Letter to Editor

Wish You a Happy and Safe Diwali: From a Plastic Surgeon

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Received: September 30, 2015
Revised: December 5, 2015
Accepted: January 25, 2016

DEAR EDITOR

Diwali or deepavali (deep=lamp) also called "the festival of lights", is an ancient Hindu festival that has been celebrated in the Indian subcontinent from centuries. Its origins have been mentioned in ancient Hindu scriptures like Padma Purana and Skanda Purana. It is celebrated mainly by the Hindus and Sikhs while Jains and Buddhists also observe it to a lesser degree.[1] It is celebrated by Indians as well as Non Resident Indians throughout the world with much pomp and vigor according to the Hindu lunisolar calendar in the months of October to November, with decorative drawing designs (Rangoli), sweets, lighting offices and houses with lights and lamps and on the night of Diwali the much popular lighting of fire crackers.[1]

Firecrackers have been used to celebrate various festivals and celebrations all over the world, from their origins in ancient China for the Chinese New Year, to Halloween in America, Day of Ashura in Morocco, St Bastilles day in France, Diwali in India etc. Every year on the eve of Diwali and 2 days following it the number of patients related to firecracker injuries reach epidemic proportions, so much so that various hospitals including our own deploys special teams with extra trained plastic surgeons and other personnel on these days.[1]

This study was conducted over a period of two years showing the various types of injuries related to firecrackers that were referred to the burns, reconstructive and plastic surgery department at our institute and to shed some light on the potential and dangerous affects of fire crackers that if not used by professional pyrotechnicians can be hazardous, so that we can truly wish each other, a safe and happy Diwali.

The study conducted in our tertiary care institute in North India, on the eve of two Diwalis of 2014 and 2015, and the 2 days following it for the two consecutive years. All patients with firecracker injuries were assessed for site and depth of lacerations/blowout injuries and extent and depth of burns. Wounds were thoroughly debrided, washed and dressed with moist dressings until final surgical management/healing.

Forty patients were referred to the division of burns, reconstructive and plastic surgery of our institution for the management of injuries associated with firecrackers. There were 18 patients referred in the 2014 Diwali and 22 patients in the 2015 Diwali. There were 32 males and 8 females (M/F: 4/1). The mean age observed was 19.92±4.19 years. Youngest patient

was 6 years and oldest 60 years. Most of the patients 40% (16) presented in the age group of 20-30 years. Most common cause observed was due to Anar 40% (16) followed by rocket 20% (8) bomb and phoolchadi 17.5% (7) chakra 5% (2). Burn injuries were present in 32 patients and rest 8 patients had various laceration wounds. Most burns were <25% BSA (27 patients) and only 5 patients with >25% BSA. 29 patients presented with burns involving face and upper torso. 3 involved the lower limb and perineum. 5 patients presented with blow out injuries to the hand due to bomb requiring debridement and reconstruction. The summary of patients is presented in Table 1.

Diwali is one of the most popular festivals

Tables 1: Clinic-etiological profile of firecracker injuries on Diwali

Case no	Age/sex	Site of injury	Cause	Management
1	22 y/m	5% 1st degree burns to face	Anar	Conservative
2	8 y/m	Scrotal laceration(fig. 1a and b)	Rocket	Primary repair
3	18y/m	Left Parieto-tempral region laceration (fig. 2a and b)	Rocket	Primary repair
4	25/m	20% deep 2nd degree burns torso and face	Anar	Conservative
5	30/m	5% 1st degree burns right hand and face	Phoolchadi	Conservative
6	18y /F	5% burns face and eyes	Anar	Conservative
7	20y/m	Blowout injury right hand (fig. 3a and b)	Bomb	Primary repair and k wire fixation of thumb
8	30y/f	10% 2nd degree burns face and neck	Anar	Conservative
9	8yr/m	1% 1st degree burns right hand	Phoolchadi	Conservative
10	16y/m	1% burns Right ear	Anar	Conservative
11	15YR/F	20% deep 2nd degree burns perineum	Anar	Conservative
12	12y/m	10% 1st degree burns face and right hand	Anar	Conservative
13	25y/m	Left thumb blowout (fig 4a and b)	Bomb	Reverse Radial artery flap
14	18y/m	Left palm burn 1%	Phoolchadi	Conservative
15	10y/m	5% 1st degree burns face and left ear	Anar	Conservative
16	22y/f	50% 3rd degree burns	Rocket	Escharotomy and dressing
17	16y/m	Blowout left hand (fig. 5 a and b)	Bomb	Primary repair
18	14y/m	10% thermal burns right hand and face	Anar	Conservative
19	22y/m	1% thermal burns left hand	Phoolchadi	Conservative
20	18y/m	10% burn face with scalp avulsion	Rocket	Primary repair
21	25yr/f	1% thermal burns right hand	Anar	Conservative
22	8y/m	20% burns face and upper torso	Anar	Skin grafting
23	10y/m	10% Burn left ear and face	Phoolchadi	Conservative
24	29y/m	10% Burn face and both eyes	Rochet	Irrigation and dressings
25	15y/m	20% Burn b/l lower limb and perineum	Chakra	Conservative
26	12yr/m	10% Burn scalp with head injury	Rocket	Primary repair
27	22y/m	1% Perineal burn with urethral injury	Rocket	Urethroplasty
28	20y/m	5% Burn right hand	Phoolchadi	Conservative
29	30y/m	25% burns face neck chest	Anar	Conservative
30	25y/m	60% thermal burns	Bomb	Escharotomies and dressings
31	6y/f	5% burn face and eyes	Chakra	Conservative
32	60 y/m	40% thermal burns	Rocket	Conservative
33	40y/m	Blowout out injury right hand	Bomb	Thoracoumblical flap
34	10 y/f	20% burns face and chest	Anar	Conservative
35	16y/m	Blow out injury right hand (fig 6)	Bomb	Primary repair and k wire stabilization of thumb
36	22y/f	20% thermal burns face chest	Anar	Conservative
37	25yr/m	50% thermal burns	Anar	Eschototomy and dressings
38	25y/m	Right ear and cheek injury	Bomb	Primary repair
39	30y/m	1 % burns right hand	Phoolchadi	Conservative
40	22 y/m	20% thermal burns	Anar	Conservative

celebrated in India. The origins of Diwali have been mentioned in some Hindu scriptures like Padma Purana and Skanda Purana. The origins of the festival are varied but the popular belief is that, to celebrate the return of the Hindu Lord Rama with his Wife Sita and brother Laxmana from their 14 year exile, the villagers of Ayodhya lit their path home with lamps. It signifies the triumph of good over evil.[2]

The earliest use of firecrackers was said to be by the Chinese in the 7th century to drive away evil spirits and pray for happiness and prosperity. Fireworks are generally classified as to where they perform, either as a ground or aerial firework. In the latter case they may provide their own propulsion (skyrocket) or be shot into the air by a mortar (aerial shell). Firecrackers are used throughout the world for various celebrations unique to the region or country, unfortunately due to lack of strict rules and regulations in the manufacture and purchase of these firecrackers in many parts of the world including India various preventable injuries occur to life and limb.[2]

The sound and air pollution caused by these firecrackers has led the supreme court of India to lay down legislation in 2005, to stop the noise pollution between 10 p.m. and 6 a.m. of the following day.[3] Various types of fire crackers used in the Indian subcontinent are as follows: (i) Anar: Anar or Flower Pot is one of the most popular of fire crackers and sets a shower of sparkles in the air. (ii) Rocket: Rocket or Akash Ganga or Akash Tara are known for their propulsive power. (iii) Phoolchadi: It is a stick which showers a burst of sparkles from its tip. (iv) Sutli Bomb: known to mimic the sound of a real bomb. (v) Vishnu Charkra: Ground spinner known to emit a circular array of sparkles.[3]

Various countries throughout the world have reported a wide spectrum of injuries related to firecrackers and some countries like Canada have even banned the use of firecrackers except by professional pyrotechnitians. In the United Kingdom, the number of firework-related injuries peaks during Halloween and Guy Fawkes Night. It has been suggested that public fireworks should be encouraged and fireworks for individual use should be banned.[4,5]

In India, over a nine year period reported 1373 admissions related to firecracker injuries during the festival of Diwali.[6] The most common firecracker causing injury in their study was the anar/firepot firecracker which is similar to our study but unlike the their study which found bomb firecrackers to be the second most common cause of injuries we found the rocket firecracker to be associated with more injuries.[6] In 10 year study, a decreasing incidence of injuries in the subsequent years was noticed,[7] but we found an increasing trend of injuries which was also consistent with the study done by others,[6] but our study was for a short period. Male preponderance and most common age of presentation was <30 years in our study which is also consistant with that of other study.[6]

We also report cases of Diwali rocket firecrackers causing laceration wounds to the scrotum and forehead seldom mentioned in literature. Various awareness campaigns and information have been circulated in newspapers and social media on the safe ways to use these fire crackers and the first aid measures that one can do immediately in case of such injuries. Diwali is a festival that every plastic surgeon in India always has special memories of delicious sweets and also memorable cases. Simple and effective methods should be employed and carried out so that every one of us can not only a have a Happy but also a Safe Diwali.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

KEYWORDS
Firecracker injury; Burn injury; Hand injury, Blowout injury

Please cite this paper as:
Mir MA, Mahmud AA, Chauhan VS, Khurram MF, Yaseen M. Wish You a Happy and Safe Diwali: From a Plastic Surgeon. World J Plast Surg 2015;5(2):190-193.

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