

CASE REPORT

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Dyadic death-an unusual case of post-mortem mutilation

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Abstract

Background: Dyadic suicides comprise of suicides occurring simultaneously or one after another in two or more people, either with an agreement or without one. Firearms, poisoning, hanging, and drowning are the preferred methods of suicide employed in such cases. Investigation of dyadic deaths remains a challenge for the investigators especially in concluding on the cause and manner of death.

Case presentation: We report a case of dyadic suicide where hanging was used by a couple to end their lives. Post-mortem mutilation of the tongue in female and ante-mortem injuries to the fingertips in male helped in the reconstruction of events in this case.

Conclusion: Death scene reconstruction and exploring the sequence of events prior to the death are paramount in the investigation of dyadic deaths not only to conclude on the exact cause and manner of death but also to ascertain if the deaths were simultaneous or one after another.

Keywords: Dyadic death, Dyadic suicide, Suicide pacts, Hanging, Autopsy

Background

Dyadic deaths are an uncommon occurrence in forensic casework. The rate of dyadic deaths around the world ranges from 0.02 to 0.46 per 100,000 populations per year, with significant national and regional variations (Viero et al. 2014). This rate ranges from 0.06 per 100,000 persons per year in England and Wales to 0.38 per 100,000 in Japan. In the USA, it is 0.21 per 100,000, while in Australia and New Zealand, the rate ranges from 0.07 to 0.11 (Liem et al. 2011). Dyadic deaths comprise of deaths occurring simultaneously or one after another in two or more people, either with an agreement or without one. It may be an act of homicide followed by perpetrator committing suicide (Prat et al. 2013) or it may involve two or more people committing suicides. Dyadic deaths thus can broadly be described as homicide-suicide or suicide-suicide. The suicide-suicide variant of dyadic death is often referred to as dyadic suicides or double suicides. In a typical act of suicide, the perpetrator of the act alone is the victim of suicide. Where as in dyadic suicides, there may be a suicide pact or an agreement among two or more victims or at times

suicides occur one after another, and without any prior agreement.

Investigation of dyadic deaths remains a challenge for the investigators especially in concluding on the manner of death. Detailed examination of the death scene along with autopsy observations may be vital to reconstructing the sequence of events occurring prior to death.

Case presentation

Husband and wife aged 26 years and 23 years respectively were found dead in their house. The body of the female was suspended from the ceiling by a cotton cloth while the body of the male was lying on the floor when the investigators arrived. A piece of cloth with one end tied to the ceiling was hanging freely above the male victim (Fig. 1). Minimal dried blood stains were present on the clothes of female. A razor was recovered by the investigating officer at the death scene near the body of the deceased female. Both the victims were illiterate and worked as labourers. Interrogation from the relatives revealed that the couple used to frequently quarrel and argue over trivial matters. Husband suspected his wife while the wife used to shout and ridicule the husband on some pretext or the other. On the evening before, everything seemed normal between the two. In fact, they

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Fig. 1 Body of the deceased female partially suspending from the ceiling by a cotton cloth (single arrow), while the body of the deceased male lies on the floor with a piece of cloth hanging freely above (double arrow), other end of the cloth was tied to the ceiling

had even gone to meet his ailing brother and parents who stayed very close by to know about their welfare. The couple returned to their house in the night, only to be discovered hanging on the next day early morning. The door was locked from inside, and hanging was first noted by their minor nephew who peeped through the window when repeated knocks at the door remained unanswered. The dead bodies were subjected to post-mortem examination.

At autopsy, the dead body of the female weighed 66.0 kg and measured 156 cm in length. Rigor mortis was present all over the body. Post mortem staining was present over the limbs in glove and stocking pattern and was fixed. Conjunctiva was congested bilaterally. The whitish froth was present around the mouth, nostrils, and left side of the face. The tongue was protruded and clenched between the teeth. The exposed anterior part of the tongue of the female victim was blackish, hard, and dry. An oblique reddish brown, dry, hard, parchmentized ligature mark was present incompletely encircling the neck above the thyroid prominence (Fig. 2a). The dead body of the male weighed 47.0 kg and measured 167 cm in length. Rigor mortis was present all over the body while post mortem staining was present over the back and dependent parts of the body, and it was not fixed. The whitish froth was seen coming out of the mouth and nostrils. Conjunctiva was bilaterally congested. A faint ligature mark was present incompletely and obliquely encircling the neck above the thyroid prominence (Fig. 2b). Multiple healed linear and transverse scar marks were present over the ventral aspect of



Fig. 2 a, b Ligature mark in the female and male victims respectively

the left forearm of both the deceased male and female (Fig. 3a, b).

On detailed examination, the right side of the tip of the tongue of the female victim measuring 2.0 cm × 1.0 cm × 1.0 cm was found missing (Fig. 4a, b). The margins were clean cut with a pale base suggestive of the post-mortem nature of injury. Similarly, in the male victim, dried red clotted blood was present on the finger tips and palm of the left hand. Further examination revealed, oval muscle deep 'slashed off' injuries measuring 0.4 cm × 0.3 cm and 0.6 cm × 0.3 cm with regular and clean cut margins on the fingertips of the left middle and left ring finger respectively. Extravasation of blood was present in the adjacent tissue indicating its ante-mortem nature (Fig. 5a, b).

On internal examination, the soft tissue underlying the ligature mark in both the cases was glistening and pale. Osteo-cartilagenous structures of the neck were intact and there were no intimal tears of the internal carotid arteries. Visceral organs in both of the victims were congested on cut section. In both the cases, the cause of death was opined as compression of neck structures due to hanging. Blood and viscera were preserved and sent to Regional Forensic Science Laboratory (RFSL) for chemical analysis to rule out any intoxication or poisoning prior to the act of suicide. Blood samples from male, female, and crime scene along with the razor recovered from the death scene were sent to the Regional Forensic Science Laboratory (RFSL) for blood grouping and cross

matching. Chemical examiner's report revealed blood alcohol concentration (BAC) of 80.2 mg% and 76.5 mg% in the blood samples of male and female respectively. Besides, blood and viscera submitted for chemical analysis from both the bodies were positive for opioid alkaloids.

Discussion

Suicide in any of its form is a global health issue. The estimated annual burden of suicides each year is 14.5 suicides per 100,000 populations (Pompili et al. 2010). Prevalence of suicidal death in India is 10.6 per 100,000 population (Accidental deaths and suicides in India 2015). The common precipitating factors for suicide include marital and financial problems, unemployment, depression and social isolation, alcohol abuse, physical and mental illness, etc. In Indian scenario, financial burden, marital disharmony, and substance abuse are the major factors associated with suicidal deaths.

The term 'dyadic death' has often been used differently in the literature. While some authors propose that it is the course of events and relation of the events which are more important rather than the time interval, others consider that the term dyadic death should be used in relation to the time intervals between the fatalities. While some authors have proposed this time interval to be 24 h (Melez et al. 2014), a time period as long as 5 years has also been reported (Carson 2010).



Fig. 3 a, b Multiple old healed linear scars on the ventral aspect of left forearm of both the deceased female and male respectively

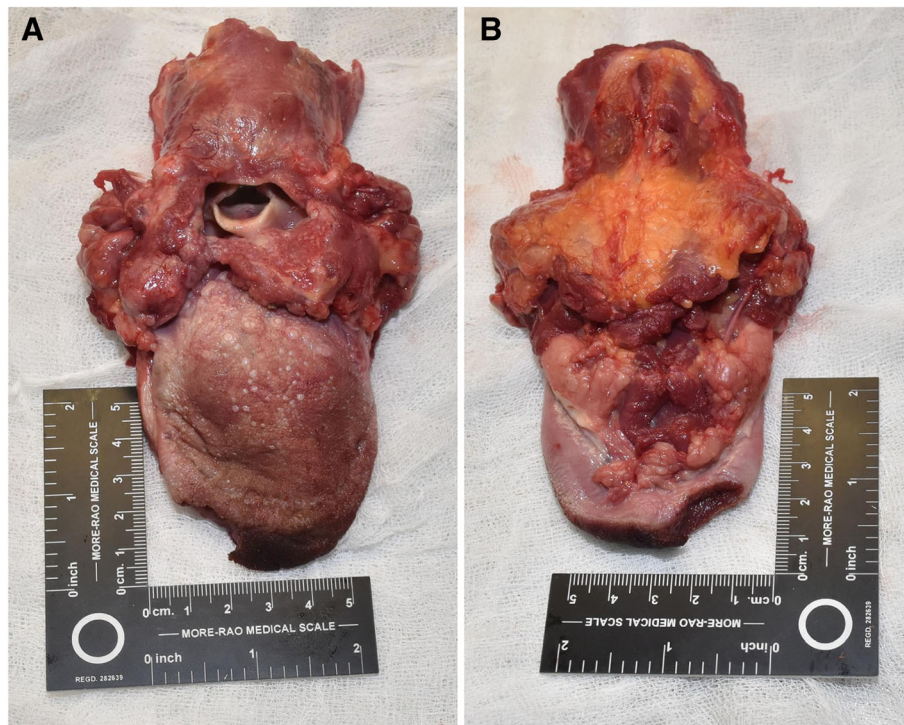


Fig. 4 a, b Post-mortem mutilation of the tongue of the female victim (anterior and posterior view)

Death scene reconstruction and exploring the sequence of events prior to the death are paramount in the investigation of dyadic deaths not only to conclude on the exact cause and manner of death but also to ascertain if the deaths were simultaneous or one after another. In case of the latter, it becomes important to estimate the time elapsed between the deaths. In the reported case, the body of the male was lying down with a ligature mark around the neck while the female was found hanging, and hence, a possibility of the husband being strangled by a wife prior to committing suicide was also explored.

In the reported dyadic deaths, the pattern of postmortem lividity, as well as the appearance of ligature mark distinctly, varied between the deceased males and female. The post mortem lividity was distributed in 'glove and stocking' pattern over the extremities and was fixed in the female victim while the lividity on the male body was present over the back of the body and was not fixed. Though the ligature materials used in both the cases were cotton cloth material, the appearance of ligature mark around the neck was significantly different too. The appearance of ligature mark around the neck is influenced by many factors including the type of ligature material, weight of the body, duration of suspension, etc. Distinct grooved ligature mark in the female was suggestive of prolonged suspension while an inconspicuous and faint ligature mark in male indicated the contrary. It is highly likely that the knot of the ligature

noose in the male victim loosened and opened up after some time of the suspension due to the weight of the body, as suggested by the relative position of the male victim on the floor and the cloth material freely hanging from the roof above it. The effects of body weight on ligature material and suspension can be deceptive (Kanchan et al. 2010).

The injuries on the tongue of the female and finger tips of the male were inflicted by a razor that was recovered from the room. The 'slashed off' pattern of injuries on the fingertips of the left hand suggested that the husband had held the part of the tongue that was protruding between teeth with the fingers of his left hand while attempting to cut it off using his right hand. This act of post-mortem mutilation is indicative of the distressed state of mind of the husband who probably was upset with the frequent humiliations by his wife. Ante-mortem injuries to the fingertips in males and post-mortem injury to the tongue in female was also suggestive of the sequence of events in the reported dyadic deaths. It also ruled out the possibility that the husband was strangled by a wife prior to committing suicide. The possibility of the wife being hanged by the husband could only be ruled out considering the facts that the death scene did not show any signs of a struggle and that the only injury on the victim's body was an obliquely placed ligature mark high on the neck.

Dyadic death episodes are reported from various parts of the world (Jena et al. 2009) and mostly seen in low

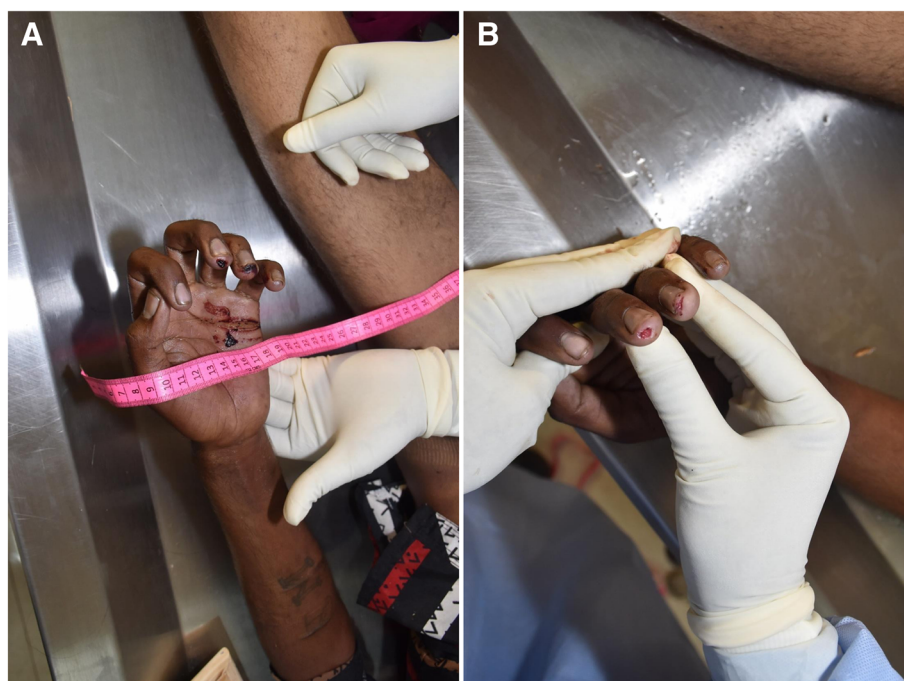


Fig. 5 a, b Ante-mortem injuries to the fingertips of the male victim

socioeconomic, less educated, or illiterate families. Dyadic suicides are frequently associated with unsuccessful relationship or marriage, separation, divorce or extramarital affairs, etc. Most of the dyadic deaths are reported at the home of the perpetrator or the victim (Galta et al. 2010). The victims in the reported case belonged to the low socioeconomic background and resorted to suicide at their house owing to marital discord.

Most of the dyadic deaths are premeditated. Firearms, poisoning, hanging, and drowning are the preferred methods in suicide pacts (Sikary et al. 2016; Marcikic et al. 2011). Hanging and poisoning are reported as the preferred methods of suicide in India (Kanchan et al. 2009) and unsurprisingly both the victims resorted to hanging in the reported case. Alcohol and opioid abuse have been related to high risk behavior, suicidal tendencies, and suicidal deaths. Alcohol alone is believed to be an independent risk factor for suicidal behavior (Pompili et al. 2010; West et al. 2015). Presence of alcohol and opioid alkaloids in the blood and viscera of the deceased in the reported dyadic suicides is thus, in concurrence with that reported in the literature. Lack of facilities for quantification of opioid alkaloids at regional forensic science laboratory can be considered as a limitation of investigation as it would have completely ruled out the possibility of a female being drugged and hanged by the husband. Besides, the presence of multiple old healed linear scars on a ventral aspect of left forearm of both

the deceased male and female was suggestive of their inclination to self-harm and even suicidal ideation.

Conclusions

Post-mortem mutilation in dyadic suicide is a rarity. The significance of detailed death scene investigations, meticulous post-mortem examination, and careful interpretation of observations in dyadic deaths is emphasized. The exact prevalence of dyadic suicides is not known mostly because these incidents are not tracked via national surveillance systems. It is suggested that the dyadic deaths are recorded as a separate entity to know its prevalence and problem status.

Abbreviation

RFSL: Regional Forensic Science Laboratory

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