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Autopsy Findings of Oleander Poisoning – Report of A Rare Case

Dr. Nirjhar Saha[1*], Dr. Chandan Bandopadhyay [2], Dr. Biswajit Sukul[3]

[1]Post Graduate Trainee, [2]Associate Professor, [3]Professor and HOD, Dept. of Forensic & State Medicine, Medical College, Kolkata, India

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***Corresponding author:** Dr. Nirjhar Saha

Abstract **Case Report**

This is a case report of an autopsy conducted at Kolkata Police Morgue. An 18 year old female, was allegedly being physically and mentally tortured for dowry by her husband and family. Ultimately, she took oleander nuts to commit suicide. She was taken to a nursing home in an unconscious state and expired 8 hours later. Medico-legal autopsy was conducted. Externally, conjunctiva was congested. On dissection, brain was congested. On opening the thorax; the larynx and trachea were congested. Both lungs and pleura were congested. Pericardium had extensive sub-epicardial ecchymosis. Patchy sub-endocardial haemorrhage was present on both sides of interventricular septum. On dissecting the abdomen; mouth, pharynx and oesophagus were congested. Stomach was congested and contained partially digested food. Peritoneum, small and large intestine were also congested. Liver showed patchy sub-capsular haemorrhage over upper surface of both lobes. Kidney also showed evidence of medullary haemorrhage. This case report highlights the autopsy findings of a case of Oleander poisoning. Oleander is a cardiac glycoside and has digoxin like effect: they inhibit sodium-potassium ATPase. The cardiac glycosides being oleandrin, neriin, folinerin. Death occurred due to cardio-respiratory failure.

Keywords: Oleander, suicide, poisoning.

INTRODUCTION

In India, poisons have been used since the ancient times. It was used for homicidal, suicidal or accidental purposes[1]. As an autopsy surgeon, we have to face many such cases where there has been an alleged use of poison. In such cases, an autopsy surgeon has to be prepared to deal with the innumerable possibilities that may arise. One such problem is difficulty in determining the type of poison used. The autopsy surgeon uses the history, hospital report, autopsy findings and chemical report to determine the type of poison used [2].

One such group of poisons are cardiac glycosides. These glycosides are present in cardiotoxic plants, namely, aconite, foxglove, lily of the valley, common oleander, yellow oleander [1]. The case that is being reported here, was due to the effects of Yellow Oleander poisoning. Yellow Oleander plant is cultivated in various parts of India. In West Bengal it is also called *Kalkey phool* [1]. Though is it grown extensively, reports of poisoning are rare, especially in West Bengal. According to the NCRB data, poisoning in itself is not very common. Only 6.3% of all accidental deaths were due to poisoning. Any statistics specifically by Yellow Oleander was not present [3].

This case is being published by the authors, so that it enlightens the autopsy surgeons, and so that that they are not unprepared when a case as such, arrives at their hospital`s morgue.

THE CASE

A case of alleged poisoning was brought to the Kolkata Police Morgue. After inquest was conducted by the police, the autopsy was performed to determine the cause of death. The history stated that an 18 year old female was admitted at a private hospital in an unconscious state. She came with a history of consumption of oleander seeds. There was a history of alleged physical and mental torture, which apparently caused her to consume the oleander seeds. The hospital declared her dead 8 hours later. It is an autopsy of a rare case of poisoning, using standard protocol conducted at Kolkata Police Morgue.

THE AUTOPSY

External Findings

A female subject of average built and nourishment, presented with Rigor Mortis all over the body. Conjunctiva was congested, both pupils were

fixed and dilated and both corneas were hazy. There was evidence of bluish discoloration on the nail bed on both sides.(Fig 1) A venepuncture mark was present over the ventral aspect of right forearm.

Salient Internal Findings

The noteworthy internal findings are as follows:

1. On dissection, patchy haemmorhagic spots in the soft (areolar) tissues of anterior mediastinum was noted. (Fig 2)
2. The heart had extensive sub-epicardial ecchymoses over sterno-costal , posterior surfaces and base. (Fig 3) Sub-endocardial haemmorhage was present over both sides of the inter-ventricular septum. (Fig 4)
3. There was turbid, mucoid material weighing 70gm in the stomach, with evidence of patchy submucosal haemmorhage involving all regions of body and fundus.
4. Both the kidneys were congested. On dissection, there was evidence of medullary haemorrhage.

Fig-1: Bluish discolouration of nailbeds

Fig-2: Patchy haemmorhagic spots in the soft (areolar) tissues of anterior mediastinum.

Fig-3: Extensive sub-epicardial ecchymoses over sterno-costal, posterior surfaces and base of heart.

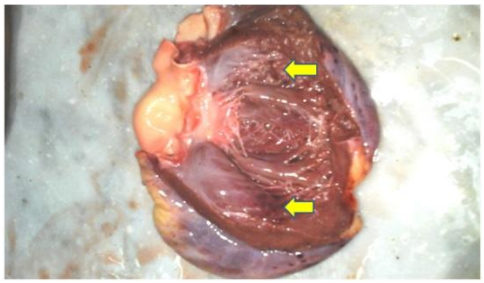

Fig-4: Sub-endocardial haemmorhage over both sides of inter-ventricular septum

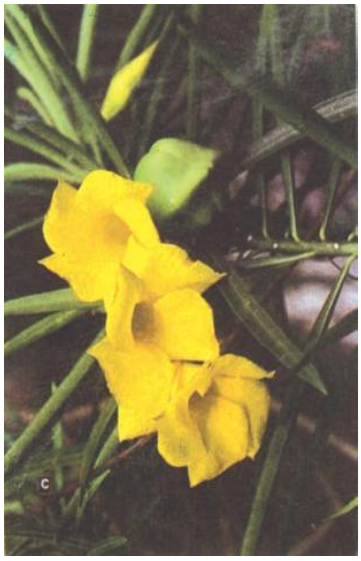

Fig-5: Yellow oleander (Cerbera thevetia)—bell-shaped yellow flowers and unripe fruits [4]

DISCUSSION

Cardiotoxic plants include aconite, Common Oleander (*Nerium oleander*), Yellow Oleander (*Cerbera thevetia*), azalea, death camas, false hellebore, foxglove, lily of the valley, rhododendron and many more. Both the Common and Yellow Oleander belong to the Apocynaceae family. The Yellow Olenader plant (Fig 5) is an ornamental shrub and grows about 30 feet in height. It has long leaves and yellowish funnel shaped flowers. The leaves are pointed, with dark green upper surface and lighter lower surface. It has a diamond shaped fruit, which has 2 to 4 seeds in its inner section. Each seed is about 1.5 cm in size, greenish when opened, which turns yellow when ripe. All the parts of this plant is toxic, especially the seeds and roots. About 8 to 10 seeds or 15 to 20 gm of the root are fatal [5].

Classically, Yellow Oleander poisoning causes lethargy, dizziness, convulsions, hypotension and coma. The sap may cause blistering of skin. On autopsy, subendocardial and perivasculat haemorrhage with focal myocardial oedema have been found. Anti-digoxin Fab fragments are used as specific treatment for Yellow Oleander poisoning [5].

Nerifolin, Cerberin, Peruvoside, Ruvoside and Thevetin A and B are the acting glycosides in Yellow Oleander [6]. These glycosides acts by inhibiting the sodium potassium ATPase channel. This channel helps in moving sodium out and potassium into the cell. This function is jeopardised by the glycosides. It leads to an electrolyte imbalance. This causes cellular depolarization and loss of the negative membrane potential that is required for normal cell function. The loss of negative membrane potential affects the whole conduction system of the heart. The cardiac glycoside prevents the cardiac muscles to reach threshold to complete an action potential [7]. Hence, the heart starts having rhythm irregularities like, ventricular arrythmia. Ventricular arrythmia causes hypotension, which also affects the coronary circulation. The lack of blood supply to the cardiac tissues causes Subendocardial Haemorrhage and Ischaemia.

The chemical analysis was inconclusive. Since it is a rare poison, Yellow Oleander poisoning is mainly diagnosed by the history, clinical features and autopsy findings. Chemical analysis is not always helpful. Thus, we can conclude that this case is indicative of Yellow Oleander poisoning.

CONCLUSION

The findings in the heart and corroboration with the history given we can come to the conclusion that the person died due to cardiorespiratory failure. The clinical features supplemented by the history given, we may come to the conclusion that the person died due to the effects of Yellow Oleander poisoning.

Conflict of Interest

This article was not sponsored by anyone and was done exclusively by the authors with their own resource and interest.

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