FORENSIC MEDICINE
AUTOPSY OF POISONOUS CASES

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SULPHURIC ACID:

- Fatal Dose: 10 to 15 cc; Fatal period: 18 to 24 hours.
- **Autopsy:**

1. The clothes may show burns and stains.
2. Corrosion of mucous membranes of lips, mouth, throat and of the skin over the chin, angles of the mouth and hands is seen.
3. The necrotic areas are at first grayish white but soon become brown or black and leathery.
4. Internal changes are limited to the upper digestive tract and the respiratory system.
5. The upper digestive tract is inflamed and swollen by oedema and severe interstitial haemorrhage. The greater part of stomach may be converted into a soft boggy, black mass which readily disintegrates when touched. The mucosal ridges are more damaged than the furrows. In the damaged areas the mucosa is brown or black. Perforation may occur with escape of stomach contents into the peritoneal cavity. The small intestine may show signs of irritation.
6. Corrosion or severe inflammation of the larynx and the trachea may be present.

- M L Aspects: (1) Most cases are suicidal. (2) It is not used for homicide. (3) Accidental cases are rare.

NITRIC ACID:

- Autopsy:

(1) Findings are similar to those of Sulphuric acid but, the tissues are stained yellow.

(2) Perforation of the stomach is not common. In death from inhalation of fumes, the larynx, trachea and bronchi are congested and lungs are oedematous.

HYDROCHLORIC ACID:

- Autopsy:

(1) Findings are similar to Sulpuric acid, but, corrosion is less severe.

(2) Perforation of stomach is rare.

(3) Acute inflammation and oedema of respiration tract and lungs are common.

VITRIOLAGE:

- Throwing of strong corrosive on another person is known as vitriolage.
- It causes penetrating burns. Repair is slow and scar tissue causes contracture.

CARBOLIC ACID:

- Fatal dose: 10 to 15g. Fatal period: 3 to 4 hours.

1. Corrosion of the skin has a grayish or brown colour.
2. The tongue is white and swollen, and there is smell of phenol about the mouth.
3. The mucous membrane of the lips, mouth and throat is corrugated, sodden, whitened or ash-grey and partially detached with numerous small submucous haemorrhages.
4. The mucosa of the oesophagus is tough, white or grey, corrugated and arranged in longitudinal folds. The stomach is hardened and has a leathery feel. The mucosal folds are swollen and covered by opaque-grey or brown mucous membrane. There may be partial separation of necrotic mucosa.
5. The upper part of small intestine may show similar but mild changes.
6. The liver and spleen usually show a whitish m hardened patch where the stomach has been in contact with them.
7. The brain is congested and may be oedematous.

- M. L. aspects: (1) It is used for suicide. (2) Homicide and accident are rare.

CAUSTIC ALKALES

- Fatal Dose: 5 to 30g. Fatal period: About 1 day.
- Autopsy:

1. Alkalies produce soft, oedematous, translucent, soap-like, swollen eschar, red brown in colour.
2. The sloughs are mucilaginous.
3. Charring is not seen.
4. Lips, mouth and throat show corrosion.
5. Oesophagus and stomach show inflammatory oedema with corrosion and sliminess of the tissues. Mucosa may be brownish. Perforation of the stomach is rare.

ORGANOPHOSPHORUS POISONS

- They are absorbed by inhalation, intact skin, mucous membrane, and the gastrointestinal tract.
- Fatal dose: Parathion 80 to 175 mg; malathion and diazinon 1g. orally.
- Fatal period: 3 to 6 hours.
- **Autopsy:**

1. Signs of asphyxia are found.
2. Blood stained froth is seen at the mouth and nose.
3. The mucosa of the stomach is congested with sub-mucous petechiael haemorrhages. The stomach contents may smell of kerosene.
4. The lungs are congested, oedematous and show sub pleural petechiae.
5. The internal organs are congested and brain oedematous.

- M. L. Aspects: (1) Suicide: Common. (2) Homicide. And Accidental deaths may occur.

ENDRIN

- Fatal dose: 5 to 6 G. Fatal period: 1 to 2 hours.
- Autopsy:

1. Signs of asphyxia are found.
2. Blood stained froth may be seen at the mouth and nose.
3. The mucosa of respiratory passages is congested and is covered with a blood stained frothy mucus.
4. The stomach contents may smell of kerosene.
5. The lungs are voluminous, congested and oedematous.
6. The internal organs are congested.

- M. L. Aspects: (1) Suicide is very common. (2) Homicide is rare, but it is sometimes given
- mixed with food, sweets or alcohol.

OPIUM

- Fatal dose: Opium 2 G.; morphine 0.2G.
- Fatal period: 6 to 12 hours.
- Autopsy:

1. Signs of asphyxia are prominent.
2. Froth is seen at the mouth and nose.
3. Smell of opium is noted on opening the chest.
4. Stomach may contain small lumps of opium.
5. Lungs are congested and oedematous.
6. Internal organs are congested.

- M. L. Aspects: It is an ideal suicidal poison. Homicide is rare.

BARBITURATES

- Fatal dose: Short acting 1 to 2 G; medium acting 2 to 3G; long acting 3 to 4G.
- Fatal period: One to several days.
- Autopsy:

1. Signs of asphyxia are seen.
2. White particles of barbiturates may be seen in the stomach with mucosal congestion.
3. Lungs are congested and oedeematous.
4. The brain is oedematous with softening of globus pallidus and multiple punctate haemorrhages into the white matter.
5. Internal organs are congested.

- M. L. Aspects: (1) It is ideal suicidal poison. (2) Homicide is rare

CHLORAL HYDRATE

- Fatal dose:3 to 5g.
- Fatal period: 8 to 12 days.
- Autopsy:

(1) Gastric mucosa is softened, reddened and eroded and smells of chloral hydras.

(2) Brain and lungs are congested.

FOOD POISONING

1. In the infectious type the organisms belong mainly to the Salmonella group. Other organisms like Streptococci, Proteus, Coli group and Shigella are also involved.

2. The toxic type is due to the ingestion of preformed toxins in prepared food, such as, canned or preserved food. Exotoxins e.g. enterotoxins of staphylococci and Botulinum toxin, produce intoxication.

- It may occur as isolated cases or small outbreaks.
- Autopsy: (1) The mucosa of the stomach and intestines is swollen and is often intensely congested, and there may be minute ulcers. (2) Liver shows fatty change.
- Diagnosis: (1) History. (2) Clinical features. (3) Isolation of the organism from the suspected food and from vomit, faeces, blood, etc., from sick persons. (4) Animal experiment.

BOTULISM

- Autopsy:

(1) Kidneys, liver and meninges are congested.
(2) Histological examination of the organs may show thrombosis.

- Diagnosis:

(1) History.
(2) Clinical features.
(3) Demonstration of the toxin in the suspected food.
(4) Isolation of the bacillus from the food.
(5) Isolation of the toxin in the blood and tissues.
(6) Isolation of the bacillus from the patient's faeces or vomit.

CYANIDES

- Fatal dose: Pure acid 50 to 60mg; Sodium or Potassium cyanide 200 to 300mg.
- Fatal period: Pure acid, 2 to 10 minutes. Potassium or sodium cyanide ½ an hour.
- Autopsy:

1. The eyes may be bright, glistening and prominent with dilated pupils.
2. The jaws are firmly closed and there is froth at the mouth.
3. The colour of the post-mortem staining is bright red.
4. Blood stained froth may be found in the trachea and bronchi.
5. There is congestion of viscera and oedma of the lungs.
6. All the vessels of the body including the veins contain arterial blood.
7. The mucosa of the stomach and intestines is often red and congested.
8. Cyanide salts produce slight corrosion of mouth.

- M. L. Aspects: (1) They are used for suicide, (2) Homicide is rare.

CARBONMONOXIDE

1. A cherry red colour of skin, mucous membranes, areas of post-mortem staining, blood, tissues and internal organs is the prominent feature.
2. The blood is fluid. Hyperaemia is general and serous effusions are common.
3. Fine froth may be seen at the mouth and nose.
4. Anoxic skin blebbing are common.
5. Lungs are congested and edematous.
6. Necrobiosis of the heart muscle and pleural and pericardial haemorrhages are common.
7. Bilateral symmetrical necrosis of the Globus pallidius and punctate haemorrhages in the white matter of brain with widespread oedema are common.

- M. L. Aspects: (1) Deaths are usually accidental. (2) Suicide and homicide is rare.