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'An Unusual Case Of Dyadic Death'- A Case Report

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ABSTRACT

A dyadic death is a rare but tragic form of Premeditated violence that involves the death of two people at the same time (homicide followed by a suicide), or suicide pact, where a person kills another person and then commits suicide. Dyadic deaths make up a small proportion of homicide overall, commonly in low socio-economic, less educated or illiterate families. This is a case report on one such incident where the perpetrator killed the victim with whom he had a long-standing property dispute and also his own mother who tried to stop him from doing the act, following which he killed himself by shooting himself with a .315 pistol.

Introduction

A dyadic death is a rare and tragic form of premeditated violence where one person kills another and then commits suicide, or where two individuals make a suicide pact. Common reasons for dyadic deaths include relationship issues, infidelity, jealousy, financial problems, property disputes, or unemployment. In a suicide pact, two or more individuals agree to end their lives simultaneously, often in the same location^(1,2)

Dyadic deaths, although relatively infrequent, are of significant concern because of their impact on families, especially when they result in the death of family members or young children. These events often lead to additional morbidity, family disruption, and childhood psychological traumas. While no standardized classification system exists

for dyadic deaths, Mazruk et al. proposed a classification based on the type of relationship between the perpetrator and the victim, which was further sub-classified according to the motivation behind the crime.⁽³⁾ Thus, dyadic deaths are classified as spousal/consortial, familial, and extra-familial type with different sub classification based on motive of crime.^(3,4) The Hanzlick-Koponen typology categorizes dyadic deaths into single and multiple victim events. Single-victim events include homicide, suicide, or suicide pacts.^(5,6) Dyadic deaths make up a small proportion of homicide overall, commonly in low socio-economic, less educated or illiterate families. Firearms, poisoning, hanging and drowning are the preferred methods of suicide employed in such cases.⁽¹⁾ Investigation of dyadic deaths remains a challenge for the investigators especially in concluding on the cause and manner of death.

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Case Report

On 15/06/2024, a property dispute led to the perpetrator stabbing the victim and his mother, who tried to intervene, before shooting himself with a .315 bore pistol. All three were initially treated at a local healthcare center and then referred to a tertiary care center, where the perpetrator and victim died within one day. The perpetrator's mother passed away three weeks later. Post-mortem examinations were conducted, revealing the following findings:

'The Perpetrator'

The perpetrator was brought to the hospital by relatives who misled the staff with a false history of a fall or stab injury. Surgery and ENT treated the patient with wound debridement and suturing, leading to Kennedy's phenomenon. During the autopsy, signs of blackening, burning, and gunpowder residue in the wound and on the right palm were suspected. Postmortem radiography revealed two metallic fragments (bullet pieces) lodged in the cranial cavity.

External examination shows; A therapeutic stitched wound with 13 intact stitches, measuring 13 cm in length [Figure 1], was observed over the right mandibular, submandibular, and right neck regions. On removal of stitches, Cruciate laceration suggestive of firearm entry wound of size 14cm x 7cm x bone deep (Actual size altered due to therapeutic stitched wound, Kennedy's phenomenon) no burning, no blackening, no tattooing noted, margins inverted, irregular, no abrasion collar noted. (Figure 2) Tract of firearm entry wound through injury no.1- Skin- Subcutaneous tissue- Fat-perforating layers of the neck, anteriorly with a hematoma perforating the right submandibular gland and fracturing the body and angle of the right mandible bone. The injury extended to fracture the maxilla and zygomatic bone, entering the cranial cavity through the right anterior cranial fossa. The right frontal duramater was perforated, as was the right frontal lobe. A deformed bullet fragment was found lodged in the frontal lobe parenchyma. The bullet exited the cranial cavity through the right frontal bone, fracturing it. Another piece of deformed bullet was found lodged in the right frontal underscalp region, with hematoma. The bullet tract showed characteristics of a hard contact wound at an angle, with combined smudging of blackening and burning up to the right mandibular region. The tract was red, lacerating, and hemorrhagic, with an upward, posterior, and medial direction. Periorbital contusions were present around both eyes with blood extravasation on cut-section [Figure 3]. Fragments of bullets in radiological examination [Figure 4]. On internal examination, A hematoma was observed under the right frontal scalp [Figure 5], with a contusion on the

right temporalis muscle. The right frontal bone showed a comminuted fracture with a punched-in hole on the inner surface, bevelled outer edge, and blood at the fracture margins [Figure 6]. The right frontal meninges were perforated, and a fracture extended from the right anterior cranial fossa to the cribriform plate, Sella turcica, and middle cranial fossa along the right sphenoid. Perforation was noted in right frontal and temporal lobes. A thin subarachnoid haemorrhage was also present, suggesting severe craniocerebral trauma from a high-velocity impact to the right frontal head region.

'The Victim'

1. A 25 cm mid-abdominal surgically made incised wound bypassing the umbilicus was observed with slight dehiscence but no exudate. After suture removal, multiple continuous sutures were noted in various abdominal layers. Two additional sutured wounds, measuring 2 and 4 cm, were located 20 cm from the duodenojejunal junction and at the ileocecal junction, respectively, indicating bowel repair. These wounds showed no signs of dehiscence or leakage. Upon further inspection, two perforations were found, with clean-cut margins but a malodorous, brownish, contaminated exudate along the edges.

2. A ileostomy wound was noted in the right lumbar region, with eight intact stitches. Protruding coils of the ileum were visible, with foul-smelling, brownish, septic exudate. Further examination revealed a perforated intestinal coil, 70 cm distal to the duodenojejunal junction, surgically stitched and fixed to the abdominal wall [Figure 8]. The margins were clean-cut, but the sutured edges had foul-smelling brownish debris.

'The Mother of The Perpetrator'

A 23 cm vertical incised wound with 20 intact stitches was observed over the mid-abdomen, with well-approximated margins, no gaping, and no oozing. Further exploration revealed continuous sutures were noted in various abdominal layers. Additional therapeutic stitches in the posterior stomach suggest the need for surgical repair. Upon suture removal, two perforations, on the body and antral region, were found with clean-cut margins and foul-smelling, brownish slough along the sutured edges.

A 4 cm vertical stitched wound, alleged to be A stab, was noted in the left hypochondrium region, with four intact stitches, well-approximated margins, and no gaping or oozing [Figure 9]. Further exploration revealed multiple continuous sutures in various abdominal layers that were repaired through the initial injury site [Figure 10]. Drainage wounds in the right and left lumbar regions.

Table 1: The table below lists each case's cause of death:

PATIENT	CAUSE OF DEATH
The Perpetrator	Head injury following firearm injury over right sub-mandibular region.
The Victim	Perforation peritonitis following alleged stab wound over abdomen.
The Mother of the Perpetrator	Perforation peritonitis following alleged stab wound over abdomen.

Discussion

On the basis of relationship between the Perpetrator and the victims, in our study, one of the victims was the mother of the perpetrator, whereas the other victim was a distant relative of the perpetrator. In the study by Bhengra A ⁽⁴⁾, the perpetrator-victim were Husband and wife. In the study by Sumangala CN ⁽⁶⁾, the perpetrator-victim were Father and Daughter and in the study by Gadhari RK ⁽⁷⁾, the perpetrator-victims were Mother and 2 sons.

Based on number of victims, in our study the number of victims were 2. Similar findings were seen in the study by Gadhari RK ⁽⁷⁾, whereas in the studies by Bhengra A ⁽⁴⁾ and Sumangala CN ⁽⁶⁾, there was a single victim.

Based on the reason behind the act, in our study it was Property dispute, whereas in the study by Bhengra A ⁽⁴⁾ the reason was suspicion of infidelity and Poverty was the reason behind the act in the studies by Sumangala CN ⁽⁶⁾ and Gadhari RK. ⁽⁷⁾

The cause of deaths in our study were Head injury (Firearm injury) and Perforation peritonitis (Stab wound), whereas in the study by Bhengra A ⁽⁴⁾ Head injury (Blunt trauma) and Hanging were the cause of deaths. In the study by Sumangala CN ⁽⁶⁾, the cause of deaths were Ligature strangulation and Datura Poisoning and in the study by Gadhari RK ⁽⁷⁾ all the cases were of drowning.

This unusual case of Dyadic death lacked a pact or planning between the perpetrator and victims. It highlights the importance of integrating clinical departments with Forensic Medicine to prevent evidence loss and avoid negligence, as seen when the perpetrator was treated for a stab wound based on false information from relatives.

Conclusion

Dyadic death cases in India reflect societal mental health,

financial issues, and family breakdowns. The rise in such incidents indicates increasing psychological stress and depression. Prevention requires a multidisciplinary approach focused on vulnerable populations, including awareness creation and identification of at-risk individuals. Essential steps include clinical management of survivors, establishing a national surveillance system for detailed case analysis, and integrating clinical departments with forensic medicine to prevent miscommunication and negligence. A forensic medicine unit in emergency wards can help preserve crucial evidence for proper investigation and justice.

Author contributions:

All authors contributed to the study design and conception, manuscript drafting, and approved the final draft of the manuscript.

Conflict of interest:

The authors have no conflict of interest to declare.

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Ethical Clearance-

Not applicable

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the mother of the Perpetrator.



Figure 2.: Entry wound on removal of stitches showing smudging inside the wound.

Figure Legends

Figure 1: Stitched therapeutic wound (Entry wound) noted on Perpetrator

Figure 2.: Entry wound on removal of stitches showing smudging inside the wound.

Figure 3: Periorbital contusion (Raccoon eyes) noted on Perpetrator.

Figure 4: Xray head showing broken bullet fragments lodged in the brain of the Perpetrator.

Figure 5: Metallic fragment (Broken bullet piece) found over right frontal under scalp region on Perpetrator.

Figure 6: Comminuted fracture of the skull showing bevelling over outer table on Perpetrator.

Figure 7: Surgically intervened Stab wound noted on the Victim.

Figure 8: Surgically repaired perforation over small intestine of the victim.

Figure 9: Alleged stab wound (surgically repaired) noted over Left Hypochondrium of the mother of the Perpetrator.

Figure 10: Surgically repaired perforation over stomach of



Figure 1: Stitched therapeutic wound (Entry wound) noted on Perpetrator



Figure 3: Periorbital contusion (Raccoon eyes) noted on Perpetrator.



Figure 5: Metallic fragment (Broken bullet piece) found over right frontal under scalp region on Perpetrator.



Figure 4: Xray head showing broken bullet fragments lodged in the brain of the Perpetrator.



Figure 6: Comminuted fracture of the skull showing beveling over outer table on Perpetrator.



Figure 7: Surgically intervened Stab wound noted on the Victim.



Figure 9: Alleged stab wound (surgically repaired) noted over Left Hypochondrium of the Mother of the Perpetrator.



Figure 8: Surgically repaired perforation over small intestine of the victim.



Figure 10: Surgically repaired perforation over stomach of the Mother of the Perpetrator.