

FORENSIC PATHOLOGY WEB BASED PRACTICAL GUIDE

Investigation in to scenes of crime



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1. INTRODUCTION

This practical guide with model Objective Structures Practical Examination (OSPE) questions with an electronic copy of it in the web site of the Department is a long-felt need fulfilled to assist both postgraduate and undergraduate students to face their examinations. During the clinical rotation of forensic medicine, students will hardly get the practical exposure to scenes of crimes. Similarly, during the course of training the post graduate students may not be exposed to some of these scenes.

This booklet contains questions and model answers together with the colour photographs. These are meant to fulfil the gaps in real life exposure where the student, either undergraduate or postgraduate will be able to fulfil the study requirement. These will give the students an insight into the type of questions and expected answers. The booklet in the electronic form is to help the student to undergo self-directed learning either with a group or individually.

2. GENERAL OBJECTIVES

The aim of this guide in print and electronic version is

- To provide the students with an idea about the type of questions and expected answers.
- To use as a colour atlas in making the students aware on some of the unobserved scenes of crime.

3. LEARNING OUTCOME

By using this booklet the students will able to

- Practice for their OSPE in forensic medicine related to investigation into scenes of crime.
- Identify the medico legal assistance that can be provided in an investigation into a scene of crime
- Improve their knowledge on crime scene investigations

4. ACKNOWLEDGEMENT

For the preparation of this booklet pictures from image folders presented by King County Medical Examiner: Dr. Richard Harruff, Seattle, WA 98104, United States (External examiner for MD Forensic Medicine 2013) and pictures presented by Prof. Michael Pollanen of Ontario Forensic Pathology Service, Toronto, Canada were used with great appreciation. The valuable guidance and encouragement given by Prof. P.A.S. Edirisinghe in preparation of this guide is immensely appreciated.

1. Photographs A and B were obtained at a scene where a man was found dead at his residence.



Photographs By courtesy of Dr. R. Harruff

- 1.1 Make 3 forensically significant observations in these pictures and indicate the forensic significance

Answer

1.1 Make 3 forensically significant observations in these pictures and indicate the forensic significance

- Blood smears on the wall – struggle /post injury movements
- Blood on the feet specially on contacting surface- had walked after bleeding
- Body on bed with inappropriate clothing-landed on bed after the incident

Assignment:

What conclusions can you arrive after observing blood stain patterns?

2. Photographs A and B were obtained at a scene where a woman was found dead at her residence.



Photographs By courtesy of Dr. R. Harruff

- 2.1 Make 5 forensically significant observations at this scene and indicate their significance

Answer

2.1 Make 5 forensically significant observations at this scene and indicate their significance

- Female body with a pool of blood around head – COD death could be haemorrhagic shock
- Smear of blood on the wall- contact of the head or face with the wall
- Blood dripping on the door with a line of demarcation on top- body may have been upright and in contact with the door after injury
- Blood on the neck and face – injury on the neck or face
- Clothes not disturbed – no evidence of sexual assault
- Blood spatter on the other side of the wall- splashes from arteries or splashes due to fall of the body on the pool of blood
- Blood stained Knife by the side- possible sharp force trauma
- 2 different shoes by the side - possible violence

Assignment:

Discuss how to differentiate a homicide from a suicide by a scene investigation

3. Photographs A & B were obtained at a scene where a man was found dead at his residence.



Photographs By courtesy of Dr. R. Harruff

3.1 Make 5 forensically significant observations at this scene and indicate their significance

Answer

3.1 Make 5 forensically significant observations at this scene and indicate their significance

- There is blood dripping from the knee towards the foot on the right lower limb below knee- the right lower limb had been upright after injury at least for a while
- The right lower limb is now placed parallel to floor- change of position after injury
- There is a firearm by the side and it is under the head and the hands- possible causative weapon and possible suicide
- Fully clothed and clothes not disturbed – no evidence of violence
- Location is a store room not disturbed- suicide

Assignment:

Discuss the role of gunshot residues in a scene investigation

4. Photographs A B and C were obtained at a scene where a body of a 45 year old man in the wood during winter.





Photographs By courtesy of Dr. R. Harruff

4.1 What is the most likely circumstance? State the reasons

Answer

4.1 What is the most likely circumstance? State the reasons

- Hypothermia hide and die syndrome
 - i. Found outside
 - ii. Burrowing
 - iii. Clothing removed and jacket was found by the side- paradoxical undressing
 - iv. Pink discolouration around joints

Assignment:

Describe pathophysiology of death from hypothermia

5. Photographs A and B were obtained at a scene where a man was found dead at his residence.



Photographs By courtesy of Dr. R. Harruff

5.1 What is the possible cause of death?

5.1 Name a post mortem investigation you wish to order before coming to a conclusion with reasons

Answer

5.1 What is the possible cause of death?

- positional asphyxia

5.2 Name a post mortem investigation you wish to order before coming to a conclusion with reasons

- blood alcohol / toxicology – he could not change this position because of incapacity due to some reason like epileptic seizure, intoxication, or any neurological problems

Assignment:

Describe the pathophysiology of death from positional asphyxia

6 Photographs A and B were obtained at a scene where a man was found dead in his own vehicle.



Photographs By courtesy of Dr. R. Harruff

6.1 What are the possible cause and manner of death?

6.2 Give reasons for your conclusion

Answer

6.1 What are the possible cause and manner of death?

- Suicidal firearm injury

6.2 Give reasons for your conclusion

- Body with a firearm in hand with index finger at trigger
- Scene not disturbed

Assignment:

Discuss the significance of cadaveric spasm in a death scene investigation

7 Photographs A B and C were obtained at a scene where a man was found dead at his residence.





Photographs By courtesy of Dr. R. Harruff

7.1 State the possible cause and circumstances of death giving the scientific basis for your conclusion

Answer

7.1 State the possible cause and circumstances of death giving the scientific basis for your conclusion

- Suicidal Suffocation due to replacement of oxygen by an inert gas
 - v. Face mask and the plastic bag around the face
 - vi. Bag securely tied to the neck
 - vii. Clear tube coming out of a possible helium tank going in to the plastic bag
 - viii. Lying comfortably(scene not disturbed)

Assignment:

Discuss how to differentiate suffocation from inhalation of toxic gases

8 Photographs A B & C were obtained at a scene where a woman was found dead at her residence.





Photographs By courtesy of Dr. R. Harruff

8.1 What is the likely cause and manner of death? Give reasons for your answer

Answer

8.1 What is the likely cause and manner of death? Give reasons for your answer

Poisoning or intoxication

- Body in a bath tub fully clothed even covered with a blanket- prepared to commit suicide
- Dry- not drowning
- Froth at mouth- pulmonary oedema due to intoxication
- Glass and a bottle by the side – possible agent

Assignment:

Discuss the circumstances of death in a bath tub.

9 Photographs A & B were obtained at a scene where a woman was found dead at her residence.



Photographs By courtesy of Dr. R. Harruff

9.1 What is the possible timing and mechanism of causing this injury? Give reasons for your answer

Answer

9.1 What is the possible timing and mechanism of causing this injury? Give reasons for your answer

- Post-mortem animal attack-
- No vital reaction
- Involves the entire face and not on other areas

Assignment: What are the medico legal significance of post-mortem artefacts?

9 Photograph was obtained at a scene where a man was found dead with a rope around the neck.



Photograph By courtesy of Dr. R. Harruff

9.1 State 5 forensically significant observations you would like to make at this scene indicating their relevance

Answer

10.1 State 5 forensically significant observations you would like to make at this scene indicating their relevance

- Feet not touching- complete suspension
- Hypostasis at feet and hands- body was in this position for a considerable period
- Clothing not disturbed-Possible suicide
- Accessibility to the point of suspension- possible suicide
- No evidence of decomposition- TSD

Assignment:

Differentiate partial suspension from a complete suspension

11. Photograph was obtained at a scene where a man was found dead.



Photographs By courtesy of emedicine.medscape.com

11.1. State 3 forensically significant observations you can make at this scene

11.2 what is the most likely cause of death?

11.3 what are the expected autopsy findings (External)

Answer

11.1. State 3 forensically significant observations you can make at this scene

- Male Crushed between a window pane and the window
- There are blood stains on the wall (drip marks and smears)
- Blood stains on the window
- Clothed body

11.4 What is the most likely cause of death?

- Traumatic asphyxia

11.5 what are the expected autopsy findings (External)

- congestion above thoracic inlet
- petechial haemorrhages in conjunctivae
- elongated contusion along the abdomen and back corresponding to the compression

Assignment:

Explain the pathophysiological basis of autopsy findings in a case of traumatic asphyxia

12. Photograph was obtained at a scene where a woman was found dead at the residence of her supervisor.



Photographs By courtesy of Prof. Michael Pollanen

12.1 State 3 forensically significant observations you can make at this scene

12.2 What is the likely cause of death?

12.3 Name a post mortem investigation you would like to order

Answer

12.1 State 3 forensically significant observations you can make at this scene

- Partly dressed female body
- Curled inside a bath tub
- Tub filled with water
- Plume of froth t mouth

12.2 What is the likely cause of death?

- Drowning

12.3 Name a post mortem investigation you would like to order

- Blood for toxicology and alcohol

Assignment:

Explain post-mortem confirmation of drowning as a cause of death

13. Photograph was obtained at a scene where a man was found dead at his residence.



Photographs By courtesy of Prof. Michael Pollanen

13.1 State 3 forensically significant observations you can make at this scene

13.2 What is the likely mechanism of death?

Answer

13.1 State 3 forensically significant observations you can make at this scene

- Adult male lying comfortably on a couch
- Pool of blood around
- There is a collection of blood little away from the main pool of blood

13.3 What is the likely mechanism of death?

- Exsanguination

Assignment:

Find out the instances where exsanguination can be given as a mechanism of death

14. Photograph was obtained at a scene where a man was found dead at his residence.



14A

Photographs By courtesy of Prof. Michael Pollanen

14.1 State 4 forensically significant observations you can make at this scene indicating their significance

Answer

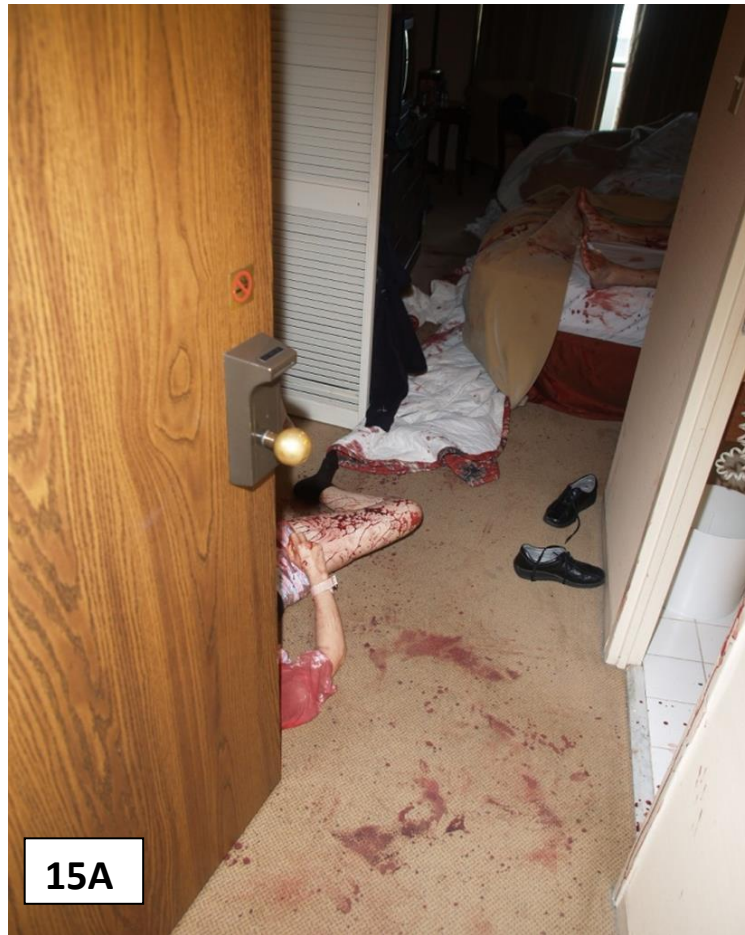
14.1 State 4 forensically significant observations you can make at this scene indicating their significance

- Pants lowered- was using the toilet
- Face in bucket with cloths- possible smothering
- Mummification of the hands-time since death/weather condition
- In a toilet – sudden unexpected death

Assignment:

Indicate the evidence that are necessary to conclude positional asphyxia as a cause of death

15. This photograph was obtained from a scene of crime at a hotel room



Photographs By courtesy of Prof. Michael Pollanen

15.1 State 4 forensically significant observations you can make at this scene indicating their significance

Answer

15.1 State 4 forensically significant observations you can make at this scene indicating their significance

- Body with blood stains on the floor- violence related death
- Another body on the bed-double murder/murder suicide
- Blood stains and smears on the floor-post injury movements
- Blood stains with dripping against the present position on the lower limb on the body found on the floor- post injury position

Assignment:

Explain how you are going to differentiate a double murder from a murder-suicide.

16. The photograph was obtained at a scene where a man was found dead at his residence.



Photographs By courtesy of Dr. R. Harruff

16.1 State 4 forensically significant observations you can make at this scene indicating their significance

Answer

16.1 State 4 forensically significant observations you can make at this scene indicating their significance

- Partly burnt body- cause and mechanism of death
- Burnt material and soot around-circumstances
- Walls stained with soot-circumstances
- Clothing not badly burnt-mechanism of death

Assignment:

Explain how you are going to confirm that the man was alive at the time of fire

17. Photograph was obtained at a scene where a woman was found dead in her residence.



Photographs By courtesy of Dr. R. Harruff

17.1 State 4 forensically significant observations you can make at this scene

17.2 State 2 other observations you would like to make at this scene and indicate the forensic significance

Answer

17.1 State 4 forensically significant observations you can make at this scene

- Body of an elderly female on bed
- Blood stains on bed-
- Blood spatter on floor
- Blood stains on sole

17.2 State 2 other observations you would like to make at this scene and indicate the forensic significance

- doors locked within/not-circumstances
- weapons-identify the weapon and clues on assailant
- foreign materials- clues on assailant
- foot prints- clues on assailant

Assignment:

Discuss the importance of the visit to a scene of crime by a forensic pathologist

18. This photograph was obtained at a scene where a man was found dead at his own room



18A

Photographs By courtesy of Dr. R. Harruff

18.1 Make 4 (Four) forensically significant observations at this scene and indicate the significance of each observation

Answer

18.1 Make 4 (Four)forensically significant observations at this scene and indicate the significance of each observation

- A body of a man lying on a bed, with blood spatter and a smear with dripping on the wall-the deceased may be upright / sitting with his head at that level
- Blood clot at right ear with a black mark just above and in front of it- location of injury
- Blood dripping from nose and mouth- possible injury to base of the skull
- Depression on the wall- a blunt impact/bullet
- Tissues on the shirt-fire arm

Assignment:

Explain how a scene examination helps you in differentiating suicide from a homicide

19. Photographs A and B were of a vehicle that was recovered by the roadside during early morning hours.



Photographs By courtesy of Dr. R. Harruff

19.1 State three (3) medico legal issues in which your assistance is needed

Answer

19.1 State three (3) medico legal issues in which your assistance is needed

- Cause of death
- Manner of death
- Alive or dead at the time of fire
- Any natural pathological conditions contributing to the accident

Assignment:

Describe post-mortem artefacts in a burnt body.

20. Photographs A and B were of a car that was found in an isolated wooded area



Photographs By courtesy of Dr. R. Harruff

20.1 State 3 forensically significant observations at this scene and indicate the significance of each

Answer

20.1 State 3 forensically significant observations at this scene and indicate the significance of each

- Body of a man curled into the front seat of a car- manner possible homicide
- Clothing disturbed-struggle
- Blood stains on clothes- cause of death associated with injuries
- No blood stains in car- car is a secondary scene
- A circular black mark on scalp-possible firearm injury
- Body is not decomposed- time since death

Assignment:

Describe the methods available to assess the time since death and indicate their limitations