

Scalp and Calvarial Injury from Tiger Attacks: An Untouched Realm

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Abstract

Introduction: Tiger population has been dwindling over years and incidences of tiger attack scalp and calvarial injuries have been reported rarely. These injuries are life threatening and requires combined urgent neurosurgical and plastic surgery intervention.

Methods: This study retrospectively assessed cases of tiger attacks admitted in neurosurgery department from January 2016 to September 2019. Clinical, radiological and operative notes of these cases were retrieved from records and analysed.

Results: Five patients were treated during the study period. All of them were males. Three patients had Bilateral scalp injury whereas two had unilateral injuries. Three patients had undergone debridement craniectomy and repair of dura and scalp. One patient had to undergo occipital artery based transposition flap with split skin grafting. Another patient had to undergo local wound debridement and galeal underscoring for scalp suturing. All patients were doing well at the time of discharge.

Conclusion: Scalp and calvarial injury from tiger paw injury are rare and may cause substantial scalp loss along with depressed skull fracture. This type of injury requires team effort with plastic surgery team for flap transposition or skin grafting.

Keywords: Calvarial injury; Glasgow coma scale; Depressed skull fracture; Split skin graft.

Introduction

Scalp and Calvarial injury owing to animal attacks are routinely underestimated and neglected in general practise. Wild animal attack injury are a rare cause of serious public hazards in the community. Dog bites are the by far the most common animal bite wound routinely seen in practise.¹ Injuries from other animals like cats, pigs, camels, horses, cows, donkeys have also been reported in literature.² Injuries range from superficial to deep wounds including contusions, lacerations etc and injuries to muscles, nerves, vessels, organs, organ systems and bone fractures. Almost all reports found in the literature are about pet animals and reports about injuries caused by wild animals particularly tigers are rarely reported, even rarer are reports of head injury caused by tiger attacks.³ There are approximately 2967 tigers in India (according to 2018 data). We at our institute, have dealt with five tiger attack patients from 2016-2019. The Dudhwa national park located near Lakhimpur Khiri in UP is a house to about 106-118 tigers (according to 2010 data). Majority of injuries have been reported from areas nearby and surrounding this area.

In this study retrospective analysis of the operated patients of Scalp and Calvarial injury owing to tiger attacks was performed.

Material and Methods

Clinical, radiological and operative records of the patients with scalp and calvarial injury following tiger attacks were retrieved from Neurosurgery Department database from January 2016 till September 2019. Five cases with injury following tiger attack were analysed and+6 details are mentioned below.

Case 1: A 25 yrs. old male was admitted with us with a history of tiger attack at Lakhimpur khiri on 28/11/2016. Patient presented to us in full Glasgow Coma Scale (GCS 15) without any neurological deficit. However there was a 15*5 cm laceration and scalp loss over the left fronto-temporo-parietal region. There was no associated Brain matter or CSF leak. Patient was managed with wound toileting, debridement and primary closure of scalp after galeal underscoring. Patient was stable and was discharged to local hospital on antibiotics.

Case 2: A 50 yrs. old male reported in emergency with tiger attack injury at Pilibhit on 18/8/2017. Patient presented to us in a poor condition with GCS of 10, but no hemiparesis, CT was suggestive of B/L temporo-parietal compound depressed fracture with underlying contusion with right radius fracture. Patient was operated for left temporo-parietal debridement craniectomy with right temporal debridement craniectomy with augmentation duroplasty using pericranial patch and glue on 21/7/17. Patient improved post operatively and was discharged in full GCS and was fine in follow up visits.

Case 3: A 30 yrs old male presented with tiger

attack and bite injury on 23/9/17 with gcs of 9 without any other associated injuries. On evaluation CT scan was suggestive of right temporal and left temporo-occipital compound depressed fracture with brain matter leak. Patient was operated upon and right temporal with left temporo-occipital debridement craniectomy with dural repair using Tensor Fascia Lata. Post-operatively patient developed surgical site infection from left sided scalp wound which was managed conservatively with regular dressings. Patient was discharged in GCS 15 and was doing well in follow up visits.

Case 4: A 45 yrs old male presented with scalp and calvarial injury following Tiger attack on 7/2/19 at Lakhimpur khiri. Patient was admitted in full GCS but with left orbital injury and vision loss on left side. CT was suggestive of left parietal fracture with brain matter leak. Patient was operated and left parietal debridement craniectomy with contusectomy with dural repair using pericranium and glue. Patient was discharged in full GCS without any post op complications and had uneventful follow up.

Case 5: A 30 yrs old male patient admitted to us with Tiger attack injury while going to the market enroute on 11/9/2019 at Bahraich. Patient presented to us in a GCS of 14 without any focal deficit but CT scan suggestive of bilateral temporo-parietal depressed fracture with brain matter leak. Patient underwent surgery and Bilateral temporoparietal debridement craniectomy was done with left sided transposition flap with Split skin grafting in conjunction with plastic surgery team. Post operatively patient recovered to GCS 15 with healed wound and graft well taken.

Patient Details	Injuries	Procedure	Complications
1. 25y /M	15*5 cm contused lacerated wound with scalp loss over left fronto-temporo-parietal region	Local wound debridement and primary scalp suturing with galea underscoring.	None
2. 50y/M	Bilateral temporo-parietal compound depressed fracture with brain matter leak	Left temporo-parietal and right temporal debridement craniectomy with Augmentation duroplasty with pericraium patch and glue	None
3. 30y/M	Right temporal depressed fracture with left temporo-occipital depressed fracture with Brain matter leak	Right temporal debridement craniectomy with left temporo-occipital debridement craniectomy with augmentation duroplasty using Tensor Fascia Lata.	SSI left side scalp wound. Settled on conservative management and dressing.
4. 45y/M	Left parietal compound depressed fracture with contusion with brain matter leak	Left parietal debridement craniectomy with Augmentation duroplasty using Pericranium	None
5. 30y/M	Bilateral temporo-parietal depressed fracture with Brain matter leak	Bilateral temporo-parietal debridement craniectomy with left side occipital artery based transposition flap with Split Skin Graft from right thigh	Surgical site infection of right side wound treated conservatively



Fig. 1: Pre-op Image of Right parietal Compound fracture wound with stiches at local hospital

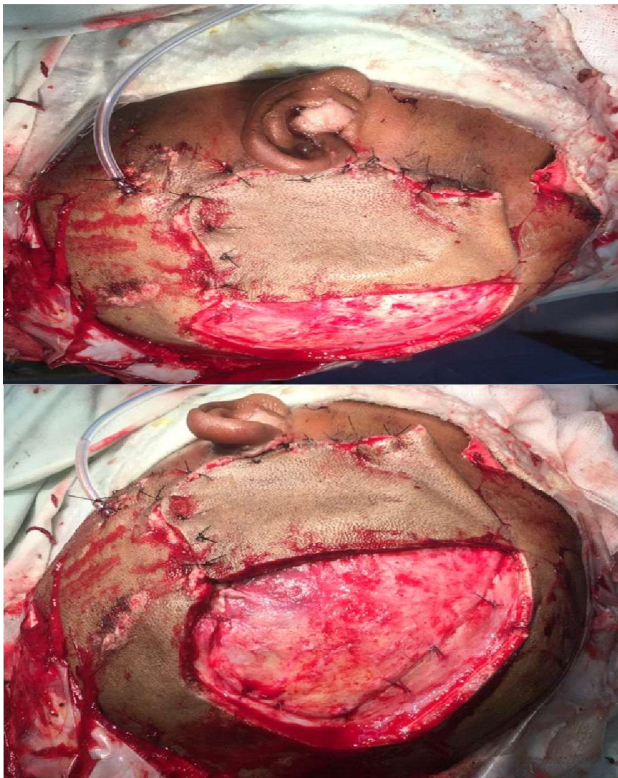


Fig. 2: Intra-op pictures of transposition flap for site of debrided wound and split skin graft for raw area



Fig. 3: 7th day Post op Photo of wound site

Discussion:

Wild animals e.g. tigers, lions etc usually hunt by themselves, mostly in the night. Tigers can leap upto a massivedistance of 200 feet, biting the target on the neck. It then takes the target to some hidden spot. Though tiger attacks on humans are unusual, they are increasing now a days because people have started encroaching upon their natural habitats. Most of the attacks in our series have occurred near the Dudhwa national park which is a habitat for tigers. It was found that most tigers that eat humans are sick or injured due to one cause or the other and unable to kill their prey in the jungle. Once they have acquired a taste for human flesh however, they will in all likelihood continue to kill them. Though man eating tigers are a rarity in other parts of Asia, they are notorious in Sundarbans. Sometimes, tigers come out of the jungle into the neighbouring village and attack people. Tiger attack injuries on scalp and calvaria are life threatening and on other body regions are devastating. Tiger attack surviviour are lucky to live after such grievous injuries. No other series has been reported in the literature describing scalp and calvarial injuries following tiger attacks and their management. This series from our centre underlines the need for the scalp and calvarial injuries to be treated on urgent basis requiring neurosurgical and plastic surgery team.

Conclusion

Scalp and calvarial injuries following tiger attacks are rare but life threatening and many times requires urgent neurosurgical intervention. Tiger paw injury may cause extensive scalp loss which may require assistance of plastic surgeon for transposition or grafting. These injuries may require a combined effort of Neurosurgery and Plastic surgery team.

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