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Case Report

North Indian winter fog, barbed wire, drunken driving and neck trauma

Manish Munjal[1], Shubham Munjal[2]*, Munish Trehan[3], Amit Berry[4], Gautam Biswas[4], Hardeep Kaur[1], Lovleen Sandhu[1], Anurima Arora[1], Iti Bharadwaj[1], Devambika Mehta[1], Arshdeep Rekhi[3]

[1]ENTHNS Department, [2]ENT Department, [3]Surgery Department, [4]Medicine Department, Dayanand Medical College, Ludhiana, Punjab, India

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***Correspondence:**
Dr. Shubham Munjal,
E-mail: shubhs.email@gmail.com

ABSTRACT

Inebriated motor cyclists in dense fog of North Punjab often lose control and run into the barbed village fencing. The wire drapes the front of the neck and penetrates the tissues to varying depth, depending on the intensity of trauma. This is commonly noted between the cricoids and the mandible. Timely surgical intervention, intoxication and speed checks can reduce the incidence of poor visibility related mishaps. An individual sustained and survived penetrating barbed wire injury by wrapping his head gear around his neck and drove to a rural health care facility for a primary repair of his neck.

Keywords: Barbed wire, Neck, Penetrating injury, Fog, Inebriated, Motor cyclist, Head gear

INTRODUCTION

The chilly fog of the North Indian winter is unique it is called “karakti dhoondh” in vernacular language. To keep warm, sale of alcoholic beverage takes a jump with a consequent hike, in the casualty statistics of tertiary care trauma centers. The two wheelers top the list of admissions and usually they are the rural bikers, on the way back home after a hectic day. The village roads are slippery, the riders mind is groggy and reflexes not up to the mark. Thus, one runs off the road into the barbed steel fencing. of the fields. The neck bears the brunt when one gets entangled in these wires. Usually the wire slithers up to lacerate the tissues in the upper neck. This is the level II zone of monson, extending from the cricoids to the lower border of the mandible.

Barb wire is the term used in local dialects for the barbed wire which has intermittent spiky edges along its length (Figure 1 a and b). Main utility is as an affordable perimeter fence of fields restricting entry of trampling cattle and public. Moreover, it is used on the borders and high risk security installations (Figure 2 a-c).

Driving under alcoholic influence is a prime cause of bodily trauma. Spirits lower rate of visual scanning and reduce bodily reflexes required during maneuvering.[1,2] Moreover alcohol lowers the individual’s threshold to take risks.[3] The male gender has been noted to have less awareness of the risks of driving under alcoholic intoxication w.r.t. to the female.[4]

A 1999 analysis, reported that people drive 0.001% kilometers with a blood alcohol concentration (BAC) of equal or greater than 0.10%; the latter peaks to 14% on weekends.[5]

Although the legal, public health, and educational communities have stressed the dangers associated with inappropriate use of alcohol, particularly among people operating motor vehicles, the impact of these efforts has not been optimal.

CASE REPORT

A 50 year old gentleman was returning home from his workplace in the city, on his bike after a hectic day and was under the influence of alcohol. There was early onset of darkness and reduced visibility due to the winter fog. The fog became more dense once he approached the outskirts of his village. The dirt roads had become slippery and he wavered off the track and ran into the barbed wire fencing lining the fields. His bike was in full throttle and it got entangled in the wire. The wire slit his neck. Somehow he could regain control of his two wheeler and managed to free himself. He wrapped his head gear around his neck and controlled the bleed. He drove to the nearby primary health center where first aid was administered and crude neck sutures were applied. Then he was referred to our tertiary health care facility for definitive treatment. CT scan neck to exclude deep visceral damage showed soft tissue laceration with soft tissue edema along anterior aspect of neck with no major neurovascular injury.

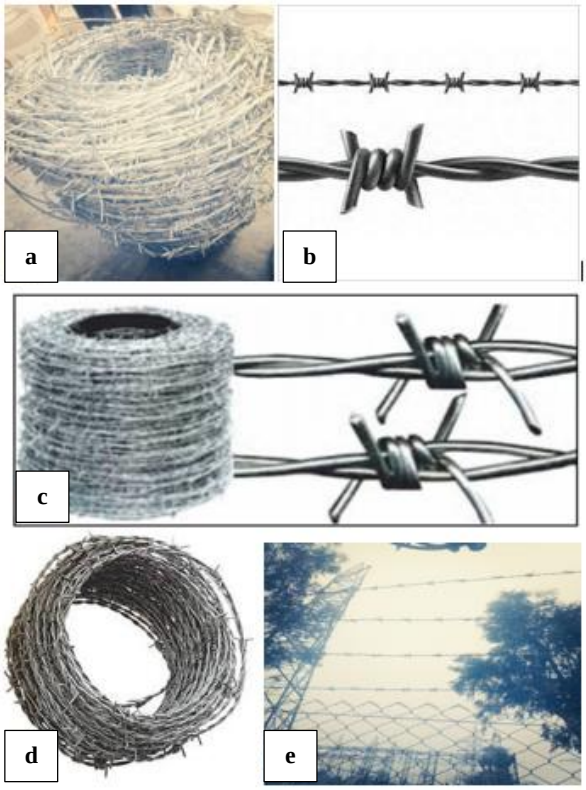

Figure 1 (a-e): Barbed wire used in fencing vital installations.

He had a partially sutured neck wound on the front of the neck between the hyoid and the lower border of the mandible. The wound was gaping with irregular edges extending to posterior border of the stern mastoid muscle of either side (Figure 3 and 4). The external and anterior jugular veins were visible. The external jugular on the left side bled on scrubbing and had to be ligated. The wound was contaminated with dirt and grass and had to thoroughly irrigated with povidine iodine and blood clots evacuated. After achieving haemostasis a double layer suturing was undertaken over an indwelling drain (Figure 5 and 6). He was put on IV aerobic and anaerobic antibiotic coverage and was relieved on day three when there was no drainage. Stitch removal was undertaken on day 10, which showed a well approximated wound with an imperceptible scar (Figure 7).

Figure 2 (a-e): Barbed wire fencing in villages, in winter fog (Dhoondh) of North India.

Figure 3: Gaping lacerated wound.

Figure 4: Wound with irregular edges extending to posterior border of the sternomastoid muscle of either side.

Figure 5: Double layer suturing undertaken.

Figure 6: Suturing over an indwelling drain.

Figure 7: Well approximated wound with an imperceptible scar, day 10th.

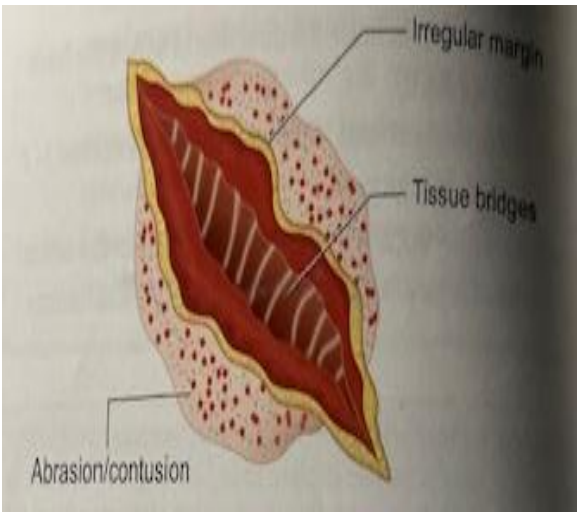

Figure 8: Characteristics of a lacerated wound.[25]

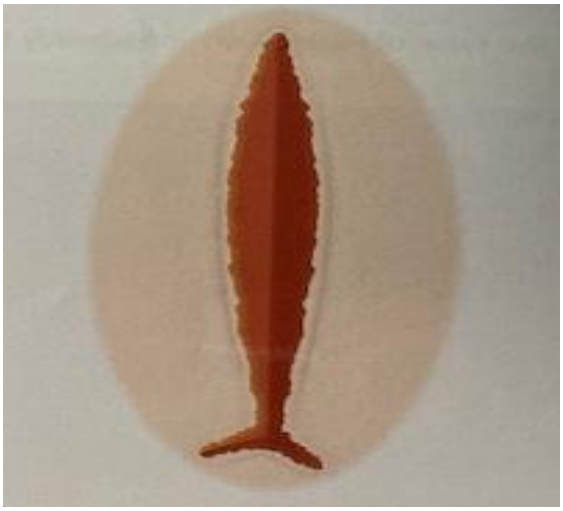

Figure 9: Swallow tail appearance of a split laceration.[25]

DISCUSSION

Environmental factors though not the primary cause but play a vital role in road traffic trauma.[6,7]

An NHTSA (National highway traffic safety administration) 2005-2014 US study attributed the weather to 16% road traffic accidents, 19% injuries and 22% damages.[8]

Foggy conditions top the list of inclement weather that directly affects safe logistics.[9,10] It is hazardous to drive in visibility less than 150 meters as per the research of transport laboratories.[11]

Unlike other weather states the intermittent and impromptu onset of fog, perturbs the unaware drivers thereby potentiating the vulnerability of high velocity road traffic trauma.[1]

In the fog in thick fog, images and distances are blurred, there is disturbed judgment and distances are likely to be overestimated up to 60%.[12]

There is a 40% increase in the risk of vehicular accidents.[13]

Low visibility too effects attitude and performance of the driver too.[6]

A variable effect is observed where one may accelerate or move with a snail pace in foggy weather thereby disturbing the streamline flow of traffic.[13]

Unlike in clear sky with perfect visibility where a definite pace is maintained.[6]

The anterior aspect of the neck with compact neurovascular bundles and vital viscera is most susceptible to trauma.[14] There is more morbidity and fatality in such patients with respect to other sites.

There is a gender predilection towards the males and that that in the young, populace with a fast and furious, outgoing lifestyle. The Bryan study reported a threefold higher incidence in the males and the mean age being 33.8 years.[15]

Vis a vis the nature of trauma, it can be broadly of blunt and penetrating type, the latter seen in 10%.[16,17]

Road traffic trauma, barbed wire, ballistic and stab injuries are the common penetrating injuries.

The cervical trauma zones are the claviculo-cricoid zone I with high mortality due to vascular trauma and high risk surgical explorations.[18] The crico-mandibular, zone II and the mandibulo-skull base zone III, II, I and III is the order in which cervical injuries were seen.[19]

There is a mortality of 3-6% in penetrating neck trauma, 50% in vascular, 20% in tracheal and 11-17% in esophageal.[20-22] 30% penetrating cervical trauma effects the aero digestive tract while 40% of neck trauma is vascular with carotid artery in 10%.[22]

In our earlier study on penetrating cervical lacerations due to unbreakable kite strings the zone II was seen to be the most vulnerable.[23] Here too our patient, with barbed wire trauma the zone of neck injury was the same. This was in accordance with global studies which of Sriussadaporn et al in 2002 demonstrating that the most common zone in penetrating neck trauma was zone II (64% of cases).[24] This similarity may be due to the susceptibility of this zone for neck trauma.

Although some centers still advocate routine exploration for all zone 2 neck injuries penetrating the platysma, many civilian centers in the United States have adopted a policy of selective exploration based on clinical and radiographic examination.

A laceration consequent to impact of a jagged barbed wire is of the tear type with splitting apart of the integument, muscles and the viscera (Figure 8). The margins are ragged, irregular and undulating with tearing off the extremities at angles, diverging from the main laceration (shallow tails) (Figure 9). Moreover pieces of tissues are attached in between called tissue tags. Gaping occurs due to traction of collagen fibers and the underlying musculature.[25]

The intervention algorithm in neck trauma begins with physical local examination for platysma, neurovascular and visceral discontinuity if any. Doppler, radiography and imaging CT/MRI were the step ladder modalities embarked upon.

Surgical intervention in neck trauma is essential whenever there is a platysmal breach of whatever depth it maybe. This is to attain haemostais, maintain neurovascular continuity, myo-cutaneous tissue plane approximation and achieve healing with acceptable cosmesis.

Our patient had sustained an accidental laceration while under influence of alcohol in the inclement foggy weather where his bike had careened off the village dirt road into the barbed fencing. The wound had irregular gaping margins with bruising and abrasions at its periphery. Interior of the wound revealed bridges of irregularly torn fibrous tissue, platysma and damaged nerves and blood vessels. Soil and grass was seen embedded inside the wound. Timely haemostasis was achieved with a double layer antiseptic repair of the breach. An aesthetically acceptable healing with a miniscule scar was noted three weeks after the trauma.

CONCLUSION

We wish to highlight the dilemma of driving in weather conditions that reduce the visibility and effect of alcoholic intoxication in impairing the reflexes. The barbed wire though protects the farmer's fields from stray cattle is a death trap for the unsavory. The presence of mind of the victim in wrapping his headgear as a tourniquet to check blood loss and driving to nearby healthcare facility is worth mentioning. Early exploration is advocated in all cervical trauma.

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