International Journal of Community Medicine and Public Health
Gupta P et al. Int J Community Med Public Health. 2018 Jul;5(7):2782-2785
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20182418

Original Research Article

Kite string injury: a thin line between harmless sport and grievous injury

Pradeep Gupta, Ayush Jain, Aditya Nanasaheb Patil*, Rushin Thakor, Sharad Kumar

Department of Plastic and Reconstructive Surgery, Sawai Man Singh Medical College and Hospital, JLN Marg, Jaipur, Rajasthan, India

Received: 08 May 2018
Accepted: 28 May 2018

***Correspondence:**
Dr. Aditya Nanasaheb Patil,
E-mail: drpatiladitya@gmail.com

ABSTRACT

Background: Kite flying is a common hobby and sport in many countries. Injuries related to kites are on the rise, but there is a relative paucity of data and literature on this subject.
Methods: A retrospective review of all patients who presented with injuries directly related to kite strings was done. All such cases presenting in January 2018 were included. Other indirect or secondary injuries were excluded.
Results: A total of 187 patients were identified. Males were most commonly affected. The most common age group affected was 16-20 years and head and neck was most frequently involved. There were no cases of mortality.
Conclusions: A seemingly harmless game of kite flying a kite can cause grievous harm even death not only to the flyer, but also to innocent others. This study attempts to highlight these dangers and emphasizes that potential threats have to be understood and addressed adequately.

Keywords: Kites, Kite string injury, Accidental injury, Facial injury

INTRODUCTION

A kite may refer to 'any frame covered with cloth or plastic and joined to a long string that is flown in the air'.[1] Kite flying is an activity common in many countries, particularly in the Indian sub-continent and in South America. The nature and forms of kite flying, however, vary from region to region.

What initiated as a pastime or a hobby has, over time, given way to kite flying contests where groups of children and young adults compete against each other with an objective of bringing down kites of their competitors and be the last kite flying. Fierce competition has led to players using more dangerous kite strings which give them an edge. As a result, incidences of injuries resulting from kite strings are on the rise, not only among flyers but also unsuspecting passers-by, especially when flown in populated areas.

We retrospectively reviewed a series of patients who recently presented with kite string injuries at a tertiary care hospital in Northern India. The results of the study and a brief review of existing literature are presented in this article. This paper attempts to highlight a largely under-reported form of injury, add to the existing pool of literature and suggest measures for its prevention.

METHODS

Medical records were retrospectively reviewed of patients with injuries due to kite strings who presented to the Accident and Emergency departments of Sawai Man Singh Hospital, Jaipur. We included all patients who presented during the month of January 2018 with direct injuries i.e. those inflicted directly due to contact of kite string with any part of the body. Indirect injuries such as those resulting from fall from roof-top or fall from

running vehicle were not included. Patients were categorized into two groups based on their role - Group A consisted of kite flyers and handlers who were actively involved in the sport, while Group B comprised of all others who were affected passively.

The study was conducted in the Department of Plastic and Reconstructive Surgery at Sawai Man Singh Medical College and Hospital, Jaipur. The study was approved by the institutional Ethics Committee and was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and all its later amendments.

RESULTS

A total of 359 patients presented to the Accident and Emergency department in the month of January 2018, of which 187 patients presented with injuries directly related to kite strings. An overwhelming number of patients (n=144, 77%) fell into Group B. Overall, majority of the patients were male (n=114, 61%) with a male-to-female ratio 1.56:1, but the ratio was lesser in Group B (1.25:1) compared to Group A (3.78:1) (Figure 1). Patients aged 16-25 years formed a bulk of the population; age distribution is depicted in Table 1.

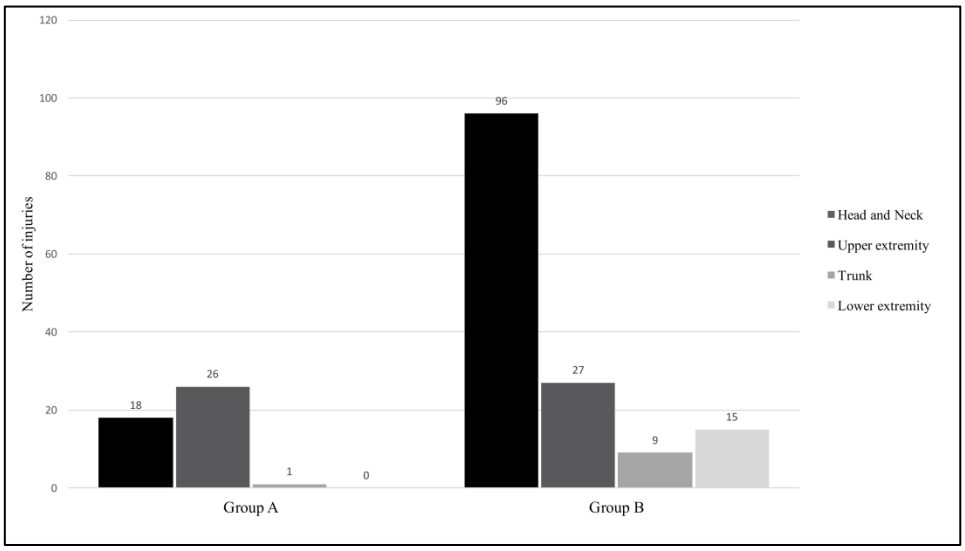

Figure 1: Distribution of injuries based on region of body.

Figure 2: Injuries to the (a) neck (superficial); (b) neck (with breach of platysma); (c) left upper eyelid; (d) tip of the nose; (e) cheek and nose; and (f) hand.

Table 1: Age-wise distribution of patients.

Age (in years)	Group A	Group B	Total
≤10	0	4	4
11-15	7	18	25
16-20	16	39	55
21-25	14	37	51
26-30	5	26	31
≥30	1	20	21
Total	43	144	187

Overall, the head and neck (59%), and upper extremities (28%) were the most frequently affected regions (Figure 1). Among patients in Group A, hand injuries (58%) were commoner, whereas in Group B, injuries over the head and neck (65%) were predominant. Two patients in Group A and three in Group B presented with simultaneous injuries over head and neck and upper extremity. Most of the injuries were typical, mostly in the form of linear lacerations or abrasions. Representative photographs of patients on presentation are shown in Figures 2.

Treatment protocol involved tetanus vaccination, thorough wash of the wound and surgical repair as deemed necessary. Most of the cases required simple closure of wound in layers. All but five patients were discharged on the same day or after an overnight stay. There was no mortality in this study.

DISCUSSION

Kites are believed to have been invented in China and then spread to different parts of the world.[2] Throughout history, kites have experienced a variety of applications ranging from their use in combat in ancient China, to a belief that it brings good fortune in Japan; from catching fish in New Zealand to protecting crops from birds.[3,4] However, flying kites is mainly a recreational activity today. Kite flying competitions and kite festivals are common in the Indian sub-continent.

In India, kite flying is a popular activity in January around the Hindu festival of Makar Sankranti, when the sky is studded with thousands of kites being flown from open fields or roof-tops.[5] Groups of people engage in a fiercely fought competition, using their own string as a weapon, to cut and bring down other kites. To this effect, competitors resort to various means to make their strings sharper and stronger. Such kite strings, locally known as manja, are cotton or nylon strings coated using varying quantities of crushed glass using glue and other chemicals as adhesives.[6]

A study of pediatric age group in Northern India found that males, 5-10 years of age were most susceptible, whereas another study from Western India showed that males, 16-45 years were most frequently involved.[7,8] In this study, males in the age group of 16-25 years were most commonly affected.

Injuries can range from abrasions to full thickness lacerations involving deeper structures. Kite flyers and handlers are prone to injuries over their hands and face.[9] They also face the danger of accidentally falling from roof-tops and suffer further injuries.[10,11] Uninvolved passers-by, motorists or riders form the second group who are injured by stray kite strings that drift onto the road or strings that are caught and hanging from trees or electric wires.[12] These strings can injure the face or entangle around their neck, the severity, depth and pattern of which depend on the relative speed of movement.[13,14] Electrocution injuries while using a wet or metallic string are not uncommon, although no such case presented to us.[15] Fatal injuries have also been published previously in literature and media.[10,11,16]

Similar patterns are evident in this study as well. A very high proportion of injuries involved the head and neck. Also, it is disturbing to note that an overwhelming majority of patients fell into the group who were passively injured. These numbers could be falsely high considering that kite flyers themselves may have sought treatment at less conspicuous primary medical centres. Nevertheless, it is a significant fact to be noted.

Indirect, or secondary, injuries are equally responsible for morbidity related to kite string injuries.[3,17] The present study focuses only on direct injuries and hence indirect injuries were not included.

The exact incidence of kite string injuries is difficult to compile, probably because a number of non-life-threatening injuries tend to be managed at primary medical centres and largely go unreported. Cases that are immediately fatal also fail to reach a tertiary centre. As such, this is a limitation of studies such as ours, in which under-reporting is anticipated.

Depending on the geographic region, incidence of kite flying spikes during a certain event or in a particular month or time of the year. This time period is generally predictable and thus prevention can be focused upon, as in the case of a complete ban on kite flying in Pakistan during the spring season.[18] Nonetheless, the authors are of the opinion that rather than broad prohibition, laws could be crafted to allow for safe kite flying, keeping in mind public sentiment and enthusiasm. Hence, regulation and education, rather than prohibition, is suggested.

Furthermore, kite flying can theoretically cause interference in flight operations, which is a potential hazard. Injuries to birds and other animals also cannot be overlooked. All in all, kite flying demands caution and responsible action on the part of the people and the local government authorities.

Prevention should be advocated among both groups at risk. Pamphlets and information booklets should be distributed to everyone. Awareness programs and announcements can also be made over the television, radio and print media to make people aware of the potential tragedies of a fun sport. Wearing gloves and head gear, and covering exposed extremities should be encouraged for kite flyers.

The local government authorities could organize formal kite competitions to discourage unwarranted kite flying from roof-tops. Designating open spaces for kite flying cannot be emphasized more. Such spaces should be away from roads, power lines or grids, airports, bird sanctuaries and other such hazardous areas. Medical facilities for immediate care and transport should be made available during such events.

A seemingly harmless game of kite flying a kite can cause grievous harm - even death - not only to the flyer, but also to innocent others. This study attempts to highlight these dangers and emphasizes that potential threats have to be understood and addressed adequately.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Meaning of "kite" in the English Dictionary. Cambridge Dictionary. Available at: https://dictionary.cambridge.org/dictionary/english/kite. Accessed on 3 February 2018.
2. Deng Y. Ancient Chinese inventions. 3rd ed. Cambridge: Cambridge University Press; 2011.
3. Singla SL, Marwah S, Kamal H. Kite string injury-A trap for the unwary. Inj Extra. 2009;40:277–8.
4. Çevik H, Simsek K, Yılmaz İ. The evaluating of service quality in recreational sport events: kite festival sample. Pamukkale J Sport Sci. 2017;2017.
5. Makar Sankranti. Wikipedia. Available from: https://en.wikipedia.org/wiki/Makar_Sankranti. Accessed on 22 April 2018.
6. Gunwantrao Wankhede A, Sariya RD. "Manja" – A dangerous thread. J Forensic Leg Med. 2008;15:189–92.
7. Prajapati C, Agrawal A, Atha R, Suri MP, Sachde JP, Shaikh MF. Study of kite string injuries in Western India. Int J Inj Contr Saf Promot. 2017;24(1):136–9.
8. Singh S, Peters NJ, Samuel C, Bhatti W, Ghosh DN. Kite flying: Ancient tradition or death trap? Emerg Med Australas. 2014;26(5):478–80.
9. Mir MA, Ali AM, Yaseen M, Khan AH. Hand Injuries by the Killer Kite Manja and Their Management. World J Plastic Surg. 2017;6:225–9.
10. Vinod Kumar P, Begum T. Cut Throat Injury by Manja String-a Case Report. Indian J Forensic Med Toxicol. 2016;10:21.
11. Laxman Borkar J, Tumram N, Ambade V, Gangadhar Dixit P. Fatal Wounds by "Manja" to a Motorbike Rider in Motion. J Forensic Sci. 2015;60(4):1085-7.
12. Singh V, Puri P, Agrawal A, Kumar P, Singhal R. Kite string: An unusual mode of maxillofacial injury. J Indian Soc Pedod Prev Dent. 2013;31(3):188–90.
13. Babu A, Garg H, Sagar S, Ranjan P, Singhal M. Manja Injury : A Dangerous Mechanism of Cervical Injury. Sch J Med Case Reports. 2015;3(1):60–3.
14. Ventura J, Hirano ES, Fraga GP. Glass-coated kites and cervical injuries: a serious threat to children and adults. Clinics. 2011;66(5):923-5.
15. Tiwari VK, Sharma D. Kite-flying: A unique but dangerous mode of electrical injury in children. Burns. 1999;25(6):537–9.
16. Roy D, Roy B, Bose A. Life threatening cut throat injury due to kite string. Bangladesh Med J Khulna. 2016;49(1–2):31–3.
17. de Rezende Neto JB, Ferreira GC, da Silva Filho AL, Fontes MO, Bomfim F, Abrantes WL. Kiting injuries: report of two cases and discussion. J Trauma Inj Infect Crit Care. 2000;48(2):310–1.
18. Malik S. Kite deaths spark ban in Lahore. Available from: Available at: http://news.bbc.co.uk/ 2/hi/ south_asia/ 3018966.stm. Accessed on 22 April 2018.

Cite this article as: Gupta P, Jain A, Patil AN, Thakor R, Kumar S. Kite string injury: a thin line between harmless sport and grievous injury. Int J Community Med Public Health 2018;5:2782-5.