
FORENSIC PATHOLOGY WEB BASED PRACTICAL GUIDE

TRAUMA

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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 may or may not get the practical exposure to these medico legally important trauma. Similarly, during the course of training the post graduate students may not be exposed to some of these traumatic conditions.

This booklet contains questions and model answers together with the colour photographs. These are meant to fulfill the gaps in real life exposure where the student, either undergraduate or postgraduate will be able to fulfill 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.
- Use as a colour atlas in making the students aware on some of the unobserved traumatic conditions.

3. LEARNING OUTCOME

By using this booklet the students will able to

- Practice for their OSPE in forensic medicine related to trauma of medico legal importance
- Identify the traumatic conditions and their complications of medico legal importance.
- Improve their knowledge on trauma with medico legal importance.

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) was used with great appreciation. The valuable guidance and encouragement given by Dr. Handun Wijewardena in preparation of this guide is immensely appreciated.

1. Photographs 1A was taken at an autopsy on a 30 year old man recovered from a wooded area.



(Photographs by courtesy of Dr. Richard Harruff)

1.1 State 3 medico-legally significant observations in this picture

1.2 What is the likely underlying reason?

Answer

1.1 State 3 medico-legally significant observations in this picture

- a. Facial abrasions
- b. Facial petechial haemorrhages
- c. Petechial haemorrhages of the sclera
- d. Facial congestion
- e. Facial contusions

1.2 What is the likely underlying reason?

Pressure on the neck and face

Assignment:

Describe the pathology of pressure on the neck and face

2. The photograph 2A was taken from a man who was found dead in his home



(Photographs by courtesy of Dr. Richard Harruff)

2.1 What is the possible manner of death?

2.2 Give reasons for your answer

Answer

2.1 What is the possible manner of death?

Suicide

2.2 Give reasons for your answer

Multiple, Parallel, Superficial tentative cuts
Single deep injury

Assignment:

What are the characteristic features of suicidal cut throat injuries ?

3. Photograph A and B are that of a 37 year old man who was found dead with a ligature around his neck



(Photographs by courtesy of Dr. Richard Harruff)

3.1 Describe the ligature mark for medico legal purpose

Answer

3.1 Describe the ligature mark for medico legal purpose

- Red, horizontal, placed at a level below the thyroid prominence, redness above and below the ligature mark.
- Placed mainly on the front of the neck
- Size - Maximum width 1" minimum 0.5"
- The mark is intermittent at left side with dark red, pale and pink areas
- Facial congestion and petechial haemorrhages

Assignment:

How can you differentiate hanging from ligature strangulation?

4. The photograph 4A is that of a man who was found dead inside his office.



(Photographs by courtesy of Dr. Richard Harruff)

4.1 Describe this injury for medico legal purpose

4.2 What is the likely causation?

Answer

4.1 Describe this injury for medico legal purpose

- a. Perforated laceration
- b. Circular
- c. 2 cm
- d. Margins abraded –
- e. No burning, blackening or tattooing
- f. No muzzle imprint

4.2 What is the likely causation?

Distant range entry wound of a rifled firearm

Assignment:

State how you are going ascertain the range of fire in a gunshot wound

5. The photograph of this specimen was obtained from a 28 year old man whose body was found floating in Kelani river



(Photographs by courtesy of Dr. Richard Harruff)

5.1 Describe the significant observations

5.2 What is the likely cause of death?

Answer

5.1 Describe the significant observations

There is fine white froth at bronchus
Lung is hyper inflated with rounded borders

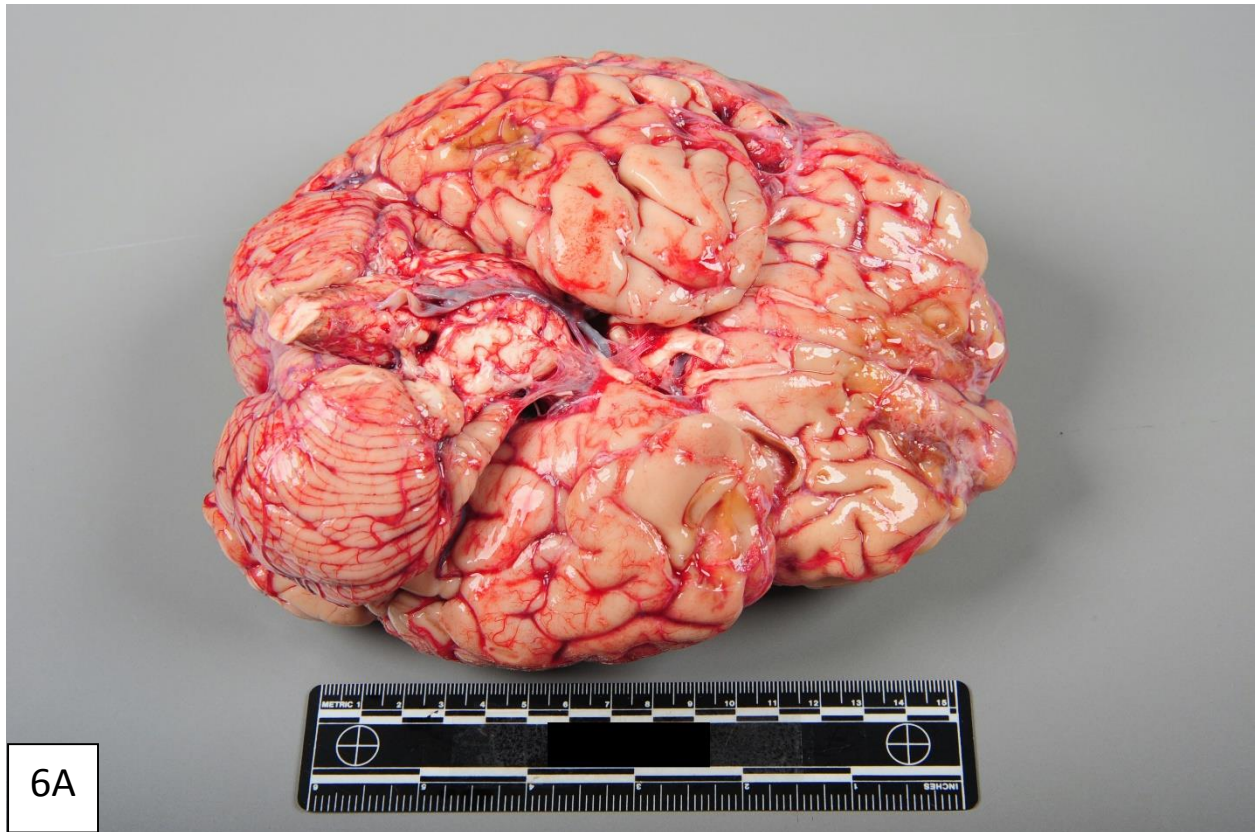
5.2 What is the likely cause of death?

Drowning

Assignment:

What are the postmortem findings in a death from drowning?

6. The 6A photograph is that of a 56 old alcoholic man who was confused for 3 weeks prior to death



(Photographs by courtesy of Dr. Richard Harruff)

6.1 Describe your observations

6.2 What is the mechanism of causation?

Answer

6.1 Describe your observations

There are orange-brown, old contusions of the inferior frontal and temporal lobes of both sides.

6.2 What is the mechanism of causation?

The characteristic location of the hemorrhage in this brain is consistent with a fall backwards resulting in a contra coup injury to the inferior frontal and temporal lobes

Assignment:

Describe the pathophysiological basis of contra coup injuries

7. The photographs A & B are that of a man who was found dead in his own house



(Photographs by courtesy of Dr. Richard Harruff)

7.1 create an opinion to the courts regarding the cause of death

Answer

7.1 create an opinion to the courts regarding the cause of death

Partly burnt body

There is soot mixed with mucous in the trachea. This indicates that the man was alive when the fire started. Thus, the cause of death is smoke inhalation. Confirmation can be done with blood testing for carbon monoxide.

Assignment: state the role of blood carbon monoxide in a death associated with fire

8. Photographs A, B & C are that of a man who was found dead by the road side





(Photographs by courtesy of Dr. Richard Harruff)

8.1 Describe the injury for medico legal purpose.

8.2 Give an opinion regarding the causation

Answer

8.1 Describe the injury for medico legal purpose.

- a. Perforated laceration at the back.
- b. 1 cm diameter
- c. Margins abraded
- d. There is a muzzle stamp (double barrel)
- e. Soot inside the wound

8.2 Give an opinion regarding the causation

Homicidal contact gunshot wound

Assignment:

What are the elective sites of shooting?

9. This photograph is that of a 9 year old child who was found dead on admission



(Photographs by courtesy of Dr. Richard Harruff)

9.1 Describe the picture for medico legal purpose

9.2 State the likely circumstances

Answer

9.1 Describe the picture for medico legal purpose

There are multiple contusions on the face.

A patch of alopecia

Multiple linear / crescentic abrasions of different stages of healing on face and neck

9.2 State the likely circumstances

Physical child abuse

Assignment:

What are the characteristic findings of physical child abuse?

10. The photographs A & B were that of a vehicle and a body of a man who was recovered inside the car.



(Photographs by courtesy of Dr. Richard Harruff)

10.1 Explain the mechanism of causation of these injuries

Answer

10.1 Explain the mechanism of causation of these injuries

The large perforated laceration is an entry wound of a bullet.

The multiple sparrow foot lacerations and abrasions are due to impacts of the shattered glasses

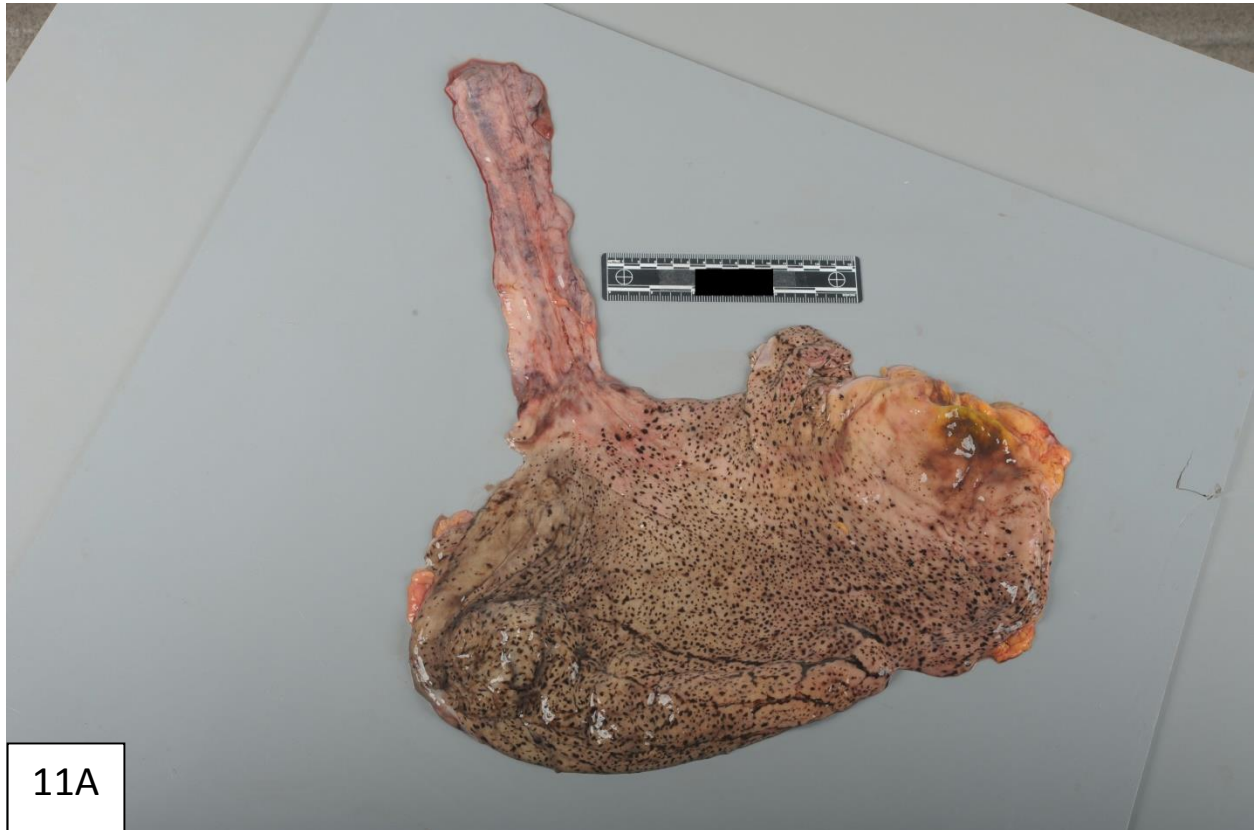
10.2 State your conclusion regarding the injury

Homicidal firearm entry wound through car window

Assignment:

Describe atypical firearm injuries.

11. The photograph was that of a specimen obtained from a man who was found dead outside in a cold day at Nuwara Eliya



(Photographs by courtesy of Dr. Richard Harruff)

11.1 Describe what you see

11.2 What is the diagnosis?

11.3 What is the cause of death?

Answer

11.1 Describe what you see

There are multiple spotted haemorrhagic lesions in the gastric mucosa

11.2 What is the diagnosis?

Wischnewski spots

11.3 What is the cause of death?

Hypothermia

Assignment

Describe the autopsy findings in death due to hypothermia

12. The photograph is that of a human remain recovered from an abandoned well



(Photographs by courtesy of Dr. Richard Harruff)

12.1 Describe the features of the weapon

Answer

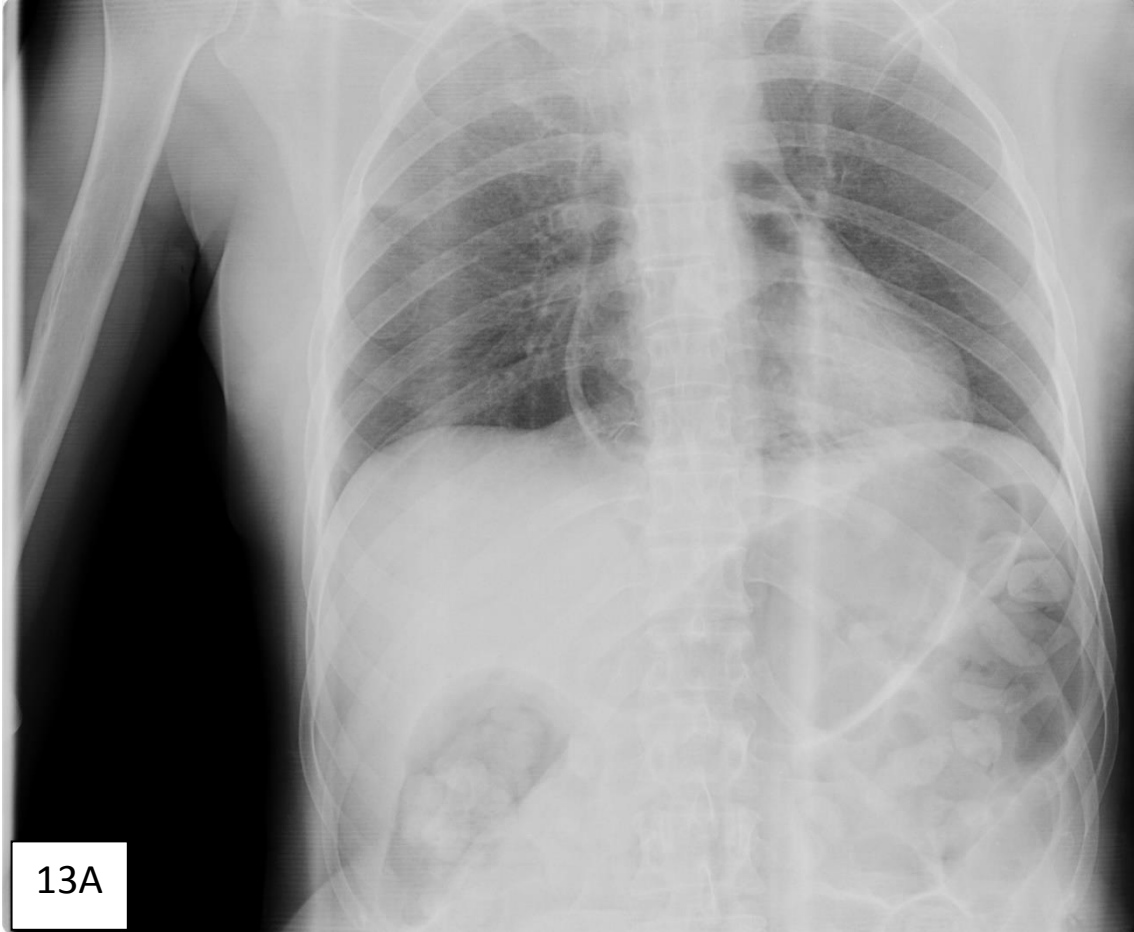
12.1 Describe the features of the weapon

- a. Sharp
- b. Heavy
- c. Non pliable
- d. Minimum cutting surface is 6 cm

Assignment:

Workout the possible mechanisms of death in this case

13. This image was among the pre autopsy radiographs obtained from a man who died of trauma



(Photographs by courtesy of Dr. Richard Harruff)

13.1 state your observations

13.2 What is the diagnosis?

Answer

13.1 state your observations

Chest x ray showing air inside the right ventricle

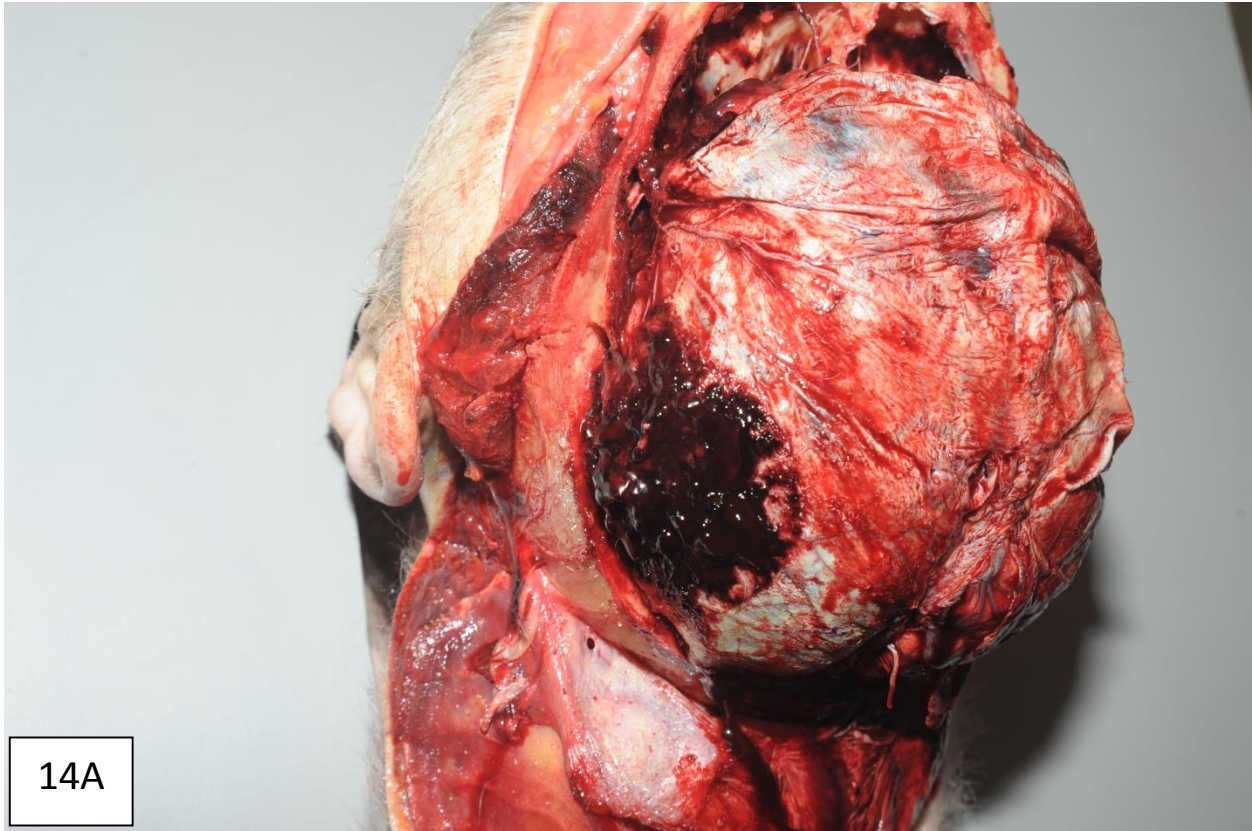
13.2 What is the diagnosis?

Air embolus

Assignment:

State the mechanisms leading to air embolism.

14. This photograph is that of a man who was found dead at his home. He had complained of loss of consciousness following a fall from his bicycle.



14A

(Photographs by courtesy of Dr. Richard Harruff)

14.1 Describe the finding

14.2 What is the clinical entity he had faced?

Answer

14.1 Describe the finding

There is an extradural haematoma over the left temporo-parietal area

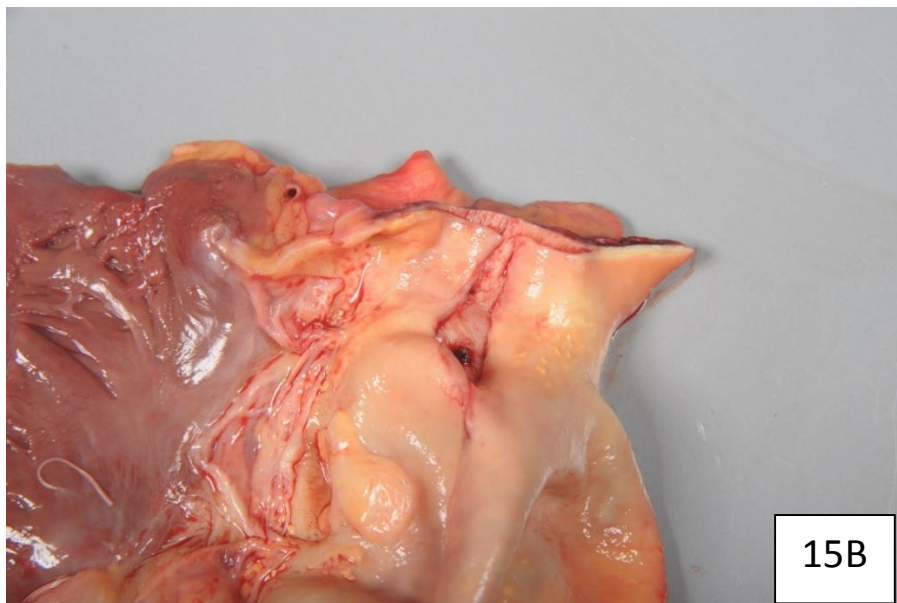
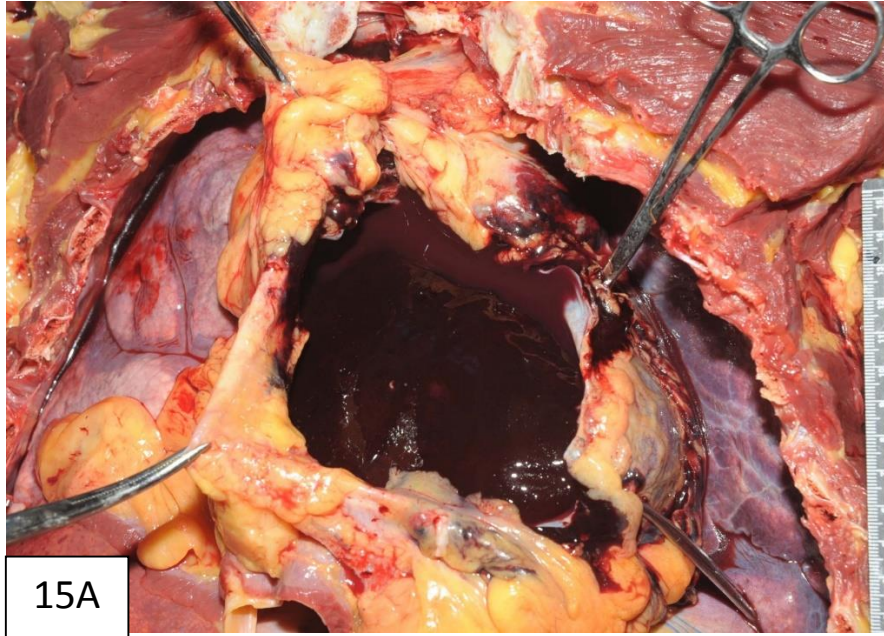
14.2 What is the clinical entity he had faced?

Lucid interval

Assignment:

Describe the mechanisms of formation of membrane haemorrhages

15. The photographs A,B,&C were obtained at the autopsy of a man who was a driver of a motor vehicle which had faced a head on collision





(Photographs by courtesy of Dr. Richard Harruff)

15.1 State the cause of death according to the WHO format

Answer

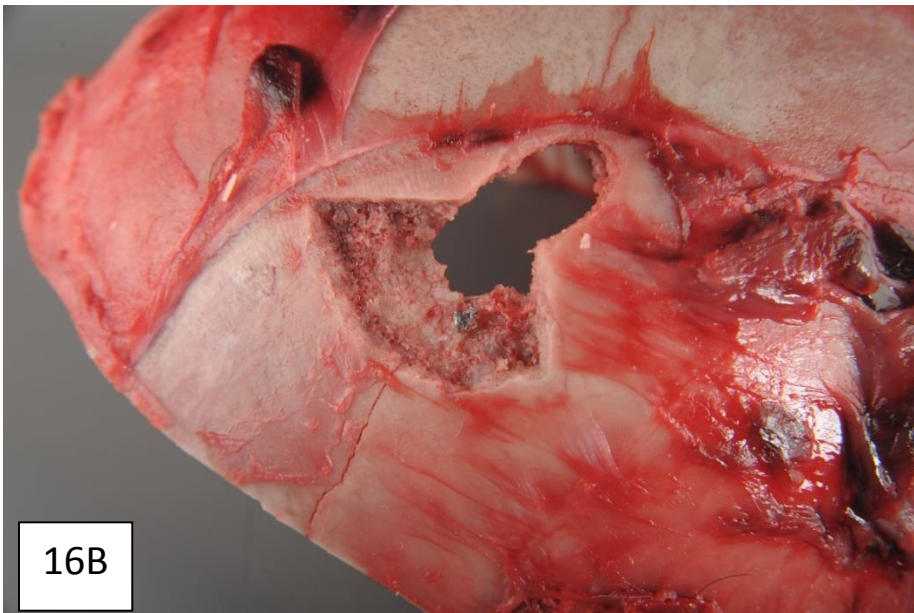
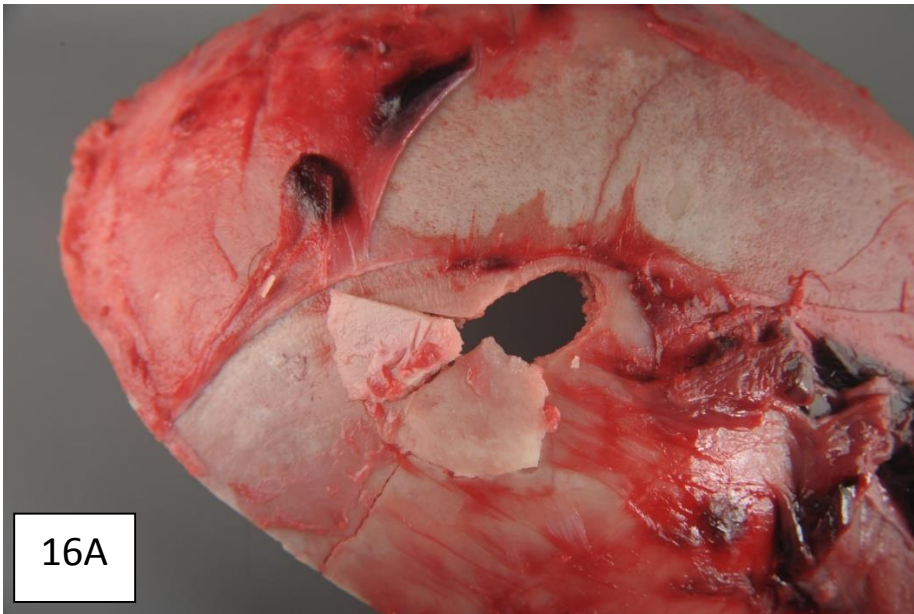
15.1 State the cause of death according to the WHO format

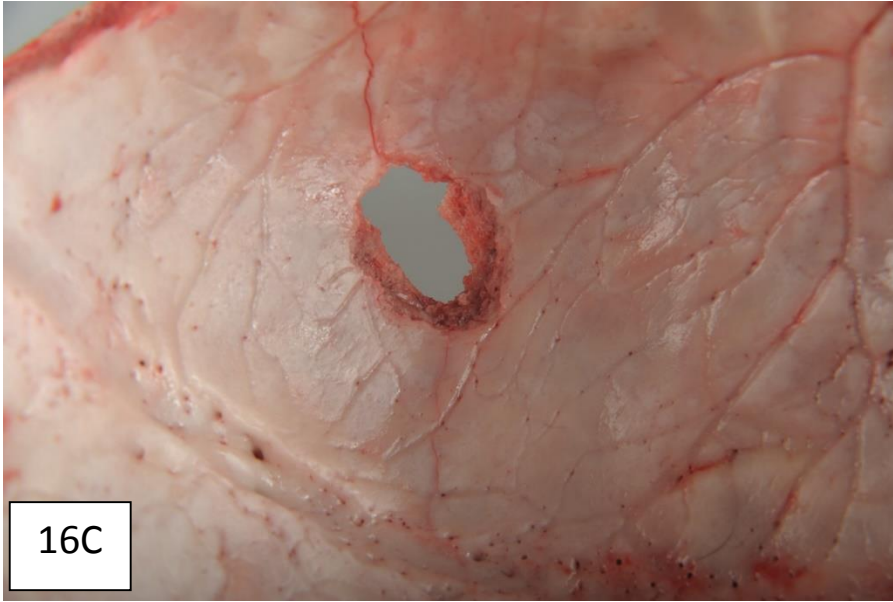
- 1 A. Haemopericardium
- 1 B. Dissection of aorta
- 1 C. Blunt force trauma
- 1 D. Motor vehicle collision (May or may not include)

Assignment:

Describe the injuries of driver of a motor vehicle following a head on collision

16. The photographs A,B,&C were obtained at the autopsy of a man who was found dead with a haemorrhagic wound on the head





(Photographs by courtesy of Dr. Richard Harruff)

16.1 Describe the pictures for medicolegal purpose

16.2 What is the mechanism of causation?

Answer

16.1 Describe the pictures for medicolegal purpose

A key hole gunshot wound with both outer and inner beveling on the outer table of the skull and inner and outer beveling on the inner table

16.2 What is the mechanism of causation?

Tangential impact of a bullet.

Assignment:

Describe the mechanism of causation of gunshot wounds on skull

17. The photographs A & B are obtained at an autopsy of a 67 year old woman with multiple pathologies who was found dead in her home



(Photographs by courtesy of Dr. Richard Harruff)

17.1 Describe pictures for medico legal purpose.

17.2 What is the diagnosis?

Answer

17.1 Describe pictures for medico legal purpose

There are multiple parallel cut injuries involving both wrist joints. Some are superficial and some are infected with necrotic slough in it.

17.2 What is the diagnosis?

Self-inflicted incised wounds of the wrist

Assignment:

What are the elective sites for self-inflicted wounds?

18. The photograph was obtained at an autopsy of a man who was found dead by the road side



(Photograph by courtesy of Dr. Pakila Drukpa)

18.1 Describe the injuries for medico legal purpose

18.2 What is the likely mechanism of causation?

Answer

18.1 Describe the injuries for medico legal purpose

There are 4 parallel zig-zag shaped intradermal contusions purple in colour involving the right front of the chest, upper arm and abdomen placed approximately 5 cm apart.

18.2 What is the likely mechanism of causation?

Run over by a vehicle

Assignment:

What are the injuries caused on a pedestrian following a road traffic injuries?

19. This pre autopsy radiograph was obtained from a man who was found dead by the road side



(Photographs by courtesy of Dr. Richard Harruff)

19.1 Describe the radiograph for medico legal purpose

19.2 What is the likely mechanism of causation?

Answer

19.1 Describe the radiograph for medico legal purpose

There are multiple small radiopaque bullet fragments on the left side of the chest. They are clustered around 2 locations neck and upper left chest and left lateral chest. Lead snowstorm appearance.

19.2 What is the likely mechanism of causation?

Bullet discharged from a center fire rifle

Assignment:

Explain the role of radiology in forensic investigations.

20. The photograph was obtained at the autopsy of a man who was found dead in a vehicle.



20A

(Photograph by courtesy of Prof. Michael Pollanen)

20.1 What is the mechanism of causation of this injury?

20.2 Give reasons

Answer

20.1 What is the mechanism of causation of this injury?

Contact discharge of a high velocity rifled firearm bullet

20.2 Give reasons

- a. Skin splitting due to back pressure of gases
- b. Micro tears
- c. Blackening inside
- d. Muzzle imprint on left side

Assignment:

Describe the pathology of different firearm injuries on head