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Evaluation of Cause of Death in a Case of Young Adult with Fracture of Femur-Shock Kidney

G.S.R.K.G. Ranga Rao[1], G.K.V. Prasad[2], Jakkam Surendar*[3]
[1]Associate Professor, [2]Professor & HOD, [3]Assistant Professor, Department of Forensic Medicine, KIMS &RF, Amalapuram, East Godavari, Andhra Pradesh-533201, India

***Corresponding author**
Dr. Jakkam Surendar
Email: surenderjakkam@gmail.com

Abstract: Here, we are reporting a case of a male person aged about 28 years who met with an accident due to skid of his bike and had fracture of shaft of left femur in the middle 1/3rd. While undergoing treatment patient died and post mortem examination was conducted. The autopsy report did not produce a proper conclusion regarding cause of death. due to absence of clear cut gross findings then we send viscera for pathological analysis. Finally, it revealed that the cause of the Death was of complications of fracture of left femur with tubular necrosis of kidney and Shock.
Keywords: accident, autopsy, fracture of left femur, tubular necrosis, Shock.

INTRODUCTION

Now a day, causality due to a accident is a common phenomenon and large number of peoples died during accident. The main cause of death during accident is shock[1]. The decreased compliance of lungs with Hypoxemia and respiratory insufficiency is the major cause of death.

Death is due to complications of fracture of left femur associated shock is a rare case and here we are presenting such as case of death due to due to complications of fracture of left femur with tubular necrosis and Shock.

CASE REPORT

A male, aged 28 years with fall from motor bike due to slipping of road edge on 04.09.2011 at 00.15mts and was admitted in the Department of Orthopedics, Govt. General Hospital of Rangaraya medical college, Kakinada on 04.09.2011 at 02.38am.

In observation, Diffuse swelling present on the middle 1/3rd of the Lt. thigh region. X-ray Lt. thigh shows # shaft Lt. femur middle 1/3rd. At the time of admission patient is conscious, coherent with P.R. – 84/mt, B.P. – 110/70 mmHg, CVS – S1, S2 - +, Lungs clear. Traction applied under aseptic coverage. On 05.09.2011 at 02.55 am. Pt. C/O breathlessness and irritable with B.P. – 110/70. Immediately Pt. was Shifted to ICU. At 04.50am. Pt. became unconscious. O/E - P.R. – 130/mt, B.P. – 110/70mmHg, CVS – S1, S2 - +, Lungs – bilateral crepitations +, PO2 – 70% on O2 face mask. Then under aseptic conditions ET tube fixed. While undergoing treatment patient died on 08.09.2011 at 03. 15 AM.

INVESTIGATIONS

Hb - 9 gm , RBS - 102 mg% , Bl. urea - 35 mg% , S. Creatinine - 1.5 mg%

Post-Mortem Findings

A. Antemortem External Injuries

- A grazed abrasion of 5×3 cms present on back of left lower abdomen. Brown Scab present.
- An abrasion of 3×2 cms present on back of left elbow. Brown scab present.
- An abrasion of 4×3 cms present on outer aspect of left knee. Brown scab Present.
- An abrasion of 3×2 cms present on left foot below ankle. Brown scab present.

B. Antemortem Internal Injuries:

- Fracture of middle 1/3rd shaft of left femur present. Fractured bone edges stained with organizing blood clots.
- Brain - Congested. Both Lungs - enlarged and severely congested on c/s perivascular haemorrhagic spots seen in both lungs. Heart - Walls, valves and coronaries - normal. Liver - enlarged and congested. Pancreas, spleen and kidneys congested. Adrenals - congested. Heart, bits from Liver, Spleen, Kidney and Lungs sent to HPE to the Dept. of Pathology, Rangaraya Medical College, Kakinada.

Gross Appearance

- **Heart:** Wt.350 gms, size - 14×10×8 cms, Circumference at AV groove – 28 cms,
  - Thickness of IV septum – 2 cms, Rt. Ventricle – 0.75 cms, Lt.Ventricle – 2 cms.
  - Circumference of Mitral valve – 9 cms, Aortic Valve – 8 cms, Tricuspid - 8 cms, Pulmonary - 9 cms.
- **Lungs:** Uniformly grey brown, liver like consistency.
  - Rt. lung -- 844 gms, circumference -- 20×13×9 cms.
  - Lt. Lung -- 1100 gms, circumference -- 22×14×10 cms.
- **Kidneys:** Both kidneys 143 gms each, size - 11×5×4 cms, on c/s –nil particular
- **Liver :** Wt.214 gms; bit -- On c/s uniformly grey brown
- **Spleen :** 297 gms (11×8×6 cms) on c/s -- uniformly dark brown

MICROSCOPIC APPEARANCE

- Heart -- Nil particular
- Lungs -- Show congestion and edematous, liver like consistency
- Kidneys -- Both kidneys show tubular necrosis.
- Liver -- Nil particular
- Spleen -- Nil particular

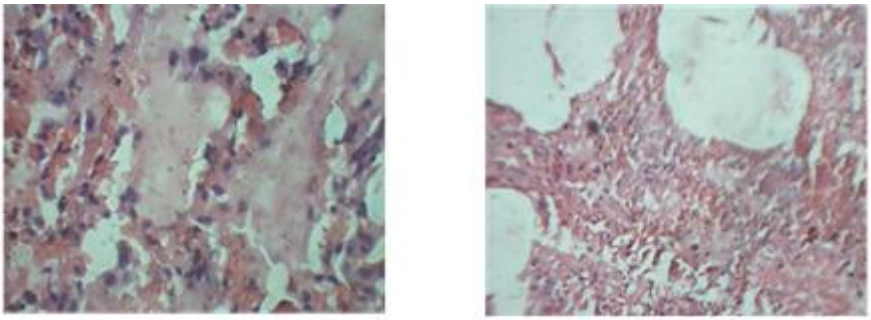

Fig-1: Microscopic pictures of Lungs

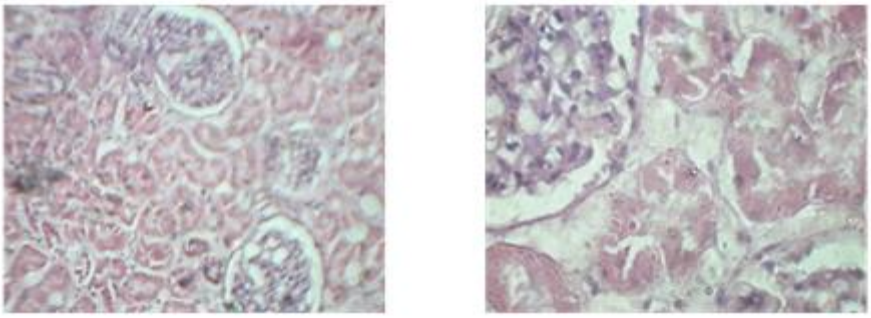

Fig-2: Microscopic pictures of Kidneys

Final Opinion

On perusal of Case Sheet findings, Post Martem (PM). Examination findings and Histopathological Examination (H.P.E.) findings the Death is due to complications of fracture of left femur with tubular necrosis and Shock.

DISCUSSION

Adult respiratory distress syndrome is characterized by fulminant interstitial and alveolar oedema which usually develops 12 to 48 hours after an initial trauma. It results from increased alveolar capillary permeability and is not cardiogenic in origin. Injury may occur directly or as part of a generalized systemic acute inflammatory process[2,3].

Progressive pulmonary insufficiency ensues which may be self-limiting if the patient is adequately supported without exacerbating injury to the lung. Approximately a third of patients have a residual pulmonary disability due to pulmonary fibrosis. The mechanical trauma is certainly an important cause of rupture and the rupture was observed in patients who survived only one day. The obliteration of vascular bed is the main feature of the shock lung and contributes to the severity of impaired gas exchanges.

There is a study of trauma induced additional systemic inflammatory response by pre operative treatment with C1 esterase inhibitors of trauma patients with femur[4]. As per the study C1 esterase inhibitor is a safe, potent inhibitor that is capable of suppressing inflammation and mortality in trauma patients. Trauma is a major cause of mortality and morbidity in the people under the age of 50 yrs or as a result of dysfunctional immune response. This overwhelming immune response is considered to be major risk factor in the development of Post traumatic organ failure[5].

Femur has been found associated with a profound systemic inflammatory response. To address this problem, the concept of Damage Control Orthopedics (DCO) was developed to minimize the surgically induced inflammatory response[6]. In their conclusions to best of their knowledge the study is the first randomized trial designed to assess the use of C1 – INH as a possible drug for attenuation of inflammatory response in trauma patients.

As death in case of fracture of femur with less hemorrhage and little destruction of tissues, evaluation of cause of death at post martem is difficult. In mortality Cases the cause of death never be obscure and should be pinpointed and it should not be cultivated. So the correct way of assessing death is to go for histopathological examination of lungs and kidneys where in the main stress falls in traumatic conditions.

In our case the cause of death is pointed only after study of histopathological examination of lungs and kidneys.

CONCLUSION

Finally it can conclude that Never Hesitate to take Histopathological Sections from Lungs and Kidneys in young age group with femur to pinpoint the cause of death.

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