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Case Report

Death of a serving soldier by an unusual weapon – A case report

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ABSTRACT

According to the witnesses, crime scene and inquest report, deceased is a 30 years old serving male soldier who was riding bike, accidentally got cut through neck by Chinese Manja and suddenly collapsed near langerhouse flyover at around 18:25 PM and was brought dead to Military Hospital, Golconda at 18:40 PM. The corpse of the deceased was brought to Mortuary, Osmania General Hospital at 09:00 PM on 13/01/2024 by the Investigation Officer and requested for postmortem examination under section 174 Criminal Procedure Code. The postmortem findings were an antemortem horizontally cut throat injury at the level of thyroid cartilage in the front of neck. The structures underlying are exposed with transection of external carotid arteries and internal jugular veins on both sides of neck and trachea is transected at the level of 4th cartilaginous ring. Margins are clean cut with inverted edges, tapering is seen on left side with blunt end towards right, with meticulous crime scene investigation and post mortem examination and interpretation of the findings cause of death was given as “Cut Throat Injury”

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1. Introduction

“Kite fights” are quite popular throughout Asia. Most kite variations, including the fighter kites of India, Pakistan, and Japan, are small, flat, roughly diamond-shaped kites composed of paper, with a tapered bamboo spine and a balanced bow. They are flown with the help of a “Manja,” which is a thread made of cotton or nylon, and coated with fine glass powder using glue and other chemical adhesives to cut down opponent’s kite string. The nylon “Manja” is particularly more dangerous, as it not only cuts down opponent’s kite string but also causes bodily injuries to humans, which may be at times fatal. The pattern of injuries by Manja is underreported in literature.¹

In the present case, the deceased had encountered fatal injuries by “Manja” while riding on his motorbike. Injuries sustained by two-wheeler riders are more severe than those

sustained by pedestrians, as the severity of the injury is determined by both the vehicle’s speed and the movement of the kite string. Due to kite string injury, a rare and dangerous complication called pseudo aneurysm of the wounded vessel might develop.¹

Because the victim is typically unaware of the presence of “manja” string in the nearby environment, the depth of the kite string injury is usually larger in patients driving than in patients strolling.¹

2. Case

On 13th of January, 2024, we received an inquest from Station house office of Langerhouse police station of Hyderabad city police division. As per the police inquest, at around 06:40 pm, the deceased was brought dead to military hospital Golconda, who sustained a cut throat injury near Langerhouse fly over on the same day at 06:25 pm.

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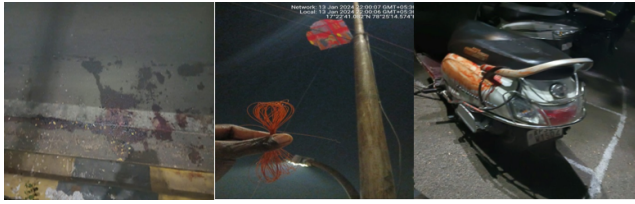


Figure 1: Crime scene photos



Figure 4: Post mortem lividity is seen over back of the body.

2.1. Post mortem findings

A 30yr old male deceased body bearing a flat, non-hairy black mole is present over front of upper 1/3rd of left arm and a black colored tattoo in the form of Heart Beat and CROWN are present over back of left hand just below the thumb whose Body was wrapped in white colour cotton bedsheets. Dried blood stains are present on the clothes. Cotton plugs are present in both the nostrils, ears and mouth. Gauze pad dressing is present on front of both sides of neck. Blue colour ink marks are present on front of both the hands. Body is supine, both the eyes are closed and mouth is partially open with cotton plug in it. Scalp hair and moustache are black in colour, beard recently shaved. Pubic hair black in colour and penis is non-circumcised. Rigor mortis is present in upper limbs. Post mortem lividity is seen over back of the body.



Figure 2: Wrappings of the deceased.



Figure 3: Black colour tattoo over back of left hand.

2.2. Injuries

Cut throat injury of size 16cm x 4cm x cartilaginous deep is present horizontally on front of neck extending from right angle of mandible to left angle of mandible. The injury starts by lying 3.5 cms below the right angle of mandible, 7cms below the chin and ends by lying 4.5cms below the left angle of mandible. The structures underlying are exposed with transection of external carotid arteries and internal jugular veins on both sides of neck and trachea is transected at the level of 4th cartilaginous ring. Margins are clean cut with inverted edges, tapering is seen on left side with blunt end towards right.



Figure 5: Cut throat injuries of neck

All the internal organs were pale and no other findings particular to cause of death in this case. Stomach contents were about 150gms of black colored clay consistency fully digested food is present with no specific smell and mucosa is pale.

Cause of death was opined as “Cut Throat Injury”.

3. Discussion

Injuries caused by cutting tools¹ [particularly sharp weapons, knives, blade etc] to the neck are called cut throat, and this type of injury is particularly important because



Figure 6: Cut throat injuries of neck

of its high mortality rate due to the narrow and complex anatomy of the neck. Penetrating injuries in this region cause more damage which can present as spot death.²

Cut throat injuries can be suicidal, homicidal or accidental. Suicidal and homicidal cut throat injuries are common. Cut throat injuries are generally caused by the sharp edged weapons or objects. It is not uncommon that kite flying ‘Manja’ strings also cause such cut throat injury. Kite flying is the common time pass activity of the children. In order to strengthen the kite’s string, a paste made of glass powder, glue and the grain flour named "MANJA" is applied on the kite string and dried, before using to fly the kites. When it gets positioned across the road, it would act as a sharp weapon and cause accidental cut throat injuries to the road users and birds.³

Kites are thought to be invented in China and then spread across different parts of the world. Kite is now global sport, especially in South East Asia. A fact that many International Kite Festivals are organized in different times of year all over the world which depicts its all round popularity. Kites are cultural part of India. In festival of Makar Sankranti/Uttarayan, falling in mid of January every year, whole India rejoices the kite-flying activity. In some parts like Hyderabad in Telangana, kite flying starts a month before Makar Sankranti. Kite flying is a mode of celebration on some other festivals also such as Republic Day, Independence Day, Raksha Bandhan, and Janmashtami. Every year Indian state of Gujarat celebrates a globally popular International Kite Festival for 3 days just before Uttarayan in cities such as Ahmedabad, Vadodara, and Surat.⁴

Kite fight” is a common scene in these festive days in which a kite flyer tries to win or cut the kite of another person. Over the years, competitiveness in kite fighting has

made people use dangerous methods to make their thread strong and sturdy. In the past, kite strings were usually made up of cotton. Later, elastic strings and nylon strings got introduced in market and now a day’s kite flyers are applying hazardous materials such as metallic powder, glass powder, and chemicals on cotton string for purpose of kite fighting which is called as “Manja.” Introduction of Chinese manja which is made of nylon has made situation even worse. Such deadly strings have turned a docile act of joyful kite flying into a dangerous affair and now it has become reason for severe injuries, disabilities, and deaths each year.⁴

Essential anatomy of the neck: Neck is broadly divided into zones, the system usually used in the evaluation and treatment of penetrating neck injuries. Zone 1. From the clavicle to the cricoid cartilage including thoracic inlet. This region containing Major vascular structures of the subclavian artery and veins, jugular veins, common carotid artery, esophagus, thyroid, trachea. Zone 2. Extending from cricoid to angle of mandible. Contents common carotid artery, internal and external carotid artery, jugular veins, larynx, hypopharynx, cranial nerves X, XII, Zone 3. Area extending from angle of mandible to skull base.⁵

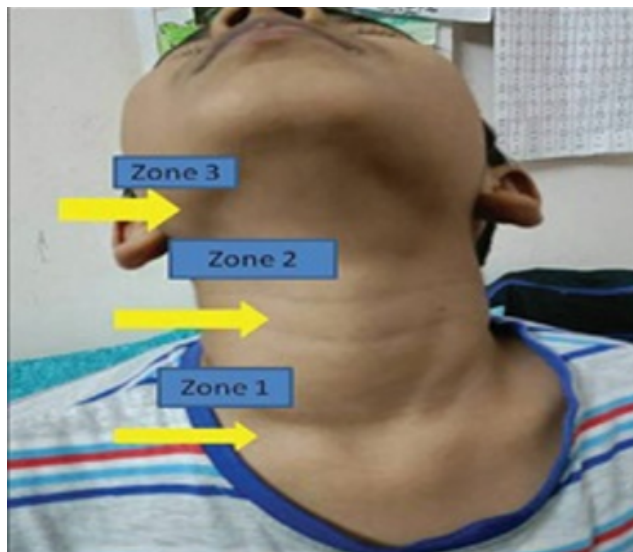


Figure 7: Zones of neck

Neck is commonly divided into three distinct zones [Figure 7], which helps in initial assessment and management based on the limitations related with surgical exploration and hemorrhage control in each zone. Zone I is the most caudal anatomic zone; it is defined inferiorly by the clavicle and superiorly by the horizontal plane passing through the cricoid cartilage. Vascular injury management is challenging in Zone I, and mortality is high. Surgical access to Zone I may require sternotomy or thoracotomy to control the excessive bleeding. Zone II is between the horizontal plane passing through the cricoid cartilage

and the horizontal plane passing through the angle of the mandible. The vessels in this zone are mobile and they can be approached easily and the mortality rate is low. Zone 3 lies between the horizontal plane passing through the angle of the mandible and the skull base. Surgical access to Zone 3 may require craniotomy, as well as mandibulotomy or maneuvers to anteriorly displace the mandible; due to difficulty in approach to Zone III, the mortality rate is high.⁶

4. Types of Injuries Caused By Manja

A. Hand Injuries — In case series from Aligarh, India, 11 patients reported kite-related hand injuries in 2 years, total number of injured digits were 14, total number of injured tendons were 26, and 1 patient had nerve injury.

A study done in Jaipur, India, also reported that in a single month of January, 187 cases of kite-related injuries were encountered, out of which 28% of kite-related injuries involved upper extremities.

B. Ocular injuries — A result of prospective cohort analysis of ocular injuries in 6 years (2014–2019) due to kite string during the season of Makar Sankranti conducted at a tertiary eye care center in Jaipur, India, showed that out of 68 patients with kite-related ocular injury there were 73.52% cases of globe injury and 26.47% cases of adnexal tissue injury. Among globe injury patients, open globe injury was 52.93% and closed globe injury was 16.17%. The major ocular injuries seen in descending order were globe rupture (29.4%), isolated lid tear (26.5%), and lid tear along with corneal tear in (13.2%)

C. Neck/cervical injuries — A study done in Jaipur, India, reported that out of total 359 trauma cases presented to the accident and emergency department in kite-flying season of 2018, 52.08%, i.e., 187 patients were of direct trauma from kite strings and among them head and neck (59%) was the most frequently affected region. They divided patients into two groups Group A – kite flyers and Group B of passively injured persons. In Group B trauma cases, commonly injured area was head-and-neck region, i.e. (65%). A prospective analysis of 104 patients (outdoor and indoor) with manja injury from January 2011 to January 2015 was carried out at Civil Hospital, Ahmedabad, where authors found majority of the injuries occurred while driving or in pedestrians with the neck being the most commonly affected body part. A rare complication of kite string injury has been reported from the United Kingdom in which patient developed pseudo aneurysm of facial artery consequent to blunt arterial trauma by string of a wondering kite.

D. Cut throat injuries have also been published previously as case series and case reports from India. A rare case of subcutaneous facial emphysema has also been reported from Nagpur, Maharashtra, where cutthroat injury by “Manja” was implicated as responsible factor. A complicated case of cutthroat injury from manja was also

reported from Bangladesh. In study done in Brazil where kite flying also cultural activity out of 13 patients/victims (12 men and 1 woman) of kite string injuries, 11 victims were bike riders, 1 victim bicycle rider, and 1 was riding a horse. This study clearly emphasizes on an increased risk of cutthroat injuries, particularly to bike riders. A study conducted in Basant festival which equivalent to Makar Sankranti in Pakistan showed that kite flying was responsible for 139, i.e. 7.09% of all admissions in hospitals in kite-flying season. Out of these reported cases, 12 (8.6%) had head trauma and 15 (10.8%) had sustained cutthroat neck injuries because of chemical-coated manja. Besides these published literatures many news reports in digital media showcase deadly nature of manja.

E. Leg injuries — A study done on 30 cases of manja cut injury presenting to a tertiary care center at Nagpur in years 2017, 2018, and 2019 showed that the neck, face, legs, and hands are the typically most affected sites as most of the patients are traveling on a speedy two-wheeler.⁴

Characteristics of injuries caused by manja – They are always transversely or obliquely placed encircling the contour of the body. They are usually single. They are unidirectional. Edges of the incised wound are abraded. Margins of the incised wound are ragged. Incised wounds are deepest at the center of the injury. Glass particles can be found at the angle of the injury in the opposite direction of the moving manja.⁷

This study was conducted in the surgical departments of two Allied hospitals, Benazir Bhutto Hospital (BBH) and Holy Family Hospital (HFH), Rawalpindi from period of 10th Feb 2009 to 31st Mar 2009, which was the peak period for the celebration of Basant festival in Pakistan. Results Among the 1967 admissions (810 in the month of February and 1157 in March) during the study period, a total of 139 (7.09%) patients were included in this study. The age range was 10 to 49 years with the mean age of 25 years. Maximum number of patients (55%) was injured directly or indirectly due to kite string as compared to 38% due to falls. Maximum number of injuries (63%) was found in age group 10-29 years followed by 37% in age group 30-49 years.

All of the above evidence suggests potentially hazardous nature of kite string injury and its special risk to motorcyclists, cyclists, and pedestrians. Innocent people may become a victim of kite string injury owing to kite string coming in their vicinity without attracting their attention. For bike riders, the speed of vehicle becomes an attributable factor which dictates the expanse as well as depth of injury and resultant severity of trauma to the neck. High driving speed leads to more grievous injury to soft tissues of the neck and face by the slitting action of manja.⁴

In response to risk involved in kite flying, Honorable National Green Tribunal of India also has taken up steps in this regards and has banned Chinese manja considering its injurious nature by order dated July 11, 2017, but off late

reports are emerging that glass-coated manja also has same hazardous effects as that of Chinese manja. Acting on this issue Honorable Gujarat high court has also imposed ban on glass-coated manja. Despite of ban, both types of manja are still available in market and reports of injuries keep coming up every now and then in news media.⁴

This situation highlights the fact that in India it is impossible to ban kite flying and the use of manja because it is a part of Indian culture. Considering grave nature of injuries linked to manja, Gujarat home department has asked for records related to slitting of throats by kite threads from districts across the state, such data will not only unearth the hidden burden of cutthroat injuries by manja but also will lead to affirmative action by states for prevention of manja injuries.⁴

Sporadic and seasonal reporting of kite string injuries makes estimation of its burden a difficult task such situation creates a need for record-keeping exercise of all cases of kite string injuries by state governments to come up with preventive strategy. Frequent media reports and case reports of deadly cutthroat injuries make us realize that this is a significant public health issue. Despite knowing the danger of manja, people are reluctant to quit its use, which warrants a measure more effective than awareness creation for preventing such injuries. In such scenario “Made in India” low cost appropriate technology of inverted “U” or “V” shaped aluminum bar/guard can make huge difference by averting preventable cutthroat kite string injuries and can act as a boon for bike riders who ride bike during kite-flying season.⁶



Figure 8: Protective guard on bike⁶

5. Conclusion

The cause of death was determined to be a cut throat injury sustained from a Chinese Manja (kite flying string) that transected the trachea and damaged neurovascular structures, resulting in fatal bleeding.

6. Ethical Clearance

Taken from Institutional Ethics Committee, Osmania Medical College.

7. Source of Funding

None.

8. Conflict of Interest

None.

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