INDOOR POSTMORTEM ANIMAL SCAVENGING - A CASE REPORT -

Weeratna JB[1], Amararathna S[2], Ranasinghe RASK[3] Vidanapathirana M[4]
[1] Forensic Odontologist, [2]Consultant Judicial Medical Officer, [3]Forensic Odontologist, Institute of Legal Medicine and Toxicology, Colombo, Sri Lanka
[4] Senior Lecturer, Department of Forensic Medicine, Faculty of Medical Sciences, University of Sri Jayawardenepura

ABSTRACT

Discovery of decomposed bodies in domestic setting is not an uncommon occurrence. However postmortem animal scavenging of their owner is not commonly reported but can occur when the main predisposing factors are social isolation, living with free pets in the house and a medical condition causing sudden death.

INTRODUCTION

Postmortem animal scavenging is a familiar phenomenon to forensic death investigators. This was first described by Klingelhöffer in 1898. [1]Outdoor postmortem animal scavenger modification is a common finding in corpses exposed to the natural surroundings. However indoor postmortem scavenging is not a common occurrence. The victim almost always has a predisposing cause for sudden death, having been socially isolated and having free moving pets in the house have been identified as main predisposing factors for indoor postmortem animal scavenging.[1-3]

Even though outdoor postmortem animal scavenging is a common occurrence in Sri Lanka, indoor postmortem animal scavenging has not been frequently reported. This may be due to less incidences of social isolation especially among elderly due to the practice of extended families living together and also not having indoor pets. However with the change of the social and cultural life styles, social isolation is now becoming evident especially among older people. According to the Department of Census and Statistics of Sri Lanka the average household was 4.2 persons in 2001 and in 2011 it had decreased to 3.9 persons. Furthermore Sri Lanka has one of the fastest ageing populations in the world. The population of 60 years and above was 9% in 2000 but had increased to 11% in September 2010. The old age dependency ration for year 2012 was 19.8%. [4]

The personal experience of the authors are that more and more people prefer to have indoor animals as companions now than they had years ago. Thus it is safer to believe that there is an increase in the number of older people living alone and having indoor animals as companions.

In domestic surroundings pets and rodents who has access to the corpse can cause drastic postmortem damages. Thus postmortem scavenging is a potential source of puzzling marks for forensic pathologists and investigators when unveiling criminal activity.[2,3,5] In cases where there is indoor postmortem scavenging the cause of the death can be either natural, suicidal or accidental.[2] However to arrive at a definitive conclusion of the animal responsible for postmortem scavenging, careful examination of the scene where the body was recovered from and through examination of the external injuries on the corpse is of paramount important.

This article present a case of indoor postmortem scavenging by pet dogs on a female aged 76 yrs whose body was recovered after 3 days of her death.

CASE HISTORY

A 76 year old female was found dead in her house lying supine on the bed and the chest was covered with a T-shirt and the lower part of the body was exposed. The right foot was resting on the floor. The arms were spread out and the head was resting on a pillow [Fig. 01]. There was no sign of a struggle. The T-shirt had 3 tear marks and the piece of cotton cloth was found on the floor which was extensively torn and it

was believed that this material had been used to cover the lower part of her body.

The house was in a state of disorder with garbage everywhere [Fig. 02]. There was hardly any blood at the scene and on the clothing except few dried-up patches on the T-shirt. There was no signs of struggle and the house was locked from inside. At the time of the recovery of the body 15 dogs were living free inside the house including 4 puppies and 4 medium sized male dogs. All of them had been kept inside the house by the deceased and were thought to rescue stray dogs which had not been properly trained as pets. The woman was last seen alive by her son 11 days before and by the neighbours 04 days before. According to the son of the deceased she has been living alone and was suffering from diabetes for a long time for which she was on oral medication. As the cause of the death was not known forensic autopsy was conducted on the order issued by the magistrate.

The body was in a badly putrefied status and the head was partly skeletonized. The upper partial acrylic denture was in place [Fig. 03]. The left hand was missing up to the elbow and the humerus was exposed [Fig. 04]. Toes of both the right and left feet were missing and the metatarsal bones on the right leg were exposed [Fig. 05]. The autopsy revealed no fractures in the head. The soft tissue defects showed no slashing of tissues. The wound edges on the right leg revealed small parallel partially curved superficial notch marks suggestive of bite wound. There was a single puncture wound next to the soft tissue defect in the right leg [Fig. 06] and it can be attributed to a canine imprint of a dog. According to the postmortem changes the time between the death and the recovery of the body was about 4-6 days.

Histological examination of the wound edges showed no obvious vital reaction. Toxicological analysis of the blood showed no significant alcohol levels or any other toxic substances.

However, examination of stomach contents of the dogs or saliva swabs from the wound edges for DNA analysis were not considered taking into the account the number of animals that were involved and the time since death.

According to the autopsy and histological findings the cause of the death was recognized as complications of Diabetis Mellitus. In considering the death scene investigations, autopsy and forensic odontological examinations it was concluded that the injuries found on the body of the 76 year old woman had to be caused postmortem by the dogs found at the scene.

DISCUSSION

Pets as well as animals such as rodents who have access to the house can be responsible for indoor postmortem scavenging. The most common pet animals of indoor postmortem scavenging are dogs and cats however small animals such as birds[6] and hamsters[3] have also been reported of showing similar behavior patterns.

Frequently the face, hands and legs are destroyed by postmortem animal interference as they are unclothed and thus easily accessible.[2] However there are cases where such lesions having been noted in other areas of the body which have been covered by the cloths[7] including genitals[8] but they are rare.

In cases of postmortem animal scavenging extensive soft tissue defects with notched/ crenated wound edges without signs of vitality have been noticed. In canine attacks, the characteristic feature is a "v" shaped or rhomboid punctured stabs adjacent to mutilations [1, 9] whereas in rodent attacks injuries have a circular crater like hollow defect with distinct parallel cutaneous lacerations in the margins of damaged skin. The crater like injuries are mainly due to the fact that rodents continue to gnawing on a certain spot until they reach a robust structure such as bone, tendon or ligament. The injury margins are finely scalloped and serrated.[9, 10] It is also common to find linear scratch abrasions from claws, in the location of the injury.[1, 9] This is in contrast to postmortem scavenging in cases of dogs attacking humans with an intension of killing thereby showing tearing and slashing of tissue.[11] Thus the identification of the animals that caused the injuries is made mainly on the basis of the pattern of the injuries.

It is being suggested that the hunger or non-availability of any substance to pacify the animal's hunger is the primary cause of this

behaviour of the animal.[1, 2] However, this is seen only in very few cases.[6] Even in the presence of plenty of food in the near proximity, indoor postmortem mutilation by pets has been noted.[12, 13] Furthermore such activities have been noted even within a very short period of time after death.[13] These reasons clearly show that the only reason for such behavior by the animal is not hunger or lack of food in the proximity. The other reasons for such behaviour are associated to the psychological state of the animal. A pet noticing his master being in an unconscious state will try to help by licking or nudging, failing to produce any positive results the behavior of the animal can become more fanatic and could lead to biting.[13] This kind of behaviors is known as "displacement" which is motivated by confusion and fear. Furthermore dogs have been noted for sniffing around the region of mouth and nose in recumbent bodies.[2] Animals being locked in a confined space (house/room) can also lead to aggressive behavior which in turn cause postmortem mutilation. In addition, this mutilation by pets might be due to sudden aggressive behavior of the pet toward its owner at a moment of his weakness. In certain instances, it could be due to the abnormal behavior of the animal which is rear in trained domesticated animals.[3] However there aren't any reported cases with a preceding violent offence against the deceases prior to indoor postmortem animal interference.[1] Clothing, drugs and alcohol, diseases and perimortem trauma has been listed as some of the mitigating intrinsic factors that may have an impact on the animal responsible.[2]

The time when animal scavenging begins can vary depending on the origin of the animal behavior. There are reported cases where animal scavenging by pets have occurred within the first 45 minutes of the death of the person.[13] If the animals are being locked up, the extent of the scavenging can be to a degree of complete consumption of the soft tissues leaving the bones. In such situation it has been noted that feeding typically begins at the face and then moves down the body. The trunk is the last body part to be disarticulated and consumed.[14] Therefore shorter time gap can be attributed towards the "displacement" behavior of the animal while the longer time gap can be attributed to the animal being hungry in a locked up environment.

If the body has been scavenged up to the bones, tooth marks can be found on the bones.[2] Bloodless injuries are usually indicative of postmortem injuries, except when advanced decomposition makes such determination questionable or impossible. To differentiate the injuries from antemortem injuries the edges of the injuries can be analyzed for the levels of histamine serotonin[15] and cathepsins[16]. Postmortem injuries show low levels of these inflammatory mediators and enzymes. However in cases of advance putrefaction and mummification such investigations will be futile. For the same reasons the classical features of the tissue edges of scavenging injuries may not be clearly visible in most of the instances. Examination of the stomach contents of the suspected animal/s[3] and Saliva DNA typing of the swabs from the wound edges may sometimes help in assigning the responsible animal.[2,17] Therefore circumstantial evidence play an important role in identifying postmortem animal scavenging.

Three main predisposing factors for postmortem animal scavenging have been identified i.e. victim having a predisposing cause of sudden death, social isolation and having free moving pets in the house.[1-3] In temperate countries such incidence seems to occur more during winter where the degree of social isolation and the death rate due to natural causes are high.[2]

In cases of postmortem animal interference the damages are primarily caused to the exposed areas of the body. In such cases, despite the large tissue defects, the amount of blood at the scene is small or absent. Paw prints; blood stains; animal feces at the scene; pets having easy access to the corpses in the house and presence of rodents nests in the close vicinity are few other findings that have been reported in cases of indoor animal scavenging.[1, 2, 9, 13]

Therefore during investigations of deaths which are suspected to have been occurred indoor and have injuries to the exposed area of the body, a special notes of the factors such as presence/absence of self-defense injuries on the deceased body, amount of blood present in the scene, presence of paw prints deriving from animal's paws, accessibility to the pets/ wild animals, presence of rodent nests in the immediate surroundings must be made while

taking a detailed assessment of the scene of the questioned case.

Cases of long delays in the discovery of bodies in houses often receive extensive media coverage by revealing to the public the sadness of the circumstances that have prevailed around the person's life that may sometimes cause social stigma to the surviving family members especially in the eastern cultures. However it is important to note that factors such as mental and physical illnesses or disabilities, drug and alcohol addiction, trauma from previous abuse may contribute towards social isolation.[18]

On the other hand modern convenience such as internet and telephone banking, automated payment systems[19] online shopping, e-mails and e-newspapers can also eliminate the need for physical interaction with others. However it is important to note that the rise in the ratio of old people in the population with deficient family infrastructure and missing of the neighborly relationships have created an environment that is more prone for old people to die at home and for long delays to occur in discovering the bodies. Therefore, in time to come it may be necessary to implement a system of having welfare checks on elderly living alone by relevant authorities.

Figure. 01: *Status of the body*

Figure 2: *Upper Acrylic Denture in place*

Figure 3: *Left Arm*

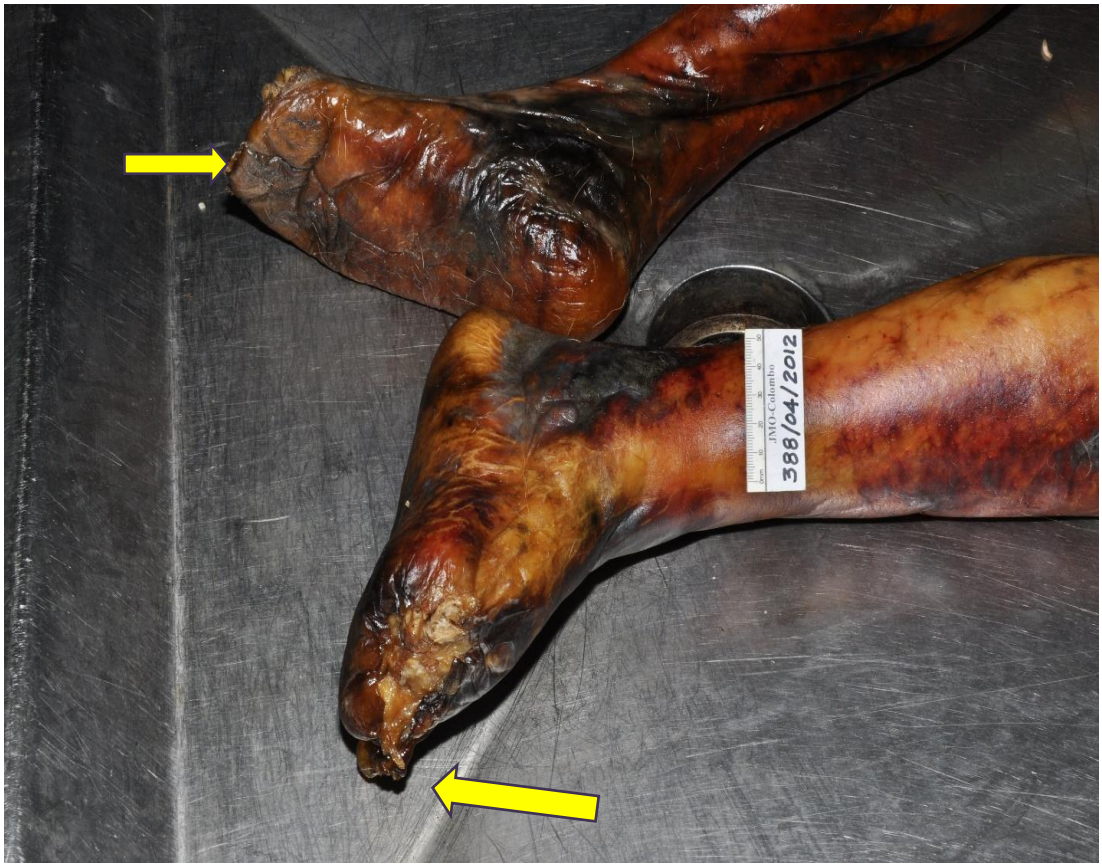

Figure 4: *Left and right feet*

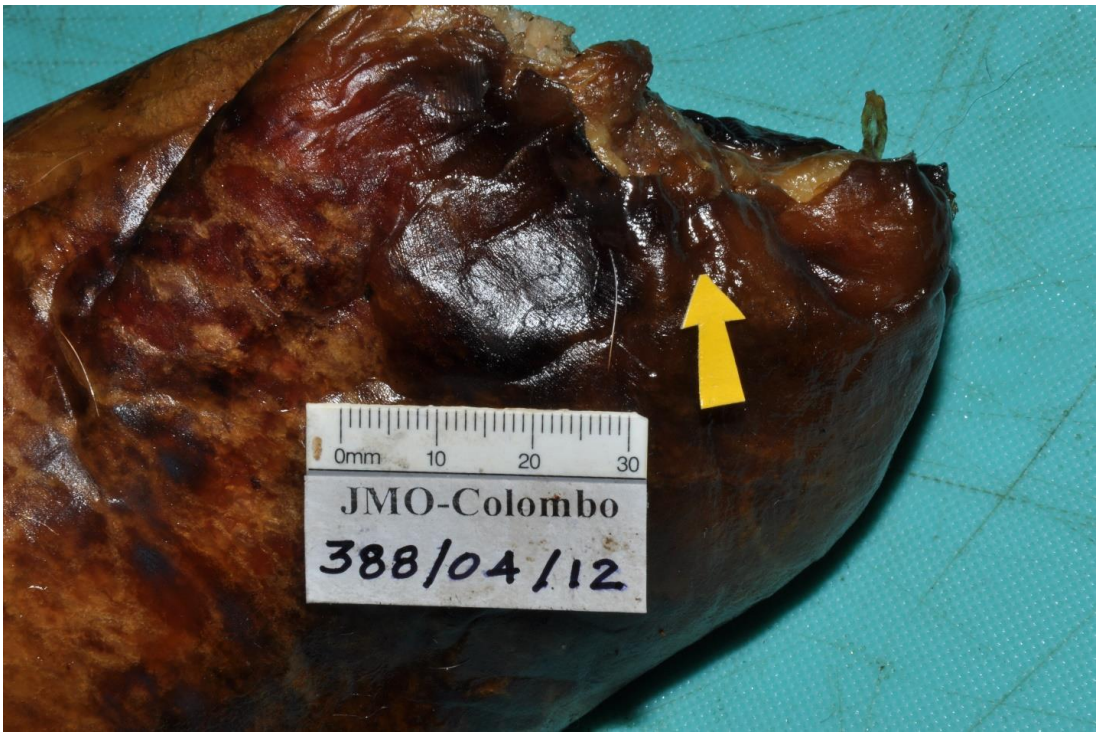

Figure 5: *Puncture wound*

Figure 6: *Scene where the body was recovered from*

REFERENCES

1. Schulz F & Tsokos M. Indoor postmortem animal interference by carnivores and rodents: report of two cases and review of the literature. International Journal of Legal Medicine 1999; **112**:115-9.
2. Rossi ML, Shahrom AW, Chapman RC, Vanezis P. Postmortem Injuries by Indoor Pets. American Journal of Forensic Medicine and Pathology 1994; **15(2)**: 105-9.
3. Ropohl D, Scheithauer R,Pollak S. Postmortem injuries inflicted by domestic golden hamster: morphological aspects and evidence by DNA typing. Forensic Science International 1995; **72**:81-90.
4. Censers and Statistics of Sri Lanka [Internet].[updated 2014 January6] available from: www.statistics.gov.lk
5. Schmeling A, Schmidt S, Hartwig S,Geserick G. Decapitation due to early postmortem canine gnawing. Archiv fur Kriminologie 2004; **214(3-4)**:85-92.
6. Dettling A. Strohbeck-Kühner P, Schmitt G,Haffner HT. Animal bites caused by a song bird? Archiv fur Kriminologie 2001; **208(1-2)**: 48-53.
7. Driever F, Dettmeyer R, Madea B. An unusual area of injury in postmortem animal feeding beneath clothing. Archiv fur Kriminologie 2003; **211(1-2)**: 27-32.
8. Buschmann CT, Wrobel D, Tsokos M. Postmortem animal predation of the genital region caused by a half-bread dog. Archiv fur Kriminologie 2008; **222(5-6)**: 182-6.
9. Tosokos M, Schulz F. Indoor postmortem animal interference by carnivores and rodents: report of two cases and review of the literature. International Journal of Legal Medicine 1999; **112(2)**: 115-9.
10. Tsokos M, Matschke J, Gehl A, Koops E,Püschel K. Skin and soft tissue artifacts due to postmortem damage caused by rodents. Forensic Science International 1999; **104(1)**: 47-57.
11. Sperhake JP, Tsokos M. Postmortem bite injuries caused by a domestic cat. Archiv fur Kriminologie 2001; **208(3-4)**: 114-9.
12. Rothschild MA, Schneider V. On the temporal onset of postmortem animal scavenging "Motivation" of the animal. Forensic Science International 1997; **89:** 57-64.
13. Steadman DW, Wome H. Canine Scavenging of human remains in an indoor setting. Forensic Science International 2007; **173(1)**:78-82.
14. Burkhardt S. Lardi C, La Harpe R. Postmortem partial skelitanization of the face and neck by an Appenzell mountain dog. Archiv fur Kriminologie 2009; **223(3-4)**:117-22.
15. Raekallio J. Estimation of time in forensic biology and pathology- An introductory review. American Journal of Forensic Medicine and Pathology 1980; **1(3):**213-8.
16. Hernández-Cueto C, Luna A, Lorente JA, Villanueva E. Study of cathepsin A, B and D activities in the skin wound edges- Its application to the differential diagnosis between vital and postmortem wounds.Forensic Science International 1987 ;**35(1)**:51-60.
17. Honigschnabl et al. Discovery of decomposed and mummified corpses in the domestic setting – A marker of social isolation? Journal of Forensic Science 2002; **47(4)**: 837-42.
18. Archer MS, Basses RB, Briggs CA, Lynch MJ. Social isolation and delayed discovery of bodies in houses: The value of forensic pathology, anthropology, odontology and entomology in the medico-legal investigation. Forensic Science International 2005; **151(2-3)**:259-65.
19. Wong JK, Blenkinsop B, Sweet J, Wood RE. A comparison of bitemark injuries between fatal wolf and domestic dog attacks. The Journal of Forensic Odonto-Stomatology 1999; **17(1)**:10-5.