Animal Bites in ENT

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ABSTRACT

Introduction
Animal bites can range from abrasions to laceration injury and are notorious for causing infectious diseases like rabies. Four such animal bite cases presented to us at ENT emergency, two of them assaulted by the Royal Bengal Tiger and the remaining two were bitten by their pet dogs. The management protocol has been discussed for the four cases.

Case Reports
The first two case reports, provide a detailed description of the afflicted injuries due to tiger attacks. The following two reports describe bites inflicted by pet dogs, less debilitating and only amounted to aesthetic compromise. The primary management of the cases has been described, followed by the definite protocol, as followed in our tertiary care center.

Conclusion
Primary management of the case involved irrigating the wounds with normal saline, anti-rabies vaccination, followed by regular antiseptic dressing, especially done for the contaminated wounds. Definitive repair was done in the second sitting for a cosmetically acceptable result.

Keywords
Bites; Rabies; Animal; Reconstruction

Ever since the civilizations evolved, man and animal gradually adapted to co-habitation. However, the social and the economic needs may pose danger to the ‘not so endangered’ species. The pattern of attack differs from a wild animal to that of a domesticated animal. While animals like tiger can produce a high-impact penetrating injury,1 pet animals like dog can merely ‘lick off’ the skin and subcutaneous tissue. Four such cases presented to our ENT emergency following assault by tigers and pet dogs respectively.

Case Series

Case 1:
A 30 year old male patient, fisherman by profession, presented to the casualty with a lacerated, infected wound on the anterior aspect of the neck measuring about 3 cm in length, an elliptical wound over the right parotid region measuring about 2 cm in the greatest dimension, and a wound over the left popliteal fossa. Trismus was also present and his mouth opening was restricted to less than one finger width. On history taking, it was found that he was a resident of Sunderbans and while fishing in the creeks, he was attacked by the Royal Bengal Tiger.

The wounds were irrigated with normal saline. The patient was given tetanus toxoid and four doses of anti-rabies vaccine on days 0, 3, 7 and 28 as per the WHO protocol.2 He was put on enteral nutrition via nasogastric tube. Psychiatric referral was sought to counter the post-traumatic stress. Culture sensitivity of the wound slough was sent and the patient was put on intravenous antibiotics as per the sensitivity reports. Routine dressing and debridement of the wounds were done to achieve an adequate healing response before embarking on the definitive surgery.3

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On radiological imaging, Computed Tomography with 3-Dimensional reconstruction of the face revealed a displaced fracture of the right angle of mandible and homogeneous iso-dense lesion was noted in the parotid region of the same side.

After the preliminary investigations and pre-anesthetic fitness, patient was taken for the definitive surgery. The aim of the surgery was to restore the pre-injury dental occlusion; open reduction and internal fixation of fracture of angle of the mandible was done with miniplates and screws. Secondary closure of the anterior neck and cheek wounds was done. The post-operative period was uneventful and the patient was discharged with adequate mouth opening and with restoration of the dental occlusion.

Case 2:

A 45 year old fisherman presented to the casualty after 24 hours of an attack by the tiger at Sunderbans. There were multiple lacerated wounds over the face. A conical shaped, contaminated wound was present over the left zygomatic region which was contiguous with a similar wound over the left post-auricular region. The styloid part of the temporal bone was also avulsed and there were features suggestive of facial nerve palsy (House-Brackmann Grade 5) of the affected side. The pinna of the left side was detached from its attachment. The left orbit had an embedded tiger tooth in it, with proptosis of eyeball and no perception of light, there was a cut injury over eyelid too.

The patient complained of severe pain along left half of face and generalized headache.

The initial line of management was similar to the first case, comprising of care of the wounds with regular dressing and debridement till healing response was seen in the form of granulation tissue on the lateral walls and the bed of wounds. Ophthalmology opinion was sought in addition to psychiatry, for the mutilated eye-ball.

The patient underwent Computed Tomography with 3-Dimensional Reconstruction of the face which showed a tripod fracture involving the zygomatico-maxillary complex of the left side and undisplaced parasympyseal fracture of the same side. The patient underwent multi-stage surgery which included fracture reduction and fixation with miniplates and screws, otoplasty, orbital exenteration followed by orbital prosthetics implantation.

(From left to right) Fig. 1a. Wound on the right cheek of the patient. Fig.1b. CT scan showing displaced fracture of the angle of the mandible on right side with homogenous collection over right parotid region. Fig. 1c. The patient on discharge with restoration of dental occlusion.
Case 3:
A 56 year old lady came to the ENT emergency, after an assault by the pet dog. She had an elliptical, lacerated wound on the root and bridge of the nose with irregular margins. There was also another similar wound on the right supra-orbital region. The patient received tetanus toxoid and four doses of ARV as per WHO protocol. Conservative management of the wounds was done by regular antiseptic dressing along with antibiotic coverage.

The defect was closed by local advancement flap once the wound showed formation of granulation tissue on the wound bed. The patient’s aesthetics was restored.
Case 4:

A 25 year old male patient presented to the ENT emergency with an oval shaped, lacerated wound over the left upper lip following bite by his pet dog. The wound was washed with normal saline to get rid of any innocuous organisms that animal bites might harbor. The wound margins were debrided to remove any necrotic tissue and repair was done under general anesthesia by the apposition of the freshened edges.

Discussion

Domesticated animals especially dogs are notorious for licking off the flesh of the owner. The wounds mostly involve the skin and the subcutaneous tissue and usually no underlying structure is injured. The primary management involves washing the wounds with normal saline to get rid of the innocuous pathogens. The immunization status of the offending animal is important to plan the treatment strategy accordingly. The swabs
from the wounds should be sent for culture sensitivity to institute antibiotics as per antibiotic sensitivity. Once the healthy granulation tissue forms the bed, the wounds can be closed by primary apposition of margins or by local advancement flaps.

The other two patients who were fishermen by profession had suffered grievous injuries after being attacked by the Royal Bengal Tiger in the mangrove forests of Sunderbans. Such attacks are frequent in this part of the delta, which is a source of livelihood to many inhabitants of the region. The fishermen often risk their lives while fishing, and harvesting honey and timber from the mangrove forests.

Tigers mostly attack their prey by lunging at the nape of the neck thereby leading to cervical spine injuries and punctured wounds primarily in the head and neck region.\textsuperscript{5,6} The torso and the limbs can be injured in an attempt to battle the conflict between the assailant and the victim. In the head and neck region, one or multiple fractures of the facial bones and degloving injury, aren’t rare. Hence, otolaryngologists should be prudent and prepared to deal with such cases.

The initial survey is based on Advanced Trauma and Life Support Protocol.\textsuperscript{7} Once circulation and airway support is established, one should proceed with secondary survey. Like any infected wound, the primary management is washing the wounds with normal saline to remove the debris and the innocuous organisms that the wounds might harbor. The patient should receive tetanus toxoid and anti-rabies vaccination as per WHO treatment protocol. Suturing of the wound site(s) should be avoided.

Regular antiseptic dressing along with antibiotics form the backbone of any infected wound management. Once there is adequate healing response, wounds should be closed. If there is loss of tissue, local advancement flap may be an option in the head neck region.

The primary goal in treatment should be to restore facial aesthetics along with the functional preservation of the injured part, wherever possible. One should not neglect the psychological impact that these kind of mishaps leave on the victim and the family. Hence, psychiatric counseling to counter post-traumatic stress, depression forms a very important component of the management.

**Conclusion**

In this case series, we did not close the wounds caused by the animal bites primarily. The initial management comprised of regular antiseptic dressing of the infected wounds with betadine solution along with antibiotic coverage. The fracture reduction of the facial bones was done under general anesthesia, with secondary closure of the wounds and/or local advancement flaps, in case of tissue loss. Anti-rabies vaccination and tetanus toxoid were given too.

**References**