of the back, mainly the trapezius and rhomboid major, creating a 1 cm wound path through the muscle with associated hemorrhage. Recovered along the path is a dense white plastic sphere, having a diameter of 7 mm and weight of 2.8 grains. The projectile, after going through the musculature, has penetrated and fractured the upper medial scapula and recovered adjacent to the scapula is a minimally distorted, medium caliber, jacketed projectile with a lead core having a weight of 70 grains. The base diameter is 9 mm. The lead core is below the leading edge of the semi-jacketed nose or leading edge of the projectile. The trajectory through the body is front to back, upward, and medially (to the left).

A medium caliber, non-exiting gunshot wound involves the back. The range of fire is indeterminate. The entrance is located on the right upper lateral back, medial to the axilla (armpit). No soot or stippling surrounds the gunshot wound of entrance. The entrance is somewhat oval with a 1 cm diameter and inferior marginal abrasion measuring 1 x 1 cm. This center point is located 14 inches below the vertex of the head and 7.5 inches right of midline. The projectile perforates skin and subcutaneous tissue before perforating and fracturing the spine of the right scapula. Yellow copper-like jacket fragments and lead fragments are recovered from the soft tissue of the right upper posterior shoulder. Two jacket fragments weight 16.2 and 5.8 grains and the lead fragments combined weigh 47.4 grains. The larger jacket fragment has a base diameter of 9 mm. Recovered from the wound is a dense plastic sphere measuring 8 x 7 mm and having a weight of 2.8 grains. The trajectory through the body is back to front, medially (right to left), and upward.

SHARP FORCE INJURIES

A single-edged stab wound involves the right upper chest, medially and slightly above the right nipple. The blunt extremity is located above and to the right; the sharp extremity is inferior and medially. The length of the wound is 2.7 cm, the width is 0.2 cm, the depth is approximately 7-9 cm. Undermining an abrasion, is located inferolateral of the wound, indicating the direction of the knife was front to back, medially, and upwards. The stab wound has perforated skin and subcutaneous tissue, underlying musculature, and perforated the underlying right costal cartilage of the 5th rib and perforated the right middle lobe, creating a 1.1 cm defect with surrounding hemorrhage that is contiguous with the hemorrhage from the gunshot wound of the right chest and abdomen.

A stab wound involves the right upper shoulder. A distinct sharp and blunt extremity are not apparent. The length of the wound measures 2.5 cm, the width is 0.1 cm, and the depth is 1.5 cm. The stab wound perforates skin, subcutaneous tissue, and the deltoid muscle. The direction of the stab wound is front to back and downwards.

A superficial stab wound involves the left lower chest. It is located above the costal margin. A distinct blunt and sharp extremity are not apparent.

The wound length measures 2.0 cm, the width is 0.1 cm, and the depth is 1.7 cm. Two incised wound trails are located medially and inferior to the stab wound. The medial one measures 1.0 cm and the inferior trail measures 8.0 cm. The stab wound perforates skin, subcutaneous tissue, and musculature, but does not violate the chest wall. The direction of the stab wound is front to back and downwards.

A superficial incised wound is located above the right clavicle. Its length measures 5.5 cm and its depth is 0.2 cm. The wound only perforates and barely enters into the underlying subcutaneous tissue.

An angulated, single-edged stab wound involves the upper back and lower neck, just left of midline. The angulated defect is almost perpendicular with the upper leg, measuring 2 cm with a sharp extremity located superiorly. The other angle is located perpendicular with the sharp extremity to the left; it measures 1.9 cm (length). The width of both legs is 0.1 cm and the maximum depth of the stab wound is 5.0 cm. The stab wound has perforated skin and subcutaneous tissue and underlying musculature, but has not damaged the underlying spinal cord. The direction of the wound is back to front and downwards.

A stab wound involves the left upper back. It is located below and just left of the previous angulated stab wound. The length of the wound is 1.5 cm, the width is 0.1 cm, and the depth is 3 cm. The wound perforates skin, subcutaneous tissue, and underlying musculature. The direction of the stab wound is back to front and downwards.

A single-edged stab wound involves the right upper back, just right of midline. The sharp extremity is located down and medially. The length of the wound is 2.0 cm, its width is 0.1 cm and the depth is 4.5 cm. The stab wound perforates skin, subcutaneous tissue, and underlying musculature but does not enter the chest or damage the spinal cord. The direction of the stab wound is back to front, downwards, and medially (to the left).

A single-edged stab wound involves the right upper lateral back in the mid scapular line. The sharp extremity is located inferiorly. The stab wound measures 1.0 cm (length), a width of 0.1 cm, and a depth of 1.0 cm. The stab wound perforated skin and subcutaneous tissue and the direction is back to front and slightly downwards.

UPPER EXTREMITIES

GUNSHOT WOUND

An exiting gunshot wound involves the left upper arm. The range of fire is indeterminate. No soot or stippling surrounds the gunshot wound of entrance. The entrance is located on the left medial brachial (biceps) region. The entrance wound is atypical, measuring 1.9 x 1.0 cm with irregular abrasion surrounding the entrance wound with the largest abrasion measuring 5 x 5 mm. The projectile perforates skin and subcutaneous tissue and the musculature of the underlying biceps then perforates the lateral subcutaneous tissue and skin, and exits the left posterior brachial area, 5 cm from the entrance wound. The exit is shored and measures 1.2 x 1.1 cm with circumferential 2-3 mm marginal abrasion. The center point of the exit wound is located 7 inches below the left shoulder. No projectile fragments are present along the wound path and none are evident radiographically. The trajectory through the arm is front to back, downwards, and to the left. This atypical entrance wound may represent a re-entrance wound from the left lateral cheek with a subsequent re-exit wound of the left lateral upper arm.

SHARP FORCE INJURY

An interrupted incised wound involves the right inner thumb. It measures 2.5 cm and has a depth between 0.1 and 0.2 cm.

An incised wound also involves the right index finger at the proximal interphalangeal joint, measuring 0.6 cm with a proximal flap.

An incised wound involves the dorsal right hand, measuring 2 cm (length) with a depth of less than 0.1 cm.

The left hand, between the thumb and index finger, has a 4 cm incised wound extending through the skin and subcutaneous tissue and a depth of 3 cm. On the palmar surface, extending from this wound, is a 1 cm superficial incised wound.

Two incised wounds involve the left index finger at the finger pad, one measures 1.0 cm and the other measures 0.7 cm; the maximum depth of both is 3-4 mm.

LOWER EXTREMITIES

BLUNT TRAUMA

On the dorsal left foot, just proximal to the little toe, is a 0.6 cm red-tan abrasion.

POSTMORTEM RADIOGRAPHS

The anterior-posterior, and lateral radiographs of the skull demonstrate traumatic disruption of the 1st and 2nd cervical vertebrae below the skull base with minute fragments of metal embedded in the soft tissue, plus two larger metallic fragments, one located posterior and the other near the spinal column. Also present are metallic fragments of the right shoulder. A fracture involves the left parietal bone.

Anterior-posterior, and lateral radiographs of the chest and abdomen reveal metallic fragments above and medial to the right scapula, as well as metallic fragments within the liver and also adjacent to the right 11th rib. Radiographs of the left and right humeri demonstrate no metallic fragments of the left arm but the aforementioned fragments of the right shoulder are visible in the right upper extremity radiograph.

INTERNAL EXAMINATION

BODY CAVITIES

Panniculus
adiposus: 2-2.5 cm

All body organs are present in normal and anatomical position. The organs are uniformly pale.

CENTRAL NERVOUS SYSTEM

Brain weight: 1460 gm

The dura mater and falx cerebri are intact. The cerebral hemispheres, basal ganglia, thalami, brain stem, and cerebellum are unremarkable except as noted under the "Evidence of Injury" section.

NECK

Except as noted, examination of the soft tissues of the neck, including strap muscles, thyroid gland, and large vessels, reveals no abnormalities. The hyoid bone and larynx are intact. The lingual mucosa is intact; the underlying firm red-brown musculature is devoid of hemorrhage.

CARDIOVASCULAR SYSTEM

Heart weight: 380 gm

The pericardial surfaces are smooth, glistening and unremarkable; the pericardial sac is free of significant fluid or adhesions. The coronary arteries arise normally, follow the usual distribution in a right-dominant fashion. The epicardial branches are widely patent without evidence of

significant atherosclerosis or intraluminal thrombi. The chambers and valves bear the usual size-position relationships and are unremarkable. The myocardium is pale tan-brown, firm, and unremarkable; the atrial and ventricular septa are intact. The aorta and its major branches arise normally, follow the usual course and are widely patent, free of significant atherosclerosis and other abnormality. The vena cava and its major tributaries return to the heart in the usual distribution and are free of thrombi.

RESPIRATORY SYSTEM

Combined lung weight: 850 gm

The upper airway contains aspirated gastric contents consisting of tan-gray mucous with vegetable material that extends down to the proximal bronchi. The underlying mucosal surfaces are slightly hyperemic but otherwise unremarkable. Except as noted, the pleural surfaces are smooth, glistening and unremarkable. Lobar divisions are of the usual configuration. Except as noted, the pulmonary parenchyma is pale pink-tan, exuding small amounts of blood and frothy fluid; no focal lesions are noted. The pulmonary arteries are normally developed, patent, and without thrombus or embolus.

LIVER AND BILIARY SYSTEM

Liver weight: 1380 gm
Bile volume: 5 ml

Except as noted, the hepatic capsule is smooth, glistening and intact, covering red-brown parenchyma, with no focal lesions noted. The gallbladder contains green-brown, slightly mucoid bile; the mucosa is velvety and unremarkable. The extrahepatic biliary tree is patent, without evidence of calculi. The portal vein and its tributaries are unremarkable.

ALIMENTARY TRACT

The esophagus is lined by gray-white, smooth mucosa. The gastric mucosa is arranged in the usual rugal folds, and the lumen contains 15 mL of tan-gray mucous with partially digested vegetable material. The small and large bowel are unremarkable. The appendix is present.

GENITOURINARY TRACT

Right kidney: 110 gm
Left kidney: 110 gm
Urine volume: 18 ml

The renal capsules are smooth and thin, semi-transparent, and strip with ease from the underlying, smooth, pale tan, firm, cortical surface. The cortex is sharply delineated from the medullary pyramids, which are pale red to tan and unremarkable. The calyces, pelves, and ureters are unremarkable. The relationships at the trigone are unremarkable. The mucosa of the urinary bladder is gray-tan and smooth. The testes, prostate and seminal vesicles are unremarkable.

RETICULOENDOTHELIAL SYSTEM

Spleen weight: 100 gm

The spleen has a smooth, intact capsule covering red-purple, moderately firm parenchyma; the lymphoid follicles are unremarkable. The regional lymph nodes appear normal. The bone marrow is red-purple and homogeneous, without evidence of focal abnormality.

ENDOCRINE SYSTEM

The pituitary, thyroid, and adrenal glands are unremarkable.

MUSCULOSKELETAL SYSTEM

Except as noted, the bony framework, supporting musculature, and soft tissues are not unusual.

Tissue Examined:

Heart	1	Uterus	Spinal Cord
Aorta		Ovary	Thymus
Lungs	2	Thyroid	Seminal Vesicles
Spleen		Parathyroid	Breast
Liver	1	Esophagus	Gallbladder
Pancreas		Stomach	Skin

