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Fatal mauling by tigers

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Abstract

Lethal injuries due to large animal attack are uncommon in routine forensic practice in Europe. Specifically, few incidents are reported concerning tiger/lion attacks that usually involve captive circus or zoo animals. We present the case of a 61-year old animal tamer who was mauled to death by four tigers while he was training them for a circus performance. Careful investigation of the circumstances surrounding the fatality revealed that the tamer had most likely been struck with a tiger paw and then mauled by additional tigers resulting in serious and fatal injuries. Although a full medico-legal autopsy was not authorized, total body CT scan coupled with post-mortem external examination allowed a reconstruction of events.

Keywords Feline injuries · Tiger attack: Polytrauma: Bite marks

Case report

An experienced 61 year-old animal tamer was attacked by four Royal Bengal tigers during a training session at his circus (Fig. 1). The event was witnessed by a zookeeper who was close to the cage at the time of the attack and who called for help and tried to remove the tigers that were attached to the tamer.

The Public Prosecutor's office appointed a forensic pathologist for a complete scene investigation. The body was lying supine on a deckchair close to the cage, without clothes, except for blue-colored briefs, a jacket and blood stained shoes. According to eyewitnesses the tamer was inside the cage training four tigers for the next circus show when one suddenly struck him with a paw causing him to lose consciousness. The seriously injured tamer was then not able to free himself from the animal's grip. The other three tigers joined in the attack over the next several minutes.

The prosecutor only authorized an external examination and total body CT scan rather than a full medico-legal

autopsy. On external examination there were multiple irregular scratches and puncture wounds of the face, neck, trunk, abdomen and upper and lower limbs, sometimes revealing underlying muscular and vascular structures (Fig. 2–3). The nape and the neck area revealed paired deep puncture wounds from the canine teeth of the tigers (Fig. 4). Other bites were observed on the lower limbs. The posterior thoracic region showed many linear and parallel grazes from the tiger's claws, with an average length of about 9 cm.

CT scan showed multiple fractures of the facial skeleton and skull involving the nose and the jaw and the occipital bone associated with atlanto-occipital fracture dislocation. Multiple fractures of the cervical spine were observed with injuries to the bodies of C4, C5 and C6, with dislocation of C4 and C5 (Fig. 5). There was also fracturing of the sternum and the rib cage, with multiple rib fractures (1 to 5 on the right and 1,2,10 and 11 on the left). Death was due to multiple injuries arising from an attack by tigers.

The tamer's wife, who was one of the eyewitnesses of the attack, requested that the tigers should not be euthanized and so they were subsequently divided into two groups and relocated to other circus/zoo.

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Discussion

A number of animal species may cause human fatalities from biting and clawing. The resultant injuries involve both sharp and blunt force trauma [1]. The current case shows the nature



Fig. 1 Training platform in a cage where the tamer was attacked

of fatal injuries due to tiger attack [2, 3]. Similar fatalities resulting from large cat attacks (tigers, leopards, pumas, lions) on humans are relatively infrequent in the forensic medical literature. Some of the reported cases involve attacks in the wilderness while horse riding or hiking. In certain rural areas of Asia or Africa populations residing or working near forests may be a risk of contact with hungry wild felines.

Unwitnessed and unexplained deaths due to animals may cause problems regarding possible criminal activity. In such cases it is mandatory to identify the animal species involved in the lethal attack [4].

Incidents concerning lion/tiger attacks in zoos or during circus shows are rarely reported in the literature [5–8]. In almost all of the reported cases the cause of death is cervical spine trauma, which can be considered typical of a large cat attack [9].

Such attacks, however, usually cause significant trauma involving various and extensive wounds to several body regions. These traumatic events therefore produce a multiplicity of lesions, as in the reported case, which affects various tissue and organs [10].

Tigers weight between 90 to 300 kg depending on their subspecies and sex. The force of their bite is significant and can reach 1500 N with 7 cm long canines [11]. An attack by large predator targeting the cervical-cranial region is usually fatal [12] and may focus on the neck and posterior cranial region. In the current case, tiger canines and incisors predominantly caused bites and grazes to the skin located on the upper body.

Injuries to deeper tissues and organs including muscles are a typical consequence of tissue penetration by canines but may also result from impact from paws that may cause multiple bone fractures, as is likely in the reported case. Injuries to humans caused by attacks from large predators are not reported in Italy. Most of the reports in the literature describe attacks that occurred in Asia [13, 14]. A few cases of accidents in zoos



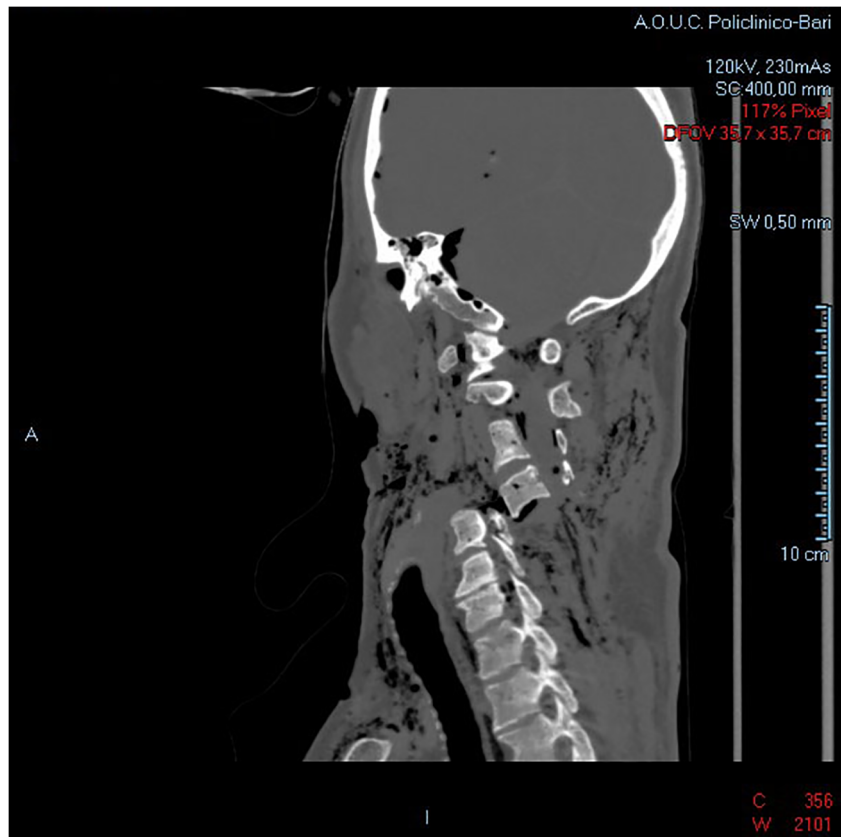
Fig. 2-4 Multiple linear scratch wounds from tiger claws and deep puncture wounds from canine teeth particularly involving the upper torso and neck of the victim

or animal farms in the United State (US) have been reported [15, 16]. In the US more than 300 dangerous incidents involving big cats have occurred in 44 states since 1990.

Tiger attacks can be sometimes be precipitated by poor living conditions. In Italy, the current case has focused attention on the social aspects of circus activity in relation to the use of dangerous animals in captivity. It is also important to consider that this type of episode can substantially change an animals behavior, thus making it difficult and dangerous for further engagement in these activities. Once a tiger (or a big feline) kills a person, it may develop a taste for human tissues [17].

In conclusion, the reported case demonstrates a rare event in Italy. In spite of the animal tamer undertaking numerous precautions and having thirty years experience, the aggressiveness of these animals should not have been

Fig. 5 CT scan of the head and neck showing atlanto-occipital fracture dislocation with fractures of the upper cervical spine



underestimated, as their attacks may cause serious and immediate trauma and rapid death.

Compliance with ethical standards

Conflict of interest None of the authors have conflicts of interest.

Informed consent The article does not contain any studies with human participants requesting their informed consent.

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