



ORIGINAL RESEARCH PAPER

Forensic Medicine

"PREVENTABLE DROWNING DEATHS IN RURAL PONDS OF MAHARASHTRA : A FORENSIC AND PUBLIC HEALTH CONCERN"

KEY WORDS: Pediatric drowning, Pond, Rural Maharashtra, Accidental death, Forensic medicine.

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ABSTRACT

Pediatric drowning is a major but preventable cause of accidental mortality in rural India. Children living in agrarian communities are frequently exposed to unprotected water bodies such as ponds used for irrigation, cattle, and domestic purposes. This case report describes an accidental drowning of a child in a pond in a rural area of Maharashtra, emphasizing medico-legal autopsy findings and public health concerns.

INTRODUCTION:

Drowning is defined as death due to asphyxia resulting from submersion in a liquid medium. Children are particularly vulnerable due to curiosity, inability to swim, and lack of supervision. In rural Maharashtra, ponds located near residential areas and farms are common sites of pediatric drowning due to absence of fencing and safety measures.

Case History:

An 8-year-old male and 9-year-old female child of same family was brought to the Rural Hospital mortuary from a village in western region of Maharashtra for medico-legal autopsy. According to the parents, the child was playing near his house in the afternoon and went missing. After a search by villagers, the child was found submerged in a nearby irrigation pond approximately 3 hours later. There was no history of epilepsy, chronic illness, trauma, or family disputes. The pond was uncovered, unfenced, and commonly used for irrigation and bathing of cattle. Police registered an Accidental Death (AD) case and forwarded the body for post-mortem examination.

External Examination:

Body of a male child, average build and nourishment for age. Clothes were wet and soiled with mud. Rigor mortis present in jaw and upper limbs. Fine white froth present at nostrils and mouth. Skin of palms and soles showed early washerwoman's changes. No external injuries, ligature marks, or signs of struggle observed.

Internal Examination:

Respiratory system: Lungs were voluminous, congested, and edematous. On cut section, frothy fluid exuded. 1 Airways: Frothy fluid present in larynx, trachea, and bronchi. Stomach: Contained approximately 150 ml of watery fluid with suspended mud particles and vegetation. Other organs: Congestion of liver, spleen, kidneys, and brain. Heart: Normal in size and structure; chambers contained fluid blood.

Laboratory Investigations:

Diatom test was advised using bone marrow and water

sample from the pond. Opinion Based on the history, scene of occurrence, autopsy findings, the cause of death was opined as asphyxia due to drowning. The manner of death was accidental.



Fig. 1 Farm Pond Without Fencing



Fig. 2 Farm Pond Near To Road Side

DISCUSSION

Pediatric drowning in rural areas is commonly accidental and often occurs during unsupervised play. Open ponds pose a serious hazard to children (1). Classical findings such as froth at nostrils, water in the stomach, and voluminous lungs support the diagnosis of drowning, although no single sign is conclusive.

This case highlights the need for supervision of children, Physical Safety Measures Install strong fences around all farm ponds, use child-proof gates that latch securely Ensure fencing is high enough and well-maintained fencing of water bodies (2), Gentle Sloping Banks ,Re-shape steep edges to safer gentle slopes, Provide stable, non-slippery ground cover around edges. Covering or Netting Where fencing isn't possible, use strong nets or covers over sections of water, Floating covers can prevent children from falling straight in. Keep long poles, ropes, life jackets, or buoy rings near water. Train adults to use them in emergencies and community-based drowning prevention strategies like Community Education & Awareness Local Meetings and Campaigns, conduct awareness sessions through village panchayats, anganwadis , schools, share stories and local data to highlight risks, School Programs, teach water safety basics, such as staying away from ponds alone, Warning Signage Put visible signs near ponds. Involvement of Local Institutions Gram Panchayats Include farm pond safety in village safety plans, Allocate small funds for fencing or signage. Health Workers / AWW / ASHA Counsel families about water risks during home visits. Schools / Teachers Make farm pond safety part of regular health & safety talks. Emergency Preparedness & Response First Aid and CPR Training, Train community members in basic child CPR and rescue breathing (3). Emergency Contact Plan Create a village buddy list for rapid response. Share local health center phone numbers widely.

CONCLUSION:

Pediatric drowning remains a preventable cause of death in rural Maharashtra. Preventing pediatric deaths from farm pond drownings requires a mix of engineering controls, caregiver vigilance, community awareness, and emergency readiness. With simple barriers, proactive supervision, and local action, rural communities in Maharashtra can dramatically reduce these tragic incidents

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REFERENCES

1. **World Health Organization (WHO).** *Global report on drowning: Preventing a leading killer.* Geneva: World Health Organization; 2014. □ Supports: drowning as a preventable cause, need for barriers, supervision, community action.
2. **World Health Organization (WHO).** *Guidelines on drowning prevention.* Geneva: World Health Organization; 2017. □ Supports: fencing of water bodies, supervised childcare, community education, rescue preparedness.
3. **UNICEF.** *Drowning prevention: Key facts and interventions.* UNICEF; 2021. □ Supports: child supervision, restricting access to water, community awareness programs.
4. **Centers for Disease Control and Prevention (CDC).** *Preventing drowning.* Atlanta: CDC; 2022. □ Supports: physical barriers, rescue equipment, CPR training, adult supervision.
5. **Ministry of Health and Family Welfare, Government of India.** *National Action Plan for Prevention of Injuries and Violence (2018–2025).* New Delhi: MoHFW; 2018. □ Supports: injury prevention strategies, community-based interventions in rural India.
6. **National Crime Records Bureau (NCRB).** *Accidental deaths and suicides in India.* New Delhi: NCRB; latest edition. □ Supports: burden of accidental drowning deaths in India, including children.
7. **Peden M, Oyegbite K, Ozanne-Smith J, et al., editors.** *World report on child injury prevention.* Geneva: World Health Organization; 2008. □ Supports: environmental modification, education, supervision, and policy involvement.
8. **Royal Life Saving Society – Australia.** *Rural and farm water safety guidelines.* Sydney: RLSSA; 2019. □ Supports: fencing farm ponds, warning signage, rescue equipment near water bodies.
9. **Times of India.** Reports on pediatric drowning incidents in farm ponds in rural Maharashtra highlighting lack of fencing and safety measures. □ Supports: local relevance and real-world evidence from Maharashtra.
10. **Aggarwal A, Kumar A.** *Textbook of Forensic Medicine and Toxicology.* New Delhi: Avichal Publishing; latest edition. □ Supports: medico-legal aspects of drowning and prevention relevance.