Case Report

**Bear bite: A case report**
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Abstract:
Attack on humans by bears is relatively rare event, and the intent is always defensive. As a result of de-forestation, bears, along with other wild animals are enforced to enter into human inhabitations and para-jungle areas such as farms. Their encounter with humans in above situations is inevitable. Either defensive or predative attack, bear can cause extensive soft tissue and bony destruction that may lead to death of the victim. We are presenting a case of 45 year female-while collecting wood in her own farm was attacked by a bear. She sustained severe injuries over her face, left arm and right leg leading to death.

Key words: Bear bite, Human, severe injuries.

Introduction:
As we all know bears are strong, agile, potentially dangerous and unpredictable mammals inhabiting jungle, sanctuaries, and provinces. A search of scientific literature reveals very few articles detailing case reports or an in-depth analysis of injuries due to bear mauling. Attack on humans by bears is relatively rare event, and the intent is always defensive. Recent rise in bear attacks on human indicates intrusion of humans in animal ecosystems as a result of greed and need of human beings. Bear bite injuries to head and neck region can result in facial disfigurement with distressing physical and psychological consequences. Here we are presenting a case of bear bite that lead to death.

Case report

A 45 year female resident of a village was attacked by bear, while collecting wood in her own farm. The history of the incidence was revealed by her son, who was an eyewitness to the incidence. He rescued his mother from the attack of the bear by pelting stones on bear’s mouth. The bear got frightened and ran away. But in meanwhile she sustained severe injuries over her face, left arm and right leg and started bleeding profusely from her right ear, nose and right eye. She collapsed and lost her consciousness. She received first aid at rural Govt. hospital. However, no fluid replacement or wound inspection was done. She was referred to emergency department of Govt. Medical College & Hospital, Aurangabad.

She was admitted in emergency department in a state of semiconscious, disorientation, and in hypovolemic shock.

Photo no.1 Sustained facial injuries by bear bite
She was treated by a multi-disciplinary team of surgeon, anesthetist, ENT surgeon and dental experts. Her Glasgow Coma Scale was 9/15. BP was 80/40; pulse was feeble with tachycardia, tachypnea, and cool clammy skin. There was active bleeding from the right eye and nose. She had multiple lacerations of varying sizes on head, face and limb. The patient was immediately put on intravenous fluid resuscitation with Ringer Lactate and Normal Saline and broad-spectrum antibiotics. Anti-rabies and tetanus vaccines were administered. The wounds were thoroughly debrided and haemorrhage was controlled by ligating the bleeding points.

After radiological examination i.e. C.T. scan of brain, para nasal sinuses & orbit they observed that there was dehiscence of medial wall of right orbit with collection in ethmoidal air cells. Right eye globe was seen outside the orbit. Fracture of right zygoma, maxilla and hard palate, external auditory canal, and right nasal bones and a linear displaced fracture of nasal septum were noted. Also there was an ill-defined hypo dense area over right high parietal area of brain. There were no other injuries to brain parenchyma. On X-ray, fracture of left humerus at distal 1/3rd was noticed. The patient stabilized after 24 hrs following admission. Neurosurgical fitness was obtained. Patient was immediately taken up for surgical exploration and wound debridement and primary suturing under GA. But subsequently she developed septicemia due to infected wounds and expired on 11th day of admission. Police were informed. They referred the body for medicolegal autopsy.

**Autopsy findings:**

On external examination of body, we confirmed the wounds noted by treating team. There were signs of reconstructive face surgeries. There was a tracheostomy wound in infra-cricoid region. We noted following injuries after suture removal: an irregular shaped laceration of size 24 cm x 3.5 cm x bone deep over right parietal-tempero-frontal area of scalp extending to right eye with margins of wound inflamed. Also multiple irregular shaped bone deep lacerations of varying sizes over mid-face leading to disfiguring of face. A laceration of size 7cm x 4cm x bone deep was seen over medial 1/3rd of left forearm, with two graze abrasions of size 6cm x 3 cm and 7cm x 3 cm each over right knee. All injuries were blackish with margins of wound infiltrated with pus and inflamed.

Internally, both lungs (Right: 850 gm. Left: 650 gm) revealed yellowish pus plaques on inter-lobar surfaces. Both lungs were firm in consistency and consolidated. Liver was enlarged, congested with evidence of yellowish pus plaques under the capsule. Spleen and both kidneys were enlarged and congested. In spite of
extensive face and bony injuries, there were minimal brain parenchymal damages in the form of infarcted areas in right parietal lobe.

The cause of death was finalized as, “Septic shock with bilateral lobar pneumonia due to infected injuries to face with fracture of left humerus (Injuries consistent with Bear bite.)”

Discussion

Bear attacks are rare, however, incidents are often publicized in the media, even if few of the victims suffer serious injuries. Researchers and managers believe that many bear attacks can be prevented by applying the knowledge of bear behavior and ecology. Fragmentation of forests may lead to isolated, nonviable bear population. Degradation, in the form of overgrazing, tree felling, fire, conversion, and reclamation for other uses, and over-extraction of forest resources that are essential for sloth bear survival appear to be occurring throughout the sloth bear range, particularly in the dry forests.

There are eight types of bears in the world. They include the American Black Bear, Brown Bear, Polar Bear, Giant Pandas, Asiatic Black Bear, sloth Bear, Spectacled Bear, and the Sun Bear. The sloth bears inhabit forests and tall grasslands in India, Nepal, Sri Lanka, and Bhutan. For those who frequent forests in India, sloth bear present a considerable danger, worse than that of tigers or leopards. As per review of literature the injuries due to bear jaws are in the form of puncture wounds, lacerations, abrasions caused due to canines; crush injuries and bruises caused due to molars; cuts caused due to incisors. Injuries due to paws include abrasions, bruises and incised looking wounds lacerations, due to nail tips. Other injuries may cause fractures; either of skull bones and axial skeleton.

The physical nature of injuries by animals can extend from trivial scratches to savage and mortal wounds. Bargali et al. did a study in a forest division in India to describe sloth bear attacks and human injuries while defining an “attack” as an encounter that ends with human injury or death. His study observes that attacks were predominantly by a single bear (93%) and rarely by 2 (4%) or 3 bears. Most victims suffered multiple injuries (52%): single injuries on legs (25%), hand (12%), and head (8%). He also quoted that 8% of bear attacks were fatal. Victims suffered injuries such as fractures and severed body parts (eyes, scrotal sac).

These injuries involves substantial struggle on the part of victim on the ground, which forces mud, grass and other contaminating material in to wounds. Death due to bear bite is due to hemorrhage due to vessel disruption, crushing injuries with its consequences, suffocation, anaphylaxis due to wound contamination with earth material, rabies.

It is necessary to draw a protocol for the treating physician and autopsy surgeon to act in unison in case of an animal attack. This should be based on the following considerations.

1. Identification: Identify the animal (the subspecies) and determine if it is a domestic or wild animal. Information that can help determine the patient’s risk of infection includes the time of the injury, whereabouts of the animal (i.e., is it observable in quarantine?) and the general health, immunization status, and current location of the animal.

2. The Risk of Rabies: The foremost danger that any wild animal poses to humans apart from physical insult is the danger of transmission of rabies. Post-exposure prophylaxis (PEP) must be started immediately. The paper concluded that the impact of rabies on the population dynamics of polar bears probably is minimal and that rabies in polar bears constitutes a potential health hazard for polar bear hunters.

3. Bacteriology: Wild animals carry a large number of bacteria in their mouth, and they may transmit a number of zoonotic diseases including viruses. Bears may carry rabies, hepatitis, distemper, trichinella, and other organisms. In one reported case, cultures of
bacteria from a deep wound in the thigh grew Streptococcus sanguis, Neisseria sicca, Bacillus spp. and Mycobacterium fortuitum.

4. Management: Essentials of treatment are necessary inspection, debridement, irrigation, and closure, if indicated. Removing devitalized tissue, particulate matter, and clots prevents these from becoming a source of infection, much like any foreign body. Many animal bite wounds result in disfiguring scars, which require reconstructive plastic surgery.

Conclusion:
Wild-animal attacks, though rare, remind us that humans can still be food or prey. Awareness, education, knowledge, and prevention, rather than the elimination of animal populations, may be the best way to control wild-animal attacks on humans in the future.

References: