The Forensic Autopsy

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What is an Autopsy?

- An autopsy is a post mortem examination performed on a corpse to determine the cause and manner of death.
- The prefix 'auto-' means 'self', and so autopsy means 'to see for oneself'.

Why is a Forensic Autopsy preformed?

- Forensics autopsies are preformed when the cause of death of a victim may be a criminal case, often involving foul play.

- A forensic autopsy applies science to legal law.
Classification

- In a forensic autopsy, death is placed into five different categories:
  - Natural
  - Accident
  - Homicide
  - Suicide
  - Unknown

- Following an in-depth examination of all the evidence, a medical examiner or coroner will assign a manner of death as one of the five listed above; and detail the evidence on the mechanism of the death.
Natural Death

- Death by natural cause is a term used by coroners to describe the death of someone by occurring disease process, or is not apparent given medical history or circumstances.
- The majority of natural death is caused by old age.
- Other causes of natural death are heart disease, stroke, genetic disorders, etc.
Accidental death is a death that is often caused by mistake or in a freak occurrence. These deaths are not planned yet can be explained by surrounding circumstances.
Homicidal Death

- The term ‘homicide’ refers to the act of killing another person.
- There are different types of homicide.
  - **Infanticide** - Killing of an infant
  - **Fratricide** - Killing of one's brother; in a military context, killing of a friendly combatant
  - **Sororicide** - Killing of one's sister
  - **Parricide** - Killing of one's parents
  - **Patricide** - Killing of one's father
  - **Matricide** - Killing of one's mother
  - **Mariticide** - Killing of one's spouse
  - **Uxoricide** - Killing of one's wife
  - **Filicide** - Killing of one's child
  - **Regicide** - Killing of a **monarch**.
  - **Genocide** - Killing of a national, ethnic, racial or religious group
- Homicide is often the most investigated death, therefore making it the most autopsied.
Suicidal Death

- The act of ending one's own life.
- These autopsies often easily identify source, cause, and other factors of the death.
- Suicide is often identified in the forensic autopsy as a cause of toxic, firearms, blunt force trauma, etc.
In some jurisdictions, the Undetermined category may include deaths in absentia, such as deaths at sea and missing persons declared dead in a court of law; in others, such deaths are classified under "Other".
Experts Who Perform Forensic Autopsies

- A forensic autopsy is usually performed by a specialized medical doctor called a forensics pathologist or medical examiner.
- To be a pathologist, the doctor must have completed a four-year undergraduate program, four years of medical school training, and three to four years of postgraduate training in the form of a pathology residency.
Protocol for Performing A Forensic Autopsy?

- The corpse is brought to the medical examiner’s office in a brand new body bag (to avoid transfer of evidence between cases) or in a set of evidence sheets.
- The body is then placed on the cadaver dissection table.
The physical examination of the body is broken up into two parts.

- **External Examination**
  - The external examination consists of inspecting the physical outer layer of the body for signs of foul play that would result in injury or death.

- **Internal Examination**
  - The internal examination consists of inspecting the internal organs of the body for evidence of trauma or other indications of the cause of death.
External Examination

Steps of an external examination.

1. Photographed.
2. Physical evidence collected off body.
3. Samples of hair, nails, etc. are collected.
4. Undressed, examined for wounds.
   1. Lacerations, abrasions, bruises.
5. Measured, weighed, cleaned.
Internal Examination

Steps of an internal examination.

1. Incisions

- A “Y” shaped cut from behind each ear and running down the neck, meeting at the breastbone, continuing towards the groin. Most often used in cases of suspected strangulation.

- A “T” shaped cut from each shoulder, meeting at the breastbone, continuing towards the groin. Used to create a better looking finished product as this cut is not often seen.

- Single vertical cut from throat to groin.

- All cut are deviating towards the left.
Internal Examination (cont’d)

2. **Cuts**
   1. The chest cavity is cut open using shears.
   2. The ribs are sawed away, letting them be lifted off the body, exposing the heart and lungs.

3. **Removal**
   1. En masse technique of Letulle – All organs removed at once.
   2. En bloc method of Ghon – organs divided into four groups and removed in sections.

4. All removed organs are now weighed and examined for unusual markings or signs.
Internal Examination (cont’d)

5. Brain examination

1. An incision is made from a point behind one ear, over the top of the head, to a point behind the opposite ear.

2. The scalp is pulled away from the skull, creating two flaps. The front flap goes over the face, the rear flap over the neck.

3. The skull is then cut with an electric saw to create a cover that can be pulled off to expose the brain.

4. The brain is then cut from the spinal cord and lifted out of the skull for further examination.
In addition,

- The cardiovascular system, the respiratory system, the central nervous system, and all other “systems” in the body that help control activity are examined.
Vitreous Humor

- The levels of vitreous humor in the corpse's eye tells us how long the victim has been dead.
- The more potassium in the eye, the longer the victim has been dead.
Livor Mortis

- Defined as ‘Color of Death’.
  - Coloration of the skin.
    - At death, the heart stops working. When the heart stops working, the blood stops pumping. The blood stops pumping, the red blood cells and plasma gather on the bottom part of the body, closet to the floor.
    - A line forms after 8 hours if the body hasn’t been moved. If moved, a new line starts to form. It is impossible to tell which was first. The thinker the line, the longer the position the body was in.
Algor Mortis

- Defined as ‘Coolness of Death’.
  - Temperature of body.
    - In a controlled environment, stating at 98.6 degrees, the body will drop one degree per hour.
    - This happens because at death, the respiratory system stops working, the body stops functioning, it is no longer moving.
    - When taking the temperature of a corpse, you can’t take it in the mouth because the muscles will be relaxed and the tongue won’t stay on top of the thermometer.
    - Thinner people cool faster than fat people.
Rigor Mortis

- Defined as ‘Stiffness of Death’.
- Flexibility of the body.
  - Shows up 2 hours after death
  - Peaks 12 hours after death.
  - Takes 12-24 hours for entire rigor mortis effect to take place.
  - At approximately 0 hours after death, the body is at its stiffest.
  - The eyelids are affected first, the the jaw, face, trunk, arms, legs.
  - Ends after 24-36 hours.
Pallor Mortis

- Defined as ‘Paleness of Death’.
- Tone of the body.
  - Happens 15-20 minutes after death.
  - Happens due to lack of capillary circulation in the body.
  - Can not be used to determine time of death except if body is found still with color.
Sources

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