The Autopsy Lexicon

Suggested Headings for the Autopsy Report

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Context.—Although standard autopsy texts and other publications discuss the general content of autopsy reports, and some provide examples of autopsy report formats, no publication to date has recommended specific headings for autopsy report organization. The College of American Pathologists Autopsy Committee decided it would be helpful to provide suggestions for autopsy report headings to foster more standardized autopsy reporting, to facilitate review of reports by third parties, and to facilitate searches of electronically stored autopsy reports.

Objectives.—To create a model document (named the Autopsy Lexicon), which defines standard categories of information that are useful to include in autopsy reports; to offer specific wording for the headings of various sections of the report; and to explain the rationale for including the various items of information and headings.

Participants and Methods.—The members of the Autopsy Committee of the College of American Pathologists prepared the document by reviewing various examples of autopsy report formats, identifying specific categories of information usually contained in such reports, and developing wording for various sections of the autopsy report that would contain specific information. A draft was submitted to 45 members (including 12 forensic pathologists) of the College of American Pathologists for review, comment, and reality testing. Reviewers included pathologists from both community and academic settings. Comments of reviewers were incorporated to the extent possible.

Results.—The Autopsy Lexicon was prepared and is a model document for autopsy pathologists who wish to define an autopsy template of headings for consistent organization of autopsy reports.

Conclusions.—The Autopsy Lexicon is available to foster more uniform reporting of autopsy information, which may facilitate review of autopsy reports and retrieval of information from electronically stored autopsy reports.

(Arch Pathol Lab Med. 2000;124:594-603)

Autopsy guidelines, handbooks, and textbooks often contain suggestions for autopsy report content, including suggested content for the details of gross and microscopic descriptions, but few have offered suggested headings for autopsy report organization.1-10 Consistently used headings may be helpful for 4 reasons:

1. A consistent sequence of autopsy reporting, through repetition, would reduce the likelihood of omissions.
2. When the pathologist must review a report at some time following its original completion, the ability to find a selected type of information would be facilitated.
3. A consistent reporting sequence would facilitate autopsy report review by third parties, such as other pathologists and physicians.
4. The widespread application of electronic word-processing and document storage increases the potential usefulness of autopsy reports for electronic data analysis, and consistently used headings would facilitate the process of analyzing specific categories of information within autopsy reports.

The headings presented here are applicable to both hospital-based and forensic autopsies. This document is intended to provide suggestions and options for autopsy report organization and should not be construed as a standard for professional performance.

Although the Autopsy Committee encourages the application of electronic word-processing systems for production of autopsy reports, including consistently used headings, the Committee does not recommend or encourage the use of complete autopsy report templates with “canned” descriptive findings.

LIST OF STANDARDIZED FIRST-LEVEL HEADINGS

The autopsy report may contain the following first-level headings, indicated in boldface capital letters if possible. First-level headings may be set centered or left-justified.

- Autopsy Face Sheet
- Historical Summary
- Examination Type, Date, Time, Place, Assistants, Attendants
- Presentation, Clothing, Personal Effects, Associated Items
- Evidence of Medical Intervention
- Postmortem Changes
- Postmortem Imaging Studies
- Features of Identification
- External Examination
- Internal Examination
- Summary of Injuries
- Ancillary Procedures, Laboratory Tests, and Results

Accepted for publication November 30, 1999.
From Fulton County Medical Examiner, Atlanta, Ga.
Development supported by the College of American Pathologists, Northfield, Ill.
Reprints: College of American Pathologists Autopsy Committee, 325 Waukegan Rd, Northfield, IL 60093-2750.
The headings are organized so findings can be dictated as the various phases of the investigation are performed. Each heading can be included in each autopsy report, and “none,” “not applicable,” or other wording, such as “see radiology report, filed separately,” may be used if specific information is not included under the heading. It is not necessary that the headings appear in the order listed. These headings are consistent with the College of American Pathologists (CAP) Forensic Pathology Committee’s Practice Guidelines for Forensic Pathology.11

RATIONALE FOR HEADINGS
Autopsy Face Sheet

This section includes information for the autopsy face sheet in a format consistent with CAP recommendations.

Historical Summary

This section allows the pathologist to include relevant medical history, laboratory data, and other preautopsy information that may be relevant to the case. For hospital autopsies, it is analogous to a review of the medical record and clinical course. For forensic autopsies, it may also include relevant aspects of the background investigation or circumstances of the scene investigation. This section need not be extensive, because investigative reports and medical records should always be available for review if needed. Some investigators claim that extensive review of medical records is biased by the reviewer’s own perspective, and it is best to limit the summary of historical information to major information items only.12 This section also allows for a very brief statement of the context in which the autopsy was conducted, including the major goals.

Examination Type, Date, Time, Place, Assistants, Attendees

This section makes it clear whether the autopsy was “complete” or otherwise, and under what legal authority the autopsy was performed. Documentation of the date, time, and place is needed not only to place autopsy findings into temporal perspective, but also to explain any circumstances (such as lack of, or malfunctioning equipment) that might influence the manner in which the autopsy was performed. Documentation of assistants and attendees may also be helpful for documenting witnesses and to explain why certain aspects of an examination may or may not have been performed or performed in the particular manner or sequence that occurred. Including the name of attendees also documents the interest that such people showed by attending the autopsy.

Presentation, Clothing, Personal Effects, Associated Items

This section enables one to describe how the body was wrapped, protected, prepared, or stored prior to autopsy, as well as to document items present with the body, such as jewelry, clothing, or items of potential evidentiary value. Noting, for example, that the wrists were tied together with string might allow one to explain to the family why there were “marks” around the wrists. Documentation of personal effects, such as jewelry, might help address claims that items have been stolen or lost. If for some reason the body was stored face down, documentation of that fact might be useful in explaining to an angered family why the face was “purple and swollen,” and would document that the findings were not related to the autopsy procedure.

Evidence of Medical Intervention

This section is designed for documenting all tubes, bandages, devices, and markings, such as venipunctures, that are known to have been iatrogenic in origin. This enables such findings to be separated from other autopsy findings conceptually, as well as in the text of the report. When appropriate, the position of devices within the body should be described within the relevant portion of the internal examination description. Changes related to organ or tissue procurement may also be noted here.

Postmortem Changes

Routine documentation of postmortem changes may be helpful in establishing or confirming the postmortem interval and in the interpretation of other autopsy findings. Rigor mortis, livor mortis, degree of corneal clouding and collapse, presence or absence of skin slippage, discolorations, and cutaneous drying are some of the routine parameters to be included.

Postmortem Imaging Studies

This section is used to document the performance and results of any postmortem imaging studies.

Features of Identification

Occasionally, there may be a question of the decedent’s true identity long after the autopsy was performed. It is not uncommon in forensic and some hospital settings for people to have an alias or to have multiple medical records under different names. Items such as height, weight, and body build; hair color, length, and texture; eye color; condition of teeth; presence (and location) or absence of scars and tattoos; externally missing appendages; circumcision status; and other distinctive features (rhinophyma, cleft in chin, etc) are typically included.

External Examination

The findings noted on external examination may be very important in any autopsy, especially forensic ones. It is the external appearance of the body that often prompts questions from funeral directors and next-of-kin. Thorough documentation is essential. Details of the types of information to be included in this section are presented in other CAP publications.5,6,8,9

Internal Examination

The internal examination is obviously a major component of the autopsy and deserves thorough reporting. Details of the types of information to be reported are included in other CAP publications.5,6,8,9

Summary of Injuries

This section includes a summary of internal injuries, including correlation with evidence of injury noted on external examination.

Ancillary Procedures, Laboratory Tests, and Results

This section is used to list the tests, procedures, and consultations that are performed or requested in conjunc-
tion with the examination. The listing may also include specimens that were retained. Typical examples are culture of pulmonary abscess, documentary photographs, peripheral blood test for drug abuse screening, and the like. Relevant results should also be included.

Block Listing and Histologic Description

This section usually includes a catalog that specifies the source of each paraffin block (and slide). It also includes relevant details of the histologic description, as detailed in other CAP publications.5,7-9

Findings and Diagnoses

This section is analogous to the Final Anatomic Diagnoses. The heading Findings and Diagnoses is preferred, however, because relevant findings may not constitute true diagnoses, and reports are always subject to amendment and, therefore, are not truly final. Findings and diagnoses are reported as detailed in other CAP publications and are usually organized by organ system, organ, clinical/historical symptoms and signs, or problem orientation. The content of this section would usually appear on the autopsy face sheet, as described elsewhere. Prior to case finalization, this section might contain the provisional findings and diagnoses, or provisional anatomic diagnoses. Relevant date of completion should be included.

Summary and Comments

This section may be used to address foreseen questions, to provide commentary, for clinicopathologic correlations, and to place the examination in perspective. Speculation and lengthy commentary are discouraged.

Cause-of-Death Statement

This section includes a cause-of-death statement written in standard format.13 It is included to facilitate linkage between descriptive autopsy report information and cause-of-death information. The cause-of-death statement can also be included on the autopsy face sheet.

Amendments

This section allows for continual updating of findings or interpretations as needed. It takes into account that cases remain “open” and may be modified as new information becomes available. The date of any amendments should be included.

SECOND-LEVEL HEADINGS FOR EXTERNAL EXAMINATION

The following second-level headings are used for organizing the report of external examination. These headings are typed in standard text that is left-justified on its own line.

- General
- Head
- Neck
- Torso
- Upper Extremities
- Lower Extremities
- Evidence of Injury
- Summary

Rationale and Usage

General.—This section includes reference to nutritional status, body habitus, hydration, and hair distribution, as well as the presence or absence of discolorations, peculiar odors, adherent foreign material, and unusual vascular markings.

Head.—This section includes reference to the scalp, auricles, mastoid regions, auditory meati, forehead, face, nasal and facial bones, ocular findings, nasal cavities, and oral cavity.

Neck.—This section includes comment about the presence or absence of symmetry, masses, scars, contusions, abrasions, or other markings.

Torso.—This section includes reference to the breasts, anterior and posterior torso, genitalia, perineum, inguinal regions, buttocks, and anus.

Upper Extremities.—This section includes reference to the axillae, arms, elbows, forearms, wrists, and hands.

Lower Extremities.—This section includes reference to the thighs, knees, legs, ankles, and feet.

Evidence of Injury.—This section includes a description of external evidence of injury or a statement that there is no external evidence of injury.

Summary.—This section contains a brief capsule summary of relevant external findings.

Caveats

Some information items that traditionally have been described as part of the external examination may be described under other headings as outlined in “Rationale for Headings.” This approach minimizes the tendency to inadvertently omit such information by providing specific headings as a prompt to include appropriate and relevant data.

Caveat 1.—Information about clothing, jewelry, personal effects, and other items associated with the body may be described under the heading Presentation, Clothing, Personal Effects, Associated Items.

Example.—“The body is wrapped in a white plastic shroud with the wrists tied together with string and resting on the abdomen. The body is clad in a white and blue hospital gown. No jewelry is present. No other items are present with the body.”

Caveat 2.—Information useful for identification purposes may be described under the heading Features of Identification.

Example.—“This is the body of a white male, which weighs 170 pounds and measures 72 inches in height. The physique is mesomorphic and muscular. The head hair is brown, wavy, and measures about 2 inches in greatest length. There is no balding, no beard, and no moustache. The irides are blue. The teeth are natural with occlusal amalgam fillings in teeth 30 and 31. There are no tattoos, no missing body parts, and no visible surgical scars. The penis is circumcised. No other distinctive markings are visible.”

Caveat 3.—Information about diagnostic and therapeutic devices and related bodily findings may be reported under the heading Evidence of Medical Intervention.

Example.—“A nasogastric tube exits the left nares. An endotracheal tube exits the right side of the mouth. An indwelling venous cannula is present in the left cubital fossa and is surrounded by a 1-inch, circular area of blue-green ecchymosis. The cannula is connected to an intravenous line and bag of 0.9% sodium chloride solution. A urinary catheter is present. Electrocardiograph conductors are adherent to both clavicular regions and to the left lateral chest wall. Apparent cardioversion markings exist..."
The location of various devices within organs, tissues, and lumens may be described under the appropriate organ system heading in the description of the internal examination.

Caveat 4.—Postmortem changes may be described under the heading Postmortem Changes.

Example.—“Rigor mortis is generalized and well-developed. Lividity is distributed dorsally, is the usual violaceous color, and blanches with light pressure. The extremities and torso are cold to the touch. The corneas show early clouding. The vermillion borders of the lips show slight darkening due to drying. No other postmortem changes are visible externally.”

Thus, the External Examination heading is designed to document the facts of a medically oriented external examination of the body in a place separate from the information presented in caveats 1 through 4.

Note.—If an external finding is unclear as to whether it represents an artifact of diagnosis, therapy, or some other cause, it may be described under the appropriate caption beneath the External Examination heading (see below).

SECOND-LEVEL HEADINGS FOR INTERNAL EXAMINATION

This section offers second-level headings for use within the Internal Examination section of the autopsy report.

- Torso
- Head
- Pharynx and Neck
- Spinal Column and Cord
- Additional Dissection

Rationale and Usage

Torso.—This section includes descriptions of the thoracic, abdominal, and pelvic organs and tissues, including the thoracoabdominal wall, body cavities, and genitalia, utilizing third-level headings as described in “Third-Level Headings for Torso.”

Head.—Information in this section includes description of the scalp, skull (calvarium and base), brain and meninges, dura and dural sinuses, air sinuses, atlanto-occipital junction, and middle or inner ear, as needed.

Neck and Pharynx.—In this section, descriptive information about the tongue, pharynx, larynx, neck vessels, and prevertebral tissues is described as indicated.

Spinal Column and Cord.—This section includes a description of the spinal column and, if examined, the spinal cord.

Additional Dissection.—Specialized dissections of nonroutine areas, such as the popliteal fossa; a hip dissection; dissection of an extremity, muscle, other soft tissue; peripheral nerves; removal of eyes; or placental examination may be described in this section.

THIRD-LEVEL HEADINGS FOR TORSO

This section describes third-level headings to be used beneath the second-level heading for the torso. These heads are set in italic type, if possible, and are placed at the beginning of the relevant paragraph.

- Evisceration/Dissection Method
- Chest and Abdomen Walls and Cavities
- Organ Weights
- Cardiovascular System
- Respiratory System
- Digestive System
- Hepatobiliary System and Pancreas
- Reticuloendothelial System
- Urogenital Systems
- Endocrine Organs

Rationale and Usage

Evisceration/Dissection Method.—This section includes a statement about whether organs were removed en masse (Letulle method), piecemeal (Virchow method), or en bloc (Rokitansky or other).

Chest and Abdomen Walls and Cavities.—The appearance of the soft tissues and ribs is documented in this section, including the presence or absence of hemorrhage, masses, fractures, and other relevant findings. Reference to breast tissue may also be made here. Statements about the presence or absence of fluid collections in body cavities, abnormal color changes, unusual odors, adhesions of pleura or peritoneum, the retroperitoneum, and other relevant findings may also be included.

Organ Weights.—Organ weights may be included under the respective organ system description, but a table or list of organ weights is convenient and helpful.

Cardiovascular System.—A description of the heart and major vessels is included in this section. Reference to the pericardium, epicardium, myocardium, endocardium and valves, chordae, ventricular thicknesses, and aorta and major vessels may be included.

Respiratory System.—Descriptive references to the trachea, bronchi, lung, visceral pleura, diaphragm, and pulmonary vessels are reported in this section.

Digestive System.—References to the esophagus, stomach, small bowel, colon, rectum, and pancreas are reported in this section.

Hepatobiliary System and Pancreas.—References to the liver, gallbladder, extrahepatic biliary tract, and pancreas are reported in this section.

Reticuloendothelial System.—References to mediastinal nodes, abdominal nodes, inguinal nodes, axillary nodes, other relevant nodes, spleen, bone marrow, and thymus are included in this section.

Urogenital Systems.—References to the kidneys, renal vessels, ureters, and bladder are provided in this section, as are references to the vagina, cervix, uterus, fallopian tubes, and ovaries in females, or to the testes, vas, seminal vesicles, and prostate in males.

Endocrine Organs.—References to the thyroid, adrenal glands, and parathyroids are reported here, including a statement of whether the parathyroids were located or examined. Relevant findings about paraganglia are also included in this section.

SUMMARY

Suggested first-level headings, second-level headings, and third-level headings are as follows:

AUTOPSY FACE SHEET
HISTORICAL SUMMARY
EXAMINATION TYPE, DATE, TIME, PLACE, ASSISTANTS, ATTENDEES
PRESENTATION, CLOTHING, PERSONAL EFFECTS, ASSOCIATED ITEMS
EVIDENCE OF MEDICAL INTERVENTION
adhesions, abnormal fluid collections, or unusual color changes.

TEMPLATES

Regarding headings, there is little doubt that electronic templates can facilitate the preparation and quality of autopsy reports. For example, in addition to the advantages cited in the introduction, a transcriptionist may realize that nothing has been dictated under the Postmortem Changes heading, which may prompt the transcriptionist to ascertain from the pathologist whether the omission was intentional or an oversight. The Autopsy Committee does not, however, recommend or encourage the use of electronically stored templates of descriptive findings, because we believe that each autopsy report should document the unique objective findings observed during a specific postmortem examination.

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References


Bibliography


APPENDIX

Sample Autopsy Report Using Autopsy Lexicon Headings

The sample autopsy report shown in the “Appendix” is presented only to show the use of the headings presented in the Autopsy Lexicon. The content of the report itself should not necessarily be viewed as exemplary or as a recommendation of descriptive terminology. The autopsy face sheet shown in the example is one method of pre-
paring a face sheet, but additional guidance is contained in other publications from the College of American Pathologists. In some settings, face sheets are not prepared. The format shown in the sample report was structured using a scenario in which the report was dictated at the time the examination was performed. Thus, the order in which information appears is the order in which information was obtained and documented. The order of items may vary, especially if the report is dictated after the examination has been completed.

Although the example is derived from a forensic autopsy case, the same headings may be used for hospital-based autopsies. A forensic case was selected for the example so that all headings would have some information beneath them.

### AUTOPSY FACE SHEET

Case Number: 91-234

Name: 57-year-old black male

Age / Race / Sex: 57-year-old black male

Date and Time of Death: November 5, 1991; 0800 AM

Date of Autopsy: November 5, 1991; 1205 PM

### History

The deceased was found in bed at home with an apparent self-inflicted gunshot wound of the head. He had reportedly been complaining of recent headaches. He was transported to the hospital, where death occurred 30 minutes after arrival.

### Clinical Procedures

1. Emergency treatment including attempted resuscitation, vascular line placement, fluid administration, endotracheal tube placement

### Findings and Diagnoses

1. Contact gunshot wound of right parietal area of head
   A. Perforating brain injury
   B. Fracture of left parietal bone
   C. Diffuse subarachnoid hemorrhage
   D. Cerebral edema
   E. Recovery of bullet from left parietal bone (no exit wound)
   F. Wound track right to left and slightly upward
2. Berry aneurysm, left anterior communicating cerebral artery
3. Resolving subungual hematoma, left thumb
4. External hemorrhoid
5. Concentric left ventricular hypertrophy, heart
6. Benign prostatic hyperplasia
7. Degenerative osteoarthritis, spinal column
8. Remote amputation of distal portion of left fifth finger
9. Surgical scar, left inguinal area; probable remote hernia repair

### Cause-of-Death Statement

Perforating brain injury
due to: Contact gunshot wound of head

Pathologist: John Smith, MD Date of Report: November 10, 1991
HISTORICAL SUMMARY

This 57-year-old black male was reportedly found in his bed with a gunshot wound of the head and a handwritten suicide note on the bedside. He was transported to the hospital by emergency medical services but died in the emergency room at Hometown Hospital. He had a history of recent headaches. Additional details are contained in the investigator's report contained in the medical examiner case file.

EXAMINATION TYPE, DATE, TIME, PLACE, ASSISTANTS, ATTENDEES

Under the provisions of the Death Investigation Act, a complete autopsy is performed in the County Morgue on Tuesday, November 5, 1991, beginning at 1205 PM with the assistance of Angela Harden. Also in attendance is Major Gleet of the Hometown Police Bureau.

PRESENTATION, CLOTHING, PERSONAL EFFECTS, ASSOCIATED ITEMS

The body is contained in a white plastic body bag bearing a tag with the deceased's name on it and an identification number of 91-234. The hands are covered with paper bags secured at the wrists with rubber bands. A pair of white briefs are present in the pelvic area and are stained with a small amount of yellow fluid with an odor of urine. A gold-colored ring is present on the left ring finger. The briefs are discarded and the ring is removed and forwarded with the body. No other items are present with the body.

EVIDENCE OF MEDICAL INTERVENTION

An endotracheal tube exits from the right side of the mouth. Multiple perimortem needle-puncture wounds are present in each subclavian region. An intravascular cannula is inserted in the right cubital fossa. A small needle mark with underlying hematoma is present in the left radial fossa. Electrocardiographic conductor pads are located over each shoulder anteriorly and in the left lateral midthoracic area. A gauze pad is taped to the right side of the forehead and covers a wound that will be described in further detail below.

POSTMORTEM CHANGES

Rigor mortis is generalized and well developed. Livor mortis is well developed, dorsal, the usual violet color, and blanches with light pressure. The eyes show early corneal clouding. The vermilion borders of the lips are slightly dry. Other postmortem changes are absent.

POSTMORTEM IMAGING STUDIES

Postmortem radiographs of the head show a density beneath the inner table of the left parietal bone, consistent with a medium-caliber bullet.

FEATURES OF IDENTIFICATION

A hospital band on the right wrist bears the deceased's name. The body is unembalmed and that of a black male appearing slightly older than the stated age. Height measures 68 inches, and weight is 160 lb. The physique is mesomorphic.

The head hair is black, coarse, measures about 1 inch in greatest length, and shows frontoparietal balding. The irides are brown. The teeth are natural with some amalgam restorations. An oblique, well-healed, 4-inch scar with cross-hatched suture marks is located in the left inguinal area. The penis is uncircumcised. No tattoos are noted. The distal phalanx of the left fifth finger has been previously amputated and is well-healed. No other distinctive external markings are present.

EXTERNAL EXAMINATION

General

Body habitus and hair distribution are normal for age and gender. There is no evidence of malnutrition or dehydration. No peculiar odors or color changes are noted. There is no visible or palpable lymphadenopathy.

Head

A penetrating wound, consistent with a gunshot entry wound, is present on the right side of the head, just above the top of the right ear, 2 inches above the external auditory meatus. The wound is located 64 inches above the heel and 6 inches to the right of the anterior midline. The wound consists of a ⅜-inch circular hole from which extend radial tears measuring up to ½ inch in length. A ⅜-inch concentric rim of purple contusion surrounds the hole. Within the superficial wound track, prominent deposits of soot and gunshot residue are visible. No soot or stippling is present on the skin surface surrounding the wound. Dry blood streaks are present posterior to the wound and within the hair. The ear canals are free of blood.

The face shows no evidence of trauma. The scalp and soft tissues of the head are otherwise normal, except for palpable lump beneath the skin overlying the left midparietal skull just above the left ear. The nasal and facial bones are without palpable fracture. The conjunctival vessels are slightly congested, and there are no ocular or facial petechiae. A small amount of blood-tinged fluid is present in each nasal vestibule. The lips, gums, teeth, tongue, and buccal mucosa are normal and free of injury. The pinnae and mastoid regions are normal.

Neck

The neck shows no indication of abrasion, contusion, swelling, asymmetry, or other abnormality.
Torso

The torso is free of injury and is symmetrical. No subcutaneous emphysema or cutaneous lesions are noted. The abdomen is moderately distended with gas. Two testes are palpable in the scrotum, which is otherwise normal. The external genitalia, perineum, and anorectal areas are normal except for a small external hemorrhoid at the 2 o'clock position. The inguinal regions and buttocks are normal.

Upper Extremities

The upper extremities are symmetrical, muscular, and well developed. No pigmented or scarred needle tracks are seen, and there are no hesitation marks or healed incised wounds. A 0.5-cm, resolving, subungual hematoma is present beneath the left thumbnail. No soot or gunshot residue is visible on the hands.

Lower Extremities

The lower extremities are well developed and symmetrical. There is slight hair loss bilaterally in a socklike distribution, and the toenails are somewhat thickened and untrimmed.

Evidence of Injury

External evidence of injury is limited to an apparent gunshot wound of the head, a resolving subungual hematoma of the left thumb, and evidence of medical intervention as described above.

Summary

External examination shows a well-developed black male with no significant findings except an apparent gunshot wound of the right side of the head.

INTERNAL EXAMINATION

Torso

Evisceration/Dissection Method. The thoracic and abdominal organs are removed using the Virchow technique (individual).

Chest and Abdomen Walls and Cavities. The skin of the chest and abdomen is reflected using the usual Y-shaped incision. Subcutaneous fat and musculature are normal and free of injury. There are no abnormal fluid collections in the chest or abdomen. The ribs and sternum are intact and without fracture. No unusual odors or color changes are identified. Examination of the organs in situ shows normal organ morphology and relationships. The viscera are congested. The diaphragm is normal. The stomach is distended with air.

Organ Weights.
- Heart, 485 g
- Left lung, 450 g
- Right lung, 510 g
- Liver, 1650 g
- Kidneys, 160 g each
- Spleen, 410 g

Cardiovascular System. The left ventricle demonstrates concentric hypertrophy with a left ventricular wall thickness of 2.1 cm. The coronary arteries are normally distributed and are widely patent throughout their lengths, with minimal, soft, atherosclerotic plaques focally. The epicardium, valve leaflets, chordae, and endocardium appear normal. The myocardium is reddish-tan throughout, and no focal myocardial lesions are observed. The thoracoabdominal aorta and major branches show moderate, yellow, atherosclerotic streaking without ulceration. There are no vascular perforations. The carotid arteries are pliable and patent.

Respiratory System. The trachea and bronchi are grossly normal except for focal mucosal contusion adjacent to the endotracheal tube cuff, which is positioned appropriately. The hilar nodes and structures are normal. The major pulmonary vessels are normally distributed and free of gross abnormalities. The lungs appear normal, and each lung is congested and moderately edematous, exuding a pink-white foam on manual compression. There is no aspirated blood. No consolidation is observed. There is no indication of thrombosis, embolism, infarction, or neoplasia. The visceral and parietal pleura are free of hemorrhage or perforating defects.

Digestive System. The serosa, wall, and mucosa of the esophagus, stomach, small bowel, colon, and rectum are grossly normal. The stomach is distended with air and contains approximately 1 cup of partially digested food, primarily consisting of green vegetable material.

Hepatobiliary System and Pancreas. The liver shows intense congestion. There is no indication of fatty change or cirrhosis. No focal intrahepatic lesions are noted. The gallbladder contains about 15 cc of viscous green bile, no stones, and is grossly normal. The extrahepatic biliary ducts are patent. The pancreas shows the usual lobular architecture, mild autolysis, and is otherwise normal.

Reticuloendothelial System. The spleen has a tense capsule and is acutely congested. The red and white pulp are normal. Nodes of the axillary, hilar, mediastinal, abdominal, and cervical area appear normal, except to note mild anthracosis of hilar nodes. The thymus is involuted. Bone marrow of the vertebral bodies appears normal and without focal lesions or masses.

Urogenital Systems. The kidneys are symmetrical and each shows congestion of the cortex and medulla. The capsule strip easily and the cortical surfaces are smooth. The corticomedullary ratio and junction are normal, as are the pyramids,
calyces, pelves, and vessels. The ureters are of normal caliber. The urinary bladder is normal and contains approximately 100 cc of amber urine. The seminal vesicles are normal, and the prostate is firm and nodular with slight enlargement.

Endocrine System. The thyroid gland is normal size, symmetrical, tan, and free of nodularity, hemorrhage, or cysts. The parathyroids are not identified grossly. The adrenals are of normal size and are free of nodularity or hemorrhage.

Head

The scalp is reflected with the standard intermastoidal incision. There is no indication of scalp trauma, except for a 4-inch circular area of full-thickness soft tissue hemorrhage around the gunshot wound in the right parietal area and a 2-inch circular area of full-thickness soft tissue hemorrhage in the left midparietal region above the left ear. The right temporoparietal bone shows a ⅜-inch circular hole with sharply defined margins on the outer table and beveling of the inner table. The outer table of skull around the hole shows black discoloration from gunshot residue, which is also visible in the diploic spaces. The left midparietal bone contains a ½-inch circular fracture, which is displaced into the overlying parietal soft tissues 2.5 inches directly above the left auditory meatus. Adjacent to the inner table of the bone fragment is a medium-caliber, slightly deformed, fully jacketed, round nose, copper-colored projectile, which is retrieved for submission to the Crime Laboratory. The bullet shows prominent lands and grooves.

The dura shows ragged, roughly circular, ⅜-inch, perforating defects in both parietal areas in locations corresponding to overlying defects in the skull. Diffuse subarachnoid hemorrhage is present over the convexities.

Brain weight is 1540 g. There is no evidence of significant herniation or midline shift. Coronal sections demonstrate a hemorrhagic wound track extending from the right midparietal region transversely through the brain to the left midparietal cortical surface. The wound track extends through the upper cerebral peduncles. Small cortical contusions are present on the inferior aspect of the frontal poles bilaterally.

The circle of Willis contains a 0.5-cm berry aneurysm of the anterior communicating artery on the left. No focal or mass lesions are seen within the brain, and the cortex is normal to palpation. Moderate cerebral edema is noted. The basilar skull and atlanto-occipital region are intact.

Neck and Pharynx

The skin of the neck is dissected up to the angle of the mandible. There is no evidence of soft tissue trauma to the major airways or vital structures in the lateral neck compartments. The hyoid bone and thyroid cartilages are free of fracture. The carotid vessels are pliable and patent. The epiglottis is not inflamed or swollen. There is no airway mucosal edema. No foreign objects are present in the upper airway except for an endotracheal tube. The anterior cervical spine is intact. The tongue is normal.

Spinal Column and Cord

The thoracolumbar spinal column shows mild degenerative osteophytic lipping. The spinal cord is not removed or examined.

Additional Dissection

None.

SUMMARY OF INJURIES

Examination shows an apparent contact gunshot wound of the right parietal area with perforating brain injury and recovery of a projectile in the left midparietal area. No other acute injuries are present.

ANCILLARY PROCEDURES, LABORATORY TESTS, AND RESULTS

1. Vitreous for chemistries: Na, 135; K, 8.0; Cl, 120
2. Peripheral blood for ethanol quantitation: Negative
3. Urine for drug abuse screen: Negative
4. Documentary photographs are prepared and filed in the case folder
5. Retrieved bullet is forwarded to Crime Lab for firearms examination; results will be reported by the Crime Lab

BLOCK LISTING AND HISTOLOGIC DESCRIPTION

Block 1  Heart and lungs
Block 2  Liver, spleen, pancreas, kidney
Block 3  Adrenal, thyroid, pancreas
Block 4  Routine sections of cerebrum, cerebellum, basal ganglia
Block 5  Routine sections of esophagus, stomach, small and large bowel
Block 6  Prostate
Block 7  Gunshot entry wound

The heart shows mild hypertrophic change; prostate shows benign prostatic hyperplasia. The gunshot wound shows hemorrhage, extensive gunpowder particles, and thermal changes in the collagen. Other sections are not contributory.

FINDINGS AND DIAGNOSES

1. Contact gunshot wound of right parietal area of head
   A. Perforating brain injury
B. Fracture of left parietal bone
C. Diffuse subarachnoid hemorrhage
D. Cerebral edema
E. Recovery of bullet from left parietal bone (no exit wound)
F. Wound track right to left and slightly upward
2. Berry aneurysm, left anterior communicating cerebral artery
3. Resolving subungual hematoma, left thumb
4. External hemorrhoid
5. Concentric left ventricular hypertrophy, heart
6. Benign prostatic hyperplasia
7. Degenerative osteoarthritis, spinal column
8. Remote amputation of distal portion of left fifth finger
9. Surgical scar, left inguinal area; probable remote hernia repair

SUMMARY AND COMMENTS
Investigation and autopsy show that death resulted from a self-inflicted gunshot wound of the head. No other significant injuries were observed. The finding of a cerebral artery berry aneurysm is a possible explanation for the history of recent headaches. Cardiac findings suggest a history of hypertension.

CAUSE-OF-DEATH STATEMENT
Perforating brain injury
due to: Contact gunshot wound of head

Based on the circumstances, the manner of death is classified as suicide.

AMENDMENTS
None as of 11/10/91.