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Overview

- **Drawing.** An artist's rendition of what the body looked like when found is [here](#).
- **Cause of Death.** The official cause of death was "asphyxia by strangulation associated with craniocerebral trauma."
- **Autopsy Report.** The autopsy report contains most of the details of injuries, but follow-up tests on DNA and other forensic evidence also are reported below.
 - **Scanned Version.** A scanned version with no obvious redactions is [here](#).
 - **Transcribed Version With Photos.** A transcribed version ([html](#)) that integrates photos with text is at **Webbsleuths**. But please note this [caveat](#) about the authenticity of photos having the label "Crime Scene Photo."
 - **Transcribed Version.** A transcribed version without photos ([html](#)) is at **Starting Over-JonBenet**.
 - **Detailed Autopsy Description.** This "Autopsy 101" [procedural](#), written by a pathologist, describes step-by-step how an autopsy typically is conducted.
- **Cyril Wecht Analysis.** Chapter 11 of Wecht's book contains a very detailed analysis of the autopsy report and helps interpret it in layperson terms. Note that Wecht did not have access to autopsy slides and other material (including redacted portions of the autopsy report), but he did see autopsy photos provided by the *Globe*, and it should also be noted that *some parts of the autopsy report are still redacted*. The following [site](#) provides a synopsis of Wecht's Chapter 11 analysis.
- **Physical Evidence Recovered from Body.** A summary of the physical evidence recovered from the body is [here](#).
- **Other News Sources.**
 - *The Daily Camera* news stories about the autopsy are [here](#).
 - *The Daily Camera* news stories about stolen autopsy photos are [here](#).
 - *The Daily Camera* news coverage of the forensic evidence, including DNA, fibers, hair and other physical evidence is [here](#).
- **Discussion Forums.** See Webbsleuths forum chat on [The Autopsy](#).

Time of Death

Overview

Internet poster [Rainsong](#) has provided two relevant quotes from *Corpse*, by **Jessica Snyder Sachs** which provide a good context for this discussion:

- "Although each of these experimental measures of postmortem interval have passionate advocates, none have produced the kind of consistent and informative results that would warrant their widespread use. The world's leading forensic pathologists continue to urge the liberal use of the word "unknown" on any form specifying the time of an unwitnessed death."
- "In the end, perhaps, any effort to medically diagnose time of death may be doomed to failure. For as any biologist knows, the demise of an organism as complex as a human--composed of some 100 trillion, semiautonomous cells--is anything but instantaneous, or even definitive."

Autopsy Findings

- **Time Recorded in Autopsy Report.** The autopsy report [states](#) *Death D/T: 12/26/96 @1323*, but this obviously is the time the body was actually found rather than a true time of death.
- **Coroner's Note.** A *Note from Dr. John Meyer August 13, 1997* is posted at [Webbsleuths](#) (see bottom of page, following Autopsy Report). "Contrary to several media reports over the past few days, the autopsy report on [JonBenet](#) Ramsey does not and has never contained information on the estimated time of death. I have not been able to determine the original source of the statement that the report contained the estimated time of death, but it certainly did not come from this office. The time of an "unwitnessed" death is very difficult to determine with any precision, and at best is an estimate based not only on autopsy findings but also on investigative information. I consider estimation of time of death to be an interpretive finding rather than a factual statement, and it is not this Office's practice to include this estimate as part of any autopsy report. As has been stated in the past, it would also be inappropriate for me, as a potential expert and material witness, to make interpretive statements prior to testifying in court." John E. Meyer, M.D., Boulder County Coroner.
- **Rectal Temperature.** According to one authoritative [source](#), body cooling "is the most useful single indicator of the time of death during the first 24 hours post mortem. Some writers would regard it as the only worthwhile corporal method." However, no rectal temperature was taken of JBR, so this method cannot be used to estimate time of death.
- **Livor Mortis.** The [autopsy](#) states: "There is dorsal 3+ to 4+ livor mortis which is nonblanching. Livor mortis is also present on the right side of the face."
- **Rigor Mortis.**
 - The [autopsy](#) states: "At the time of the initiation of the autopsy there is mild 1 to 2+ rigor mortis of the elbows and shoulders with more advanced 2 to 3+ rigor mortis of the joints of the lower extremities."
 - **Onset of Rigor Mortis.** Rigor mortis can be used to help estimate time of death. The *onset* of rigor mortis may range from 10 minutes to several hours, depending on factors

including temperature (rapid cooling of a body can inhibit rigor mortis, but it occurs upon thawing). Maximum stiffness is reached around 12-24 hours post mortem. Facial muscles are affected first, with the rigor then spreading to other parts of the body" [About.com](#).

- **Completion of Rigor Mortis.** One authoritative [summary](#) states: "Niderkorn's (1872) observations on 113 bodies provides the main reference database for the development of rigor mortis and is commonly cited in textbooks....In this series, rigor was complete in 14% of cases at 3 hours post mortem and this percentage had risen to 72% at 6 hours and to 90% at 9 hours. By 12 hours post mortem rigor was complete in 98% of cases."
- **Net Assessment of Time of Death.** Physical evidence [suggests](#) JBR died between 10 PM and 6 AM; based on the degree of rigor mortis observed, it was likely closer to midnight than to 6:00 AM.

Was the Body Moved After Death?

- **Timing of Livor Mortis.** Internet poster [Rainsong](#) has asserted: "Livor mortis is the result of the heart ceasing to pump. The blood pools due to gravity and settles in a marble-type pattern in the lowest extremities. The process starts anywhere from 20 minutes--3 hours after death. So, if a person is killed and left in one position for, oh, three hours, a pattern of blood settling would have begun, and if the body is moved and left in a different position until discovery, there would be two distinct patterns of marbling on the body."
- [Rainsong](#) concludes: "I believe Dr. Meyer only noted one pattern of marbling on [JonBenet](#), indicating the position of her body was not altered once she had died." This would imply the body was not moved after the first 20 minutes to 3 hours after death.

General Appearance

- **Height/Weight.** "The unembalmed, well developed nourished caucasian female body measures 47 inches in length and weighs an estimated 45 pounds."
- **Fingerprints.** According to Schiller, "Meyers also suspended the autopsy while a CBI Technician walked Trujillo through the process of lifting fingerprints off of JBRs body. One partial print was lifted.....Meyers decided not to make notes of these events in his report" ([Schiller, 1999a:156](#))

Head Injuries

Facial Injuries

- **Autopsy Findings Regarding Petechial Hemorrhages**
 - "In the lateral aspect of the left lower eyelid on the inner conjunctival surface is a 1 mm in maximum dimension petechial hemorrhage."
 - "Very fine, less than 1 mm petechial hemorrhages are present on the skin of the upper eyelids bilaterally as well as on the lateral left cheek."
 - "On everting the left upper eyelid there are much smaller, less than 1 mm petechial hemorrhages located on the conjunctival surface."
 - "Possible petechial hemorrhages located on the conjunctival surface."
 - "Possible petechial hemorrhages are also seen on the conjunctival surfaces of the right upper and lower eyelids, but livor mortis on this side of the face makes definite identification difficult."
- **Injury on Chin.** "Located on the right side of the chin is a three-sixteenths by one-eighth of an inch area of superficial abrasion."
- **Eyes.** "The eyes are green and the pupils equally dilated. The sclerae are white."
- **Nose.** "The nostrils are both patent and contain a small amount of tan mucous material."
- **Mouth.**
 - "The teeth are native and in good repair."
 - "The tongue is smooth, pink-tan and granular."
 - "No buccal mucosal trauma is seen."
 - "The frenulum is intact."
 - "There is a slight drying artifact of the tip of the tongue."
- **Mark Below Right Ear.** "Located just below the right ear at the right angle of the mandible, 1.5 inches below the right external auditory canal is a 3/8 X 1/4 inch area of rust colored abrasion." ([photo](#)).
- **Right Cheek.** "On the right cheek is a pattern of dried saliva and mucous material which does not appear to be hemorrhagic." ([picture](#); [enlarged picture](#))

Duct Tape on Mouth

Neck Injuries

Torso

- **Chest.**
 - **External Exam.** "The chest is symmetrical. Breasts are prepubescent."
 - **Internal Exam.** "The anterior chest musculature is well developed. No sternal or rib fractures are identified."
 - **Microscopic Examination of Thymus.** (All sections stained with H&E). "The thymus gland retains the usual architecture. The lymphoid material is intact and scattered Hassall's corpuscles are identified. Mild vascular congestion is identified."
- **Abdomen.** "The abdomen is flat and contains no scars. No palpable organomegaly or masses are identified."
- **Back.** "Examination of the back is unremarkable." ([photo](#))
- **Shoulder.**
 - **Shoulder Injury.** "On the posterior aspect of the right shoulder is a poorly demarcated, very superficial focus of abrasion/contusion which is pale purple in color and measures up to three-quarters by one-half inch in maximum dimension." ([photo](#))
 - **Petechial Hemorrhages on Shoulder.** "Several linear aggregates of petechial hemorrhages are present in the anterior left shoulder just above deltopectoral groove. These measure up to one inch in length by one-sixteenth to one-eighth of an inch in width."

Vaginal Area

Autopsy: External Exam

- **Genitalia.** "The external genitalia are that of a prepubescent female. No pubic hair is present."
- **Dried Blood.**
 - **Perineum.** "On the anterior aspect of the perineum, along the edges of closure of the labia majora, is a small amount of dried blood."
 - **Fourchette and Vestibule.** "A similar small amount of dried and semifluid blood is present in the skin of the fourchette and the vestibule."
- **Hyperemia**
 - **Definition.** "An increased amount of blood in a body part due to such things as inflammation or obstruction preventing the blood from flowing out."
 - **Location.** "Inside the vestibule of the vagina and along the distal vaginal wall is reddish hyperemia. This hyperemia is circumferential and perhaps more noticeable on the right side and posteriorly. The hyperemia also appears to extend just inside the vaginal orifice."
- **Abrasion**
 - **General Location.** "A 1 cm red-purple area of abrasion is located on the right posterolateral area of the 1 X 1 cm hymenal orifice."
 - **Hymen.** "The hymen itself is represented by a rim of mucosal tissue extending clockwise between the 2 and 10:00 positions."
 - **Specific Location.** "The area of abrasion is present at approximately the 7:00 position and appears to involve the hymen and distal right lateral vaginal wall and possibly the area anterior to the hymen."
- **Other Findings**
 - **Discoloration on Labia Majora.** "On the right labia majora is a very faint area of violet discoloration measuring approximately one inch by three-eighths of an inch."
- **No Hemorrhage.** "Incision into the underlying subcutaneous tissue discloses no hemorrhage."
- **Red Fluid in Vaginal Vault.** "A minimal amount of semiliquid thin watery red fluid is present in the vaginal vault."
- **Condition of Anus and Perineum**
 - **No Trauma.** "No recent or remote anal or other perineal trauma is identified." **Perineum**="The area between the anus and the scrotum in the male and between the anus and the vulva (the labial opening to the vagina) in the female."
 - **Anus Patent.** "The anus is patent." (**Patent**=Open, unobstructed, affording free passage.)

Autopsy: Microscopic Examination of Vaginal Mucosa

- **Note.** For the analyses that follow, all sections stained with H&E.
- **Chronic Inflammation.** "All of the sections contain vascular congestion and focal interstitial chronic inflammation."
- **Epithelial Erosion.** "The smallest piece of tissue, from the 7:00 position of the vaginal wall/hymen, contains epithelial erosion with underlying capillary congestion."

- **Birefringent Material.** "A small number of red blood cells is present on the eroded surface, as is birefringent foreign material." (Definition and examples of birefringent materials are [here](#)).
- "Acute inflammatory infiltrate is not seen." ([Infiltrate](#)="An abnormal substance that accumulates gradually in cells or body tissues."). See [Birefringent Material](#) at DocG's Solving the JonBenet Case for discussion.

Non-Autopsy Sources

- **Injuries Consistent with Sexual Assault.** "both parties agree the autopsy report reveals injury to [JonBenet](#)'s genitalia consistent with a sexual assault shortly before her death. (SMF P 48; PSMF P 48.)" (Carnes 2003:21). Lin Wood's motion in Burke Ramsey's 2016 defamation case against CBS includes a thorough refutation of the documentary's claim that JonBenet was not sexually assaulted ([detailed in pp. 76-78](#)). See [Day 5: The Vaginal Trauma by /u/FuryoftheDragon](#) at Reddit.
- **Bleeding in Genital Area.** "The bleeding in [JonBenet](#)'s genital area indicates she was alive when she was assaulted. (SMF P 48; PSMF P 48.)" (Carnes 2003:Note 12).
- **Wooden Shards Found in Vagina.** "Her hymen was torn and material consistent with wooden shards from the paintbrush used to make the garrote were found in her vagina. (SMF P 48-49; PSMF P 48-49.)" (Carnes 2003:Note 12).
- **Pubic Area "Wiped Down."** "Boulder County Coroner John Meyer, who conducted the autopsy on 6-year-old [JonBenet](#), said the child's pubic area showed evidence consistent with having been wiped by a cloth" [RMN 11/7/98](#).

Possible Stun Gun Injuries

- **Autopsy Report.**
 - **Below Right Ear.** "Located just below the right ear at the right angle of the mandible, 1.5 inches below the right external auditory canal is a 3/8 X 1/4 inch area of rust colored abrasion." ([photo](#)).
 - **Lower Back.** "On the left lateral aspect of the lower back, approximately sixteen and one-quarter inches and seventeen and one-half inches below the level of the top of the head are two dried rust colored to slightly purple abrasions." ([photo](#)) "The more superior of the two measures one-eighth by one-sixteenth of an inch and the more inferior measures three-sixteenths by one-eighth of an inch. There is no surrounding contusion identified."
- **Other Sources**
 - "Finally, the coroner's report notes injuries on the right side of [JonBenet](#)'s face and left lower back. While defendants assert that these injuries are consistent with the use of a stun gun, plaintiff notes that the coroner's report does not expressly state the injuries were the result of such an instrument. (SMF P 47; PSMF 47.)" (Carnes 2003:22).
 - "Dr. Michael Doberson, a forensic pathologist retained by defendants who examined the Boulder Coroner's autopsy report and autopsy photos, concludes the injuries to "the right side of the face as well as on the lower left back are patterned injuries most consistent with the application of a stun gun." (Report of Michael Doberson, M.D., Ph.D. at 5(A), attach. as Ex. 3 to Defs.' Ex. Vol. I, Part A.)" (Carnes 2003:22).

Extremities

Autopsy Report

- "Examination of the extremities is unremarkable."
- **Fingernails.** "The fingernails of both hands are of sufficient length for clipping."

Jewelry

- **Ring on Right Hand.** "On the middle finger of the right hand is a yellow metal band." ([photo](#))
- **Bracelet on Right Wrist.** "Around the right wrist is a yellow metal identification bracelet with the name "JonBenet" on one side and the date "12/25/96" on the other side."

Heart in Hand

- **Picture of Heart in Hand.** "A red ink line drawing in the form of a heart is located on the palm of the left hand." ([autopsy picture](#); [enhanced picture](#); [enlarged picture](#)).
- **Symbolic Significance?** "The [Heart in Hand](#), an image of a heart in an open palm, is an easily recognizable symbol in the North Eastern US. This cheerful, welcoming image originated with the Shakers and is found on crafts, signs, and even cookies. The symbol is a pictorial reminder of the words of Mother Ann Lee, the founder of the Shaker sect, who promoted a simple life of hard work and spirituality, "Put you hands to work, and your hearts to God." The image is typical of the Shaker attitude, and implies also a loving welcome."
- **V for Victory?** [Dan in Detroit](#) claims this drawing was V for victory, not a heart.

Black Tape on Legs?

- In the [John Ramsey, 1997 Police Interview](#) (TT=Tom Trujillo), **John Ramsey** reported tape on JBR's legs when he found her:
 - "TT: When you saw the white blanket, was [JonBenet](#) completely covered up? How was she laying there, cause I wasn't there that day."
 - "JR: She was laying on the blanket, and the blanket was kind of folded around her legs. And her arms were tied behind her head, and there was some pieces of black tape (inaudible) on her legs, and her head was cocked to the side."
- Internet poster [Antik](#) is skeptical of this report: "It isn't just the quote fro the transcript that bothers me (what's the inaudible part? One word? Two? More? How would the inaudible part of the quote, if audible, effect the rest of the sentence ;on her legs?). If she is wrapped in a blanket then how did he see the tape (or pieces of tape – whatever that means?). did he remove the tape? If not, why didn't anyone else see it? if he did, then why has it never been reported?"

Internal Organs

The Cords

DNA Evidence

Stomach Contents

- **Autopsy Findings.**
 - "The esophagus is empty.It is lined by gray-white mucosa."
 - "The stomach contains a small amount (8-10 cc) of viscous to green to tan colored thick mucous material without particulate matter identified."
 - "The gastric mucosa is autolyzed but contains no areas of hemorrhage or ulceration."
 - "The proximal portion of the small intestine contains fragmented pieces of yellow to light green-tan apparent vegetable or fruit material which may represent fragments of pineapple."
 - "No hemorrhage is identified."
 - "The remainder of the small intestine is unremarkable."
 - "The large intestine contains soft green fecal material."
 - "The appendix is present."

Clothing

Body Covered by Blanket & Sweatshirt

White Collarless Shirt

Long White Underwear

White Wednesday Panties

Hair Evidence

Human Hair

- **Hair on Blanket**
 - **Where Found.** "a Caucasian "pubic or auxiliary" hair was found on the blanket covering [JonBenet](#)'s body. (SMF P 179; PSMF P 179.) The hair does not match that of any Ramsey and has not been sourced. (SMF P 180; PSMF P 180.)" (Carnes 2003:22). According to [Rocky Mountain News](#), "Also, some believe that the most critical piece of evidence seized in the search of the Ramseys' Boulder home may be one that doesn't show up in the 65 pages of documents that were released last week. It's a single pubic hair, found on the blanket that covered [JonBenet](#)'s ravaged body, where she lay on the bare floor of a small basement room...But that hair doesn't show up on the itemized list of evidence seized at the Ramseys' Boulder home in any way that is clear or obvious."

- **No Match to Ramseys.** "It does not match any member of the Ramsey family," said a Ramsey representative who requested anonymity. The failure to trace that hair to anyone inside or outside [JonBenet's](#) family has also been confirmed by law enforcement sources.
- **Significance.** "That single hair, I don't want to understate it, is the single most significant thing I've heard," said Denver attorney Scott Robinson. "It's far more significant than all the talk about melting snow, were there footprints or weren't there, a broken window, can you get in or can't you. But that hair -- a defense lawyer can make a lot out of it. "Because," Robinson added, "if I'm the prosecutor, I have to be really worried as to how I can put together a plausible story ... that explains the existence of a pubic hair not belonging to anyone that they know of, on a blanket covering the child. That hair explains why the delay (in making an arrest), why the caution."
- This [FBI report](#) explains how racial origin can be deduced from a hair sample.
- **Hair on Sleeve**
 - In one autopsy photo, a dark hair can be seen on the sleeve of JBR's white shirt ([photo](#)).
 - This hair appears split, but Internet poster [Insight](#) has enlarged this photo and claims it actually is two hairs, the larger appearing to be synthetic (as from a doll) and the smaller appearing to come from Patsy Ramsey. Internet poster [Paradox](#) believes [Insight](#) is seeing things.

Animal Hair

- **Animal Hairs on JBR's Hands.** "Dark animal hairs were found on [JonBenet's](#) hands that also have not been matched to anything in defendants' home. (SMF P 184; PSMF P 184.)" (Carnes 2003:19).
- **Animal Hair on Duct Tape.** "Animal hair, alleged to be from a beaver, was found on the duct tape. (SMF P 183; PSMF P 183.) Nothing in defendants' home matches the hair. (SMF P 183; PSMF P 183.)" (Carnes 2003:19).

Who Has Submitted Hair Samples?

- **Family Members.** [John Ramsey](#), [John Andrew Ramsey](#), [Burke Ramsey](#)
- **Friends.**

[Fiber Evidence](#)