

A STUDY OF PATTERN, SURGICAL MANAGEMENT AND OUTCOME OF BEAR MAULING AT CIMS BILASPUR

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ABSTRACT: We studied the various injury patterns in bear mauling and outcome of management in CIMS from 2010 to 2014. A total of 20 cases evaluated which were predominantly male (95%). It is obvious that involvement of head, neck face and upper limb was in maximum cases. The age wise study shows that there was equal involvement of people from young, middle aged and older ones. It was a retrospective analysis of the reported cases. Most victims suffered from multiple injuries. Percentage wise distribution of the injuries and involvement of different body parts amongst observed cases were head neck face 75%, thorax and abdomen 40%, upper limb 75%, buttocks and genitals 30%, lower limb 50%. We observed that in 75% of cases of mutilation overhead neck and face, it was most common site of bear mauling. Probably, it is because usually the attacks by bear is mainly on standing posture with hind limbs. All the patients were treated by a team led by surgeons including dental cum oral surgeon, otorhinolaryngologist, ophthalmologist and orthopedician. Surgical repair was done under all aseptic precaution and analgesia. Because of severe anatomical distortion of face and multiple fractures of facial bones with unstable and hanging mandible, in number of cases urgent tracheostomy was performed to restore the airways and for induction of general anesthesia. This also prevents aspiration and regurgitation. The excellent blood supply of the face makes infection a rare occurrence with good antibiotic coverage. However, the injury may cause sufficient disfigurement and require extensive reconstruction. We also observed eye globe rupture in some cases and enucleation was inevitable. We conclude that multidisciplinary approach and follow up reduced the rate of infection and morbidity and mortality.

KEYWORDS: Bear mauling, surgical management, Achanakmar Tiger Reserve.

INTRODUCTION: India which is second largest economy in the world,¹ timber and non-timber forest products contributes significantly. Invasion of man in forest in search of bread and butter leads to interaction with wild animals. There are many cases of wild animal bites are reported at tertiary care centre of Bilaspur district at Chhattisgarh Institute of Medical Sciences. Rehabilitation of tribal people for Development of Achanakmar wild life sanctuary and tiger reserve is one of the major causes of human wild animal interaction. The area around Bilaspur recently declared as biosphere and a tiger reserve sanctuary at Achanakmar is also natural habitat to Black bear.

It's a savage animal, sometimes attacking without provocation, and inflicting horrible wounds, attacking generally the head and face with their claws, while using their teeth also on a prostrate victim. Bear bite injuries to the head and neck region can result in facial disfigurement with distressing physical and psychological consequences.²

Bear bite wounds are often underestimated and untreated. Villagers and tribals are terribly mutilated, some having the scalp avulsion from the head, and many innocent have been succumbed to this.

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MATERIALS & METHODS: We studied the various injury patterns in bear mauling and outcome of management in CIMS from 2010 to 2014. A total of 20 cases evaluated which were predominantly male (95%). It is obvious that involvement of head, neck face and upper limb was in maximum cases. The age wise study shows that there was equal involvement of people from young, middle aged and older ones. It was a retrospective analysis of the reported cases.

Generally referred cases from periphery were admitted directly in Emergency Department of the Institute. Patients were then evaluated for head, chest, abdominal or skeletal injuries. Routine investigations including X-rays, Haemogram were done in all patients besides special investigations such as sonography, computed tomography scan, Doppler studies when indicated. Those with life threatening complications were directed to intensive care unit. Opinion of the consultant was taken in each case for further management.

A single dose of antibiotic Ceftriaxone was given pre-operatively and continued post-operatively. Further antibiotics were given only in patients who showed the presence of infection.

Anti-rabies vaccinations were started as per the prescribed WHO regimen. We followed five dose intramuscular regimen, that is, one dose of vaccine administered on days 0, 3, 7, 14 and 28 in deltoid region. It should be never given in gluteal region. Tetanus toxoid was given in all patients.

We performed thorough irrigation with warm normal saline followed by appropriate suturing for all skin lacerations, skin grafting as it requires in some patients. Debridement of wound with proper dressing was done.³ some patient had scalp avulsion where scalp was debried and skin grafting was done. Tracheotomy was done in few patients to maintain the airway.

Orthopedic and maxillofacial cum dental surgeon handled the fractures in operation theatre. One patient had compound displaced fracture at distal end of left radius for which open reduction and internal fixation of fracture lower end of radius with k wire insertion was done. Consultant ophthalmologist's opinion was taken before enucleating the eye.

All the patients were treated by a team led by surgeons including dental cum oral surgeon, otorhinolaryngologist, ophthalmologist and orthopedician. Surgical repair was done under all aseptic precaution and analgesia. Because of severe anatomical distortion of face and multiple fractures of facial bones with unstable and hanging mandible, in number of cases urgent tracheostomy was performed to restore the airways and for induction of general anesthesia. This also prevents aspiration and regurgitation.



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Before and after surgical management in cases of bear mauling at CIMS Bilaspur

Sl. No.	Involved Part of the body parts	Percentage involvement in all cases (n =20)
1	Head Neck and Face	75%
2	Upper Limb	75%
3	Thorax and abdomen (front)	40%
4	Buttocks and genitals	30%
5	Lower limb	50%
6	Multiple sites	50%

Observation and Results

Most victims suffered from multiple injuries. Percentage wise distribution of the injuries and involvement of different body parts amongst observed cases were head neck face 75%, thorax and abdomen 40%, upper limb 75%, buttocks and genitals 30%, lower limb 50%.

We observed that in 75% of cases of mutilation overhead neck and face, it was most common site of bear mauling. Probably, it is because usually the attacks by bear is mainly on standing posture with hind limbs.

DISCUSSION: Guo, Shuzhong, et al expressed aside from the large lacerations and wounds that can result from bear attacks, infections are also physically detrimental.⁴ A bear's mouth is full of potentially harmful bacteria, especially if the bear has been feeding on a gut pile or feces⁵. Bear bites can result in gangrene, the rotting of flesh, which can spread six inches an hour, or crepitus, the grinding of the two sides of a broken bone fracture.⁶ Recovery from bear attacks depends on the extent of damage, but often involves long-term medical treatment. As shown in the medical procedure led by Professor Shuzhong Guo, extreme cases of bear attacks have resulted in plastic surgeries and even facial transplants that, while successful, may take several years to complete⁴

Geeta NT et al.⁷ (2014) opined that the excellent blood supply of the face makes infection a rare occurrence under the proper coverage of antibiotics and analgesics, however, the injury may cause sufficient disfigurement to require extensive reconstruction. Treatment of bear bite wounds must

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address both the management of soft tissue deformities and then prevention of post treatment infection. Although generally considered to be dirty or contaminated they could be successfully treated by surgical cleansing and primary suture with a favourable outcome.

The bony injuries also have to be managed by orthopedician. Bear mauling might leave some secondary defects and multidisciplinary approach with multiple secondary surgeries needed in many cases.

The excellent blood supply of the face makes infection a rare occurrence with good antibiotic coverage. However, the injury may cause sufficient disfigurement and require extensive reconstruction. We also observed eye globe rupture in some cases and enucleation was inevitable. We conclude that multidisciplinary approach and follow up reduced the rate of infection and morbidity and mortality.

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