MELESON NEWSLETTER
2017

Dr. ALOK ATREYA
(Chief Editor)
Medico-Legal Society of Nepl [MeLeSoN]
776/25, Shanti Nagar, Kathmandu - 34
+977 1 4108560
melesonweb@gmail.com
newslettermeleson@gmail.com
http://meleson.org

MELESON NEWSLETTER 2017

Published by	:	Medicolegal Society of Nepal [MeLeSoN]
Print Year	:	2017
Issue	;	2
Print copy	:	1000 pcs
Chief Editor	:	Dr. Alok Atreya
Cover and Layout	:	Suresh Khanal

Message from President

Prof. Dr. Harihar Wasti
President, MeLeSoN

Medico-legal service with minimal standard for Nepali people is still a dream to be achieved. Not only the ordinary citizens of the country, the stakeholders of crime investigation system; the investigators, the prosecutors and all other component of entire system including the courts are waiting for a proper forensic reports with minimum standards and understandable for all concerned. Because of lacking in relevant and adequate comprehensive forensic evidences, many court decisions are questionable and subjects of debates among people who understand the logics and facts related with various cases. It also results in ultimate justice where an innocent visits in to the jail and real culprits are free to continue their activities without any fear.

MELESON has been established to contribute for improvement of this pathetic condition of medico-legal sector which is never a priority from the side of Government. It is trying to support for understanding about the importance of the subject by responsible authorities and other concerned stakeholders.

Recent few steps of improvement and recognition of medico-legal field can be taken as little hopeful situation as giving importance for medico-legal field and expertise in some of the sections of Muluki Criminal (Code) Ain and Muluki Procedure (Code) Ain 2074. Similar provisions of last year amendment in State Cases Regulation with inclusion and amendment in medico-legal reporting formats are relevant and highly helpful to guide medical examiners. National Health Training Center with the help of MELESON has prepared Standard Operating Procedures in most of the medico-legal cases examination and reporting.

This issue of MELESON Newsletter is one step forward to enable all concerned stakeholders of investigation system. Addressing to injury related cases, Newsletter-II can be taken as basic guideline by beginner Medical Officers, Police Investigators, Prosecutors and members of the Nepal Bar Association to remove many myths which are deeply seated in our mind by wrong traditional practices and guided by nonscientific legal provisions in various laws. This is an attempt to make things more clear and to understand the injuries and their importance in different circumstances.

I like to thank all MELESON members who are interested to be part of advocacy to disseminate on importance of medico-legal field and contributed in the preparation of this issue of MELESON Newsletter.

Message from the editor's desk

Dr. Alok Atreya
Chief editor & Assistant Professor
Dept of. Forensic Medicine
Devdaha Medical College.

A person having a degree in forensic medicine is obliged to do a medicolegal autopsy, however, medicolegal autopsy is not the only duty a forensic expert does. All the medical cases involving legal affairs or legal cases involving medical affairs are to be dealt by forensic experts. This is what we do proudly as we have devoted our lives for the same.

We, medicolegal experts were scattered in all the medical college across the nation. Except for few who were working in government run institutions or institutions were medicolegal cases were granted to be dealt with forensic experts, rest were a mere faculties to teach the subject as a curriculum for medical undergraduates. The irony was medical officers in government run hospitals - who were once students of those experts – are carrying out the medicolegal works and the experts are looking for the work that would makes them swoon with finely tuned intellect and knowledge, apart from lecturing the medical rookies with chalk and duster. Our governing system failed to utilize the forensic expertise. This was the reason a medicolegal society was established in 2016 to unify all the forensic experts scattered within the country with a singular motive "utilize our knowledge and aid in justice".

You are looking into the newsletter which is contributed by medicolegal experts from the country. This second issue is themed upon injury which includes different articles, after going through which the avid readers are aimed to identify and recognize the types injury, its nature, gravity, time of infliction, manner of infliction and proper documentation.

Injury in a simple term is damage in body and also refers to the suffering it caused. Injuries usually refer to those caused by external force. The external injuries are can be well appreciated and easy to determine. However, they might need reassessment to determine the severity of its complication. The internal injuries are tricky, -in a way if we are ignorant about them; it's very likely the accused might be acquitted while the victim might die due to severe injuries or its complication. The injuries can be simple, healing on it to dangerous or debilitating. It is one of the leading causes of disability affected life years (DALY). These injuries have clinical, legal and ethical aspects which a healthcare professional needs to consider while treating them. Any defect or lack in any aspect can lead to injustice to the patient/ victim. Considering the fact that "advice after injury is medicine after death" this issue is brought up with varied articles with images for better understanding.

Content List

Documenting Injuries for Medico-legal use: A "Must Know" to Doctors

Dr. Jenash Acharya, MD
Asst. Prof. Acting Head, Dept. of Forensic Medicine,
Kathmandu Medical College and Teaching Hospital
Secretary, MeLeSoN

Dr. Rijen Shrestha, MD
Asst. Prof., Department of Forensic Medicine
Maharajgunj Medical Campus, IOM, TUTH.

Victims of physical injury are encountered by doctors routinely in their practices. Treatment always comes first in such cases but one cannot ignore one's medico-legal duties as a medical practitioner. This article discusses about documentation of injury in a scientific way alongside treatment procedure carried out.

In relation to fresh injuries

Cleaning the wound:

One must initially note the status of injury when deciding on treatment. The wound may be smeared with fresh blood or clot, dirt, sand or any extraneous substances. Status of adjacent clothes or fibres must be checked for any tears, tatters or melts/singes in case of burn injuries. In cases where body hairs are obstructing the debridement and cleaning procedures, it is wise to shave off carefully, the surrounding area for clear visibility, following consent.

For example: An injury allegedly present at back of the forearm was smeared with dried blood stains and some sand particles. Surrounding fabrics worn by the deceased was torn adjacent to the injury and was smeared with blood and mud too.

(Note: till now the type of injury is not known since it is covered by blood or foreign substance, so it is wise to mention them as injury only. Word *allegedly* is mentioned as the exact location of injury might not be known. In case of firearm injury, the clothes must be removed and stored for terminal ballistic examinations of gun powder residues)

Once the wound is clean:

It is advisable to first take a photograph of the injury. The frame of the photograph must contain a measuring tape (standard cash bill, ex: 10 rupee note in case you don't find a scale in vicinity), a plain background, identifiable anatomical landmark nearest to the injury and the entire injury itself. It is advisable to take as many photographs as possible. While the assistant is busy arranging needles and analgesics, one can measure length and breadth of the injury; which in case of multiple injuries can be done simultaneously keeping in mind the *grievousity* factor.

Type of injury and its depth (in case of lacerations and cuts) can be assessed with naked eye under good light and need not necessarily involve magnifying glass as mentioned in some textbooks. The features and dimensions of measured injuries are best written in a scrap book but must be properly documented later. One may try and

remember the dimension if only one injury is present, but in cases of multiple injuries, an attempt to remember would merely be a non scientific number game.

Get done with treatment procedure:

One must not start documenting injuries till every detail of the wound is noted. Protocol is to finish with treatment. Depending on grievousity of the injury, treatment might range from simple dressing or suturing to surgical interventions like open laparotomy. It is the duty of first respondent to ensure that the victim reaches the right place in right time. After handing over the patient, history of occurrence of injury can be noted down from the admission form filled earlier. In case a detailed history is needed, accompanying person or patient can be sought for, once the life threatening conditions are over. We need not try and explore too much into the history of incident as it is the investigating officer's duty and one should not take the role of an amateur crime solving detective. But any crucial information that the victim provides can be personally informed to police in case the victim is unconscious following handover.

Documentation of injuries:

There are a few *words/terms* which one must not leave out while preparing a report of medico-legal significance which are: *type, size, site, location, colour* and *direction* that can be easily applied or related to any object, person, buildings; and injuries.

With *type* of injury, we understand the weapon of offence either falls under category of blunt force or sharp force. Examples are words like abrasions, contusions, lacerations, scratch, fractures (except cut fractures), hematoma, etc which amount to blunt force injuries and words like cut, slash, stab, swipe, chop, slice, sharp bevel, etc amounting to sharp force.

Understanding the word *size* in relation to injury is not that complicated too. It's simple length and breadth measurement using a scale or in case of a good photograph it can be verified between two experts anytime later. Measurement can get a bit confusing when it comes to depth of injuries, where one should not attempt to insert any probe to measure it following cleaning process or at any point of time before treatment. To make things simple; now we mention the depth as we see it. If we see whitish adipose, we call it adipose deep, we see muscle we write muscle deep and if bones are visible; bone deep. Complicated ones are penetrating wounds and stab wounds when it comes to description. In such cases, depth of stab wound can be determined by radiologists, surgeons or God forbid autopsy surgeon! Stab wound with length and breadth when visible externally is advisable for such procedures; unless the depth of body cavities is visible grossly.

Location and site can be confusing terms when used separately. So to make it relevant later, we shall understand what we get in our heads when they ask us site and location of our own house. It is at Sinamangal, 5 feet north from the tree at the centre of the road.

Where is the wound? It's on frontal aspect of right hand (*Site*), 10cms below the front of elbow joint (*Location*). Site is the region where injury has occurred and location is its relation in length with nearest two anatomical landmarks, preferably making a right angle to each other. Anterior midline, top of the head, posterior midline, mid axiliary line, etc

run throughout the body and are used widely by experts when no regional landmarks are present around the injuries.

For example: any injury 2cm below top of head and 5cm right from anterior midline would pinpoint the location than writing it as 2cm below top of the head and 2cm above left eyebrow, later is probable to fall anywhere on left side of forehead.

Right and left side of the body symmetry is usually confusing when someone is doing it for the first time. It must be understood that right and left are mirror image of the person examining it from front. With good medico-legal documentation: after reading the injury report, one must be able to make a mental picture of the wound and its location even after years of incident.

Colours are complicated and explaining true colours need expert's view. But we use very less colours here. Red is fresh, anything brown, blue, white/yellow bordered, scabs are healing wounds. Yellowish mucous and pus are words for infected wound and a word *hypo-pigmented zone* means the wound has freshly healed. We do not try and classify a healing wound and make the document a medico-legal joke if the guess turns out to be wrong. All healing injuries are healing injuries. It may have surrounding infections but it would be wrong time to make a guess until and unless you are sure about the depth of injury involved or you are a surgeon operating the wound or familiar with imaging results.

In reference to healing or healed injury

Example: *A healing injury, with centrally located yellowish pus, measuring 4x5cm is present on.....*

"A healing laceration, measuring....." would be a guess until it is mentioned earlier in hospital notes; because the borders of healing wounds cannot be determined at their healing stage. W*ounds always heal from periphery to central.* Big healing wounds with surrounding fresh scratch abrasions for example can be self inflicted and suggestive that the bigger wounds are healing are of interference.

Direction of the force applied can be understood best by forensic medicine experts who may not be available at the time of need. This is where we need to go more into details of every injury type. Heaping of soft tissue in cases of grazed abrasion means that the graze/frictional force were coming from the opposite direction towards the heap. Bevelling of soft tissue explains direction of chop sharp force and tailing is how an incised wound ends. Bevelling of skull bones are seen towards the direction of force in firearm or blunt force penetrating injuries to the bone.

*An incised wound measuring 11x4cm, tailing downwards, is present on....*means the direction of sharp force was above downwards.

Some examples of documenting injuries:

- A grazed abrasion (*type*), measuring 28X16cms (*size*), reddish in *colour* is present on the outer aspect of left thigh (*site*), 12cms below the left superior iliac crest and 11cm above the knee joint(*location*). Heaping of skin is visible on the proximal part of the abrasion (*direction*: *frictional force from below- upwards*).
- A scratch abrasion (*type*), crescent

(*shape)* in shape, measuring 2cm long (*size)* is present on tip of nose (*site, location*).

Note: Shape of the injury can also be mentioned if needed or if it implies to causative weapons in some extent. Here, crescent shape would hint on a finger-nail mark, but one cannot be sure of it to write as such. Breath of the injury was not mentioned as it was too small to measure. We need not measure anything less than 0.1cm. For dotted injuries like those produced by pricks of needle, word *punctuate* abrasion can be used. Linear abrasions are those with variable length but breath less than 0.1cm, exemplified by a long linear scratch caused by thorns in an attempt to pluck rose from a bush. *Site and location* of the injury are same e.g.: A person can have only one tip of nose. Has the injury been anywhere on the bridge or ala, we mention so and is not advisable to measure it from top of head. Other examples can be right maxilla, left nipple, left iliac spine, lobule of right ear, etc.

- An avulsed laceration, measuring 28X7cm, abdominal cavity deep, is present on outer aspect of left side of abdomen, exposing underlying contused omentum, lacerated small and large intestine and pulverised left lobe of liver with collection of estimated 100ml of blood in peritoneal cavity. Entire lower half of the body is smeared with dried blood stains and sand particles. The proximal end of the injury is present 4cm below left sub-costal margin and the distal end is 9cm above the left iliac crest along mid axiliary line. (*as seen in victim of run over injury by a truck*)
- A healing injury, measuring 4x2cm, with depressed edge and margins and hypo-pigmented periphery is present at the back of the trunk, along posterior midline, 3cm above coccyx. Floor of the wound is covered with yellow purulent pus.

  Note: It is well understood from the report that the injury is healing *(peripheral hypo-pigmentation)* and infected (*pus*). The description is suggestive of an ulcer, moreover a decubitus ulcer, but it is always wise to explain it as proper ulcer in court of law whenever needed, and better to include features of wound during documentation.
- One can choose individual method to interpret the injury but should not forget to mention its type, size, site, location, colour and direction (whenever applicable).

Acknowledgement is due Professor Dr. Hemang Dixit, Chairman, Medical Education Department, Kathmandu Medical College and Teaching Hospital for moderating the article and providing valuable suggestions for scientific and medico-legally practical injury documentation.

Bruise- Medicolegal significance and problems to be faced during its examination

Dr. Bibhuti Sharma
Resident, DoFM,
MMC, IOM, TUTH

Introduction: Bruise are the injuries resulting from the blunt trauma that compresses, stretches, and lacerates blood vessels allowing blood to escape into soft tissues. Bruise at its simplest can be considered as the discoloration of the skin surface resulting from the leakage of blood into underlying tissues as a result of the damaged blood vessels. Bruise results when blow to the body surface doesn't break the skin but does break the blood vessels beneath the skin. The red blood corpuscles break down, and their pigment, hemoglobin, undergoes chemical changes which account for the sequence of different colors in the bruise. Bruise is two dimensional injury and is always measured in terms of length and breadth. The weapon of offense is blunt object.

The word bruise usually implies that the lesion visible through the skin or present in the subcutaneous tissues, while a contusion can be anywhere in the body including internal organs, such as the spleen, mesentery or muscles. The two words are often interchanged at random, however, though bruise is to be preferred when a doctor gives report or evidence to a non-medical audience.

Size of hemorrhage

0.1mmto 2 mm, it is termed as petechial hemorrhage.

2 mm to 5 mm, it is termed as ecchymosis.

More than 5 mm, it is termed as bruise.

Both ecchymoses and petechiae are not usually caused by direct mechanical trauma and are often seen on serous membranes and conjunctivae as well as on skin. However, moderate pressure, impact or, especially, suction on the skin can produce a patch of localized petechiae.

Initially red in color (Due to Oxy hemoglobin) Bright red with slight pale area.
Few hours to 3 days : Blue in color (Due to deoxyhemoglobin)
4th day : Bluish black/ brown (Due to hemosidderin)
5th to 6th day : Greenish (Due to Hematoidin/ Biliverdin)
7th to 12 th day : Yellow (Due to bilirubin)
2nd week : Normal skin color

AGE OF BRUISE

Medico Legal Significance

- Age of injury, if patterned contusion, the weapon and object used can be determined.
- Clusters of small discoid bruises of

about a centimeter in diameter are characteristic of finger-tip pressure from either gripping or poddling-often seen in child abuse during poking on chest, abdomen and thighs. Due to their sizes once called as "six penny bruises'.

- Bruises from the fingertips on the neck of children or adults –manual strangulation
- Tramline or railway line bruise: - when the skin surface is struck by a rod or rectangular sectioned object such as stick, two parallel lines of bruising with an undamaged zone in the center is seen. They can be considered in torture victims in custody, etc.
- Love bites- shower of small petechial lesions caused by oral suction on the skin can be of significant importance in cases of sexual assault.
- Black eye- not all black eyes are due to blow in the orbit but can also be the result of the fractured orbital roofs and others are the result of gravitational movement of a forehead injury.
- Battle sign- not all post auricular bruises are due to direct blow to the ear but is due to the hemorrhages associate with the basilar skull fractures.

Difficulties to be faced during examination of bruise

Postmortem lividity: - hypostasis simulates contusion so to differentiate it from contusion we need to incise over the area and stream of water is applied over it. If washed away it is postmortem hypostasis but if not washed it is contusion.

Phenomenon of delayed bruising: -Sometimes new bruises appear late when none was visible at an autopsy performed soon after death. This is partly caused by continued bleeding from the ruptured vessels, but mainly by percolation of free blood from its origin deeper in the tissues upwards toward the epidermis. The other factor may be hemolysis, when the freed hemoglobin is able to stain the tissues in a more diffuse way and become more noticeable than intact red blood cells. Thus, the phenomenon of delayed appearance should be appreciated to avoid potential dispute that may arise with two different findings from two different experts at two different time of autopsy performed on same body.

Especially in congestive deaths, such as pressure on the neck, the venous system may be engorged at death and a number of artefactual hemorrhages may occur particularly between the esophagus and cervical spine may simulate manual strangulation. Therefore, it is advisable to remove the brain before dissecting the neck region to allow drainage of the engorged venous plexuses that give rise to artifact.

The shape of the bruise may not correspond to the offending weapon as a result of swelling of the tissues.

The site of bruise does not always indicate the site of the impact thus for the true determination of the site of injury detailed and though autopsy is required and is determined at autopsy.

Direction of force of impact cannot be deduced by the bruise.

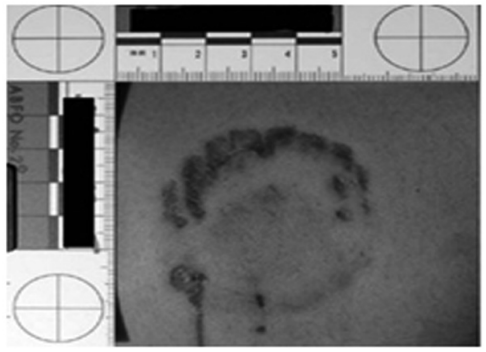
Age estimation of bruise is difficult in dark skinned people and may be masked by the postmortem hypostasis.

Artificial bruise are often produced over the body for purpose of malingering by various agents like semicarpus anacardium and should be differentiated from true bruise.

Bite marks

Dr. Ahana Shrestha
Resident, DoFM
MMC, IOM, TUTH.

Bite marks are special type of patterned injury which may be abrasion, bruise or laceration or a combination of any of these.
A human bite mark may present only a small part of dental arcade, caused by the front teeth from canine to canine with an almost invariable gap at either side representing the separation of upper and lower jaw. It is usually near circular or oval. A deep parabolic arch or a U-shape can only be of animal origin. Animal bites are often associated with lacerations in case of dog bites. On occasions the bites may be mistaken for stab wounds. Bites from cats often have associated scratch and claw marks.
Bite marks can be seen in sexual assaults, child abuse and occasionally on the sports field. Their recognition is important because of the potential for matching the bite mark to a suspect in a given case. They may also be inflicted on police officers when attempting to arrest or resisting offenders. During assault they may be sustained when the victim manages to bite the assailant. Some bite marks are self-inflicted to fabricate injuries for a variety of motives ranging from gain to psychiatric disorder. Multiple bite marks, especially suction type, seen over accessible area of shoulder and arms raise the suspicion of self-infliction, especially in older children and teenage girls.



Bite mark found in the buttock of victim of sexual murder in USA (1978). It was this bite mark that was primarily responsible for the assailant's conviction.
Source: wrongfulconvictionblog.org.

Bite marks in sexual assaults:

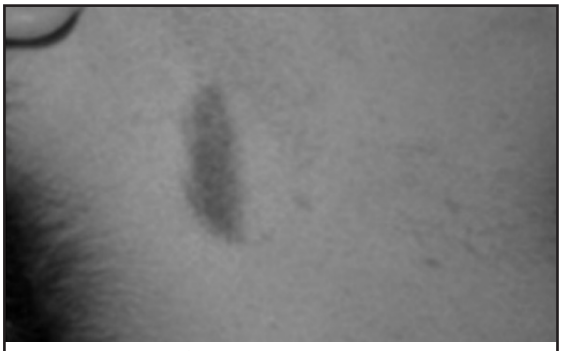
A forensic expert will need to examine bite marks in living victims of alleged assaults or during autopsy in cases of sexual murder. In these type of crimes, bites may be sexually oriented or be distributed on any part of the body. The common sites are breast and nipples, neck, shoulder, thigh, abdomen, pubis or even vulva.

Bite marks in child abuse:

Bites can be anywhere on infant, common sites being arms, hands, shoulders, cheeks, buttocks and trunk. Common excuse from parents: infant was bitten by another sibling/family dog/self-inflicted. It is therefore vital that the bite mark be properly examined to determine whether it is small enough to have come from another child or of different shape indicative of an animal.

Love bite:

Suction can produce a crop of punctate hemorrhage, either small petechiae or larger ecchymosis merging into a confluent central bruise caused by firm application of lips, which forms an air tight seal against the skin.



Classical love or 'hickey' bite to neck caused by suction. Source: Simpson's Forensic Medicine

Love bites are often seen but not confined to neck, breast and thigh of women during foreplay. Love bites may be seen in victims of sexual assaults too.

Investigation of a bite mark:

The major problem with a bite mark is the identification of a perpetrator which cannot be tracked without the expertise of a Forensic Odontologist. Therefore, every effort should be made to obtain the best evidence for future specialist examination.

First the bite mark should be carefully and fully photographed. The photograph should be taken from several different angles, especially from directly perpendicular view with the plane of the film at right angle to that of the lesion with an accurate scale adjacent to the lesion, as close as possible but not impinging upon it or obscuring any detail. The use of ABFO No 2 scale is important in taking photographs of bite marks.

Bites on curved surface such as face, breast or arm can never be reproduced exactly on a flat film, as there is bound to the foreshortening at the ends. But several views at slightly different angles can overcome this problem.

When photography is completed, swabs of the bite should be taken. Approximately 80% persons are secretors of basic blood group substance into body fluids and in these individuals the blood group antigen can be identified. But the test must be carried out rapidly since proteolytic enzymes in the saliva will destroy the antigens. Plain cotton wool swabs are gently rubbed onto the bite, some experts recommend slightly moistening them first with water or saline. They should be deep frozen unless sent straight to the serology lab.

If facilities are available and someone has the expertise, an impression of the bite can be made. It is usually made with a rubber or silicon based medium containing a catalytic hardener or even water based paste, such as plaster of Paris can be used but these have the disadvantage of potential damage to the actual bite.

After autopsy, it is also possible for the whole area of the skin carrying the bite to be removed and preserved in formalin for future examination. But the shrinkage and distortion afterwards would make this specimen of limited value for detailed tooth matching.

Conclusion:

Thorough analysis of size, position, gaps, rotation angle and other features may help in drawing conclusions about the implication and exclusion of suspect/suspects in the crime, thus helping the judicial system. The consequence of inappropriate and inaccurate bite mark conclusions may lead to miscarriage of justice. Also, the bite mark can be distorted by the elastic properties of skin and anatomic locations. Therefore, every effort should be made to obtain best evidence for further analysis by Forensic Odontologist.

Importance of examining coup and contrecoup cortical contusions in head injuries.

Dr. Arbin Shakya
Resident, Dept. of Forensic Medicine,
MMC, IOM. TUTH.

Head injuries are commonly sustained during physical violence and accidents. Among various types of head injuries, cortical contusions can provide clues regarding the mechanism of injury sustained. During medicolegal autopsy it is important to give opinion regarding the mechanism of injuries that the victim had sustained, whenever possible. These opinions can have legal consequences, so a careful interpretation of these findings should be made during autopsy.

Cortical contusions are collection of blood in cortical layer of brain due to damage to vessels with intact cortex; produced by blunt trauma to the head. It appears bluish to purplish red in colour usually confined to cortex. The lesion appears wedge shaped with base on surface, tapering away into the deeper layer.

Cortical contusions can be either coup or contrecoup:

Coup contusion: Contusions located beneath the area of impact as a result of impact. When a moving object strikes the head site of maximum cortical contusion is beneath of at least on same side as the blow. This is due to sudden acceleration of head which moves the head (cranium) and strikes the stationary brain.

Contrecoup contusion: Contusions located opposite to the side of impact. Contre coup contusions are produced when a moving head is suddenly decelerated by striking a firm surface. The sudden deceleration or arrest of head (cranium) strikes the brain which is still in motion. Another reason for contrecoup contusion is formation of vacuum in the cranial cavity on side opposite to impact, the vacuum exerts a suction effect which damages the brain. Contre coup contusions are mostly produced on tip or undersurface of frontal or temporal lobes when the brain

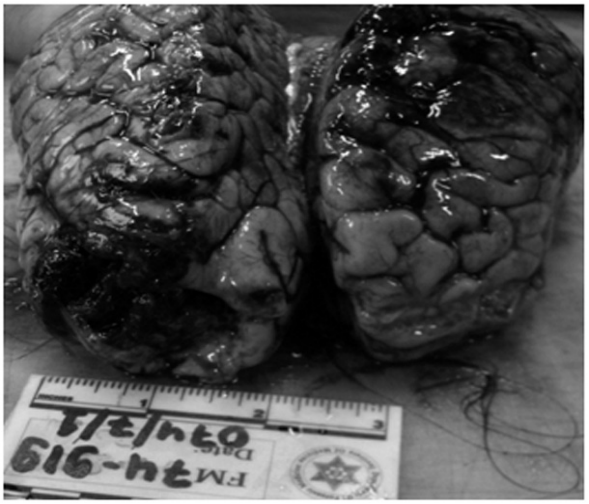


Figure: Showing coup and contre coup contusions.

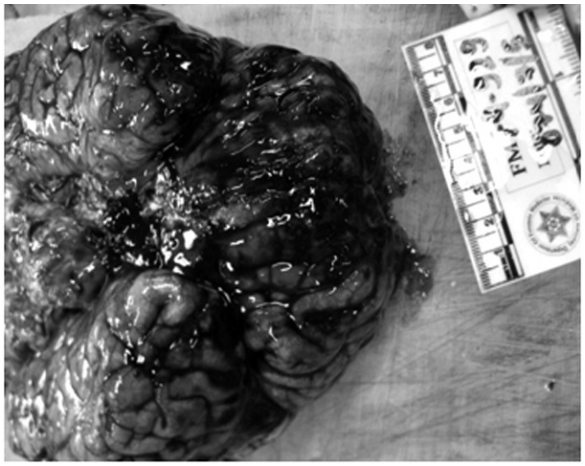


Figure: Showing contre-coup contusions over inferior aspect of temporal and frontal lobes.

strikes the relatively uneven cranial bone.

The site of impact is determined by injuries over the scalp, contusions or hematomas over reflected scalp and fracture on the cranial bone. Sometimes, the presence of epidural hematoma also indicates site of impact.

The cortical contusions can be associated with other types of brain injuries like epidural hematoma, sub-dural hematoma and sub arachnoid hemorrhage. In presence of sub-arachnoid hemorrhage the cortical contusions could be missed as they are covered with the sub-arachnoid blood collections. In such cases, the arachnoid membrane should be peeled off and then washed with water, which will reveal the cortical contusions underneath.

Cortical contusions are collection of blood in cortical layer of brain due to damage to vessels with intact cortex, produced by blunt trauma to the head. It appears bluish to purplish red in colour usually confined to cortex. The lesion appears wedge shaped with base on surface, tapering away into the deeper layer of cortex.

Medico-legal significance:

1. Coup contusions are most likely produced during physical assault when the head is striked with blunt objects.
2. A contre coup contusion indicates that the injury was most likely sustained as a result of fall. Coup contusions along with contre coup contusions can also be seen in cases of fall injuries. So, before giving opinion, we also need to consider other factors like:

a. Other external injuries which might indicate fall. These injuries include abrasions or contusions over bony prominence (elbow, knee, knuckles, forehead, Zygomatic prominence).

b. Circumstance of death scene.

3. These findings can help us to correlate the history provided by the witnesses and the injuries. Hence, help us decide whether the history provided is consistent with our findings or not.

Since, the presence or absence of cortical contusions can have significant medicolegal impact, these findings should be searched in all cases of head injuries. These lesions can be identified on gross examination and requires no special techniques to demonstrate.

Domestic Violence: Who is to blame?

Dr. Archana Chaudhary,
Lecturer, Dept. of Forensic Medicine
KMCTH, Kathmandu.

Nepali culture, society and religious traditions have always been a bane to social status of any Nepalese women. The culture has been badly implemented in marital aspect where women are treated as mere slaves of their husband. No matter how affluent society or reputed family these female belongs to or how competent she is in her field; being women she is not expected to refuse her husband, even when he stands wrong. With modernization of thoughts and exchange of cultures globally, marital story in this part of world is not getting any better, and amounting to more of violence against women and gender discrimination. The worse scenario is not only that very few cases get reported; but once reported and legal trial held, the women is left with nowhere to go but back to the perpetrator; as culturally female cannot return to her mother's place once she is married. In the same society, word divorce itself is a taboo.

Implementation of fine and few months of jail cannot change his behavior in a better way. All it adds is the feeling of rage and revenge of husband against the same women. Hence, judicial system is equally non-healing to the wounded women fighting for her safer life.

Very first thing that needs correction is the physical and genital examinations done by untrained medical practioners seeking evidences to fight for rights in cases where sexual violence is involved, which must be done by forensic experts or trained medical personnel. There is no point doing such examination of less evidential value.

Real life stories mostly encountered by my department are from well educated women married to a reputed persona, carrying dreams of living a happily married life. But, from the very first week or even first day; she is abused physically, sexually and harassed under influence of drugs and alcohol if not with underlying psychiatric conditions.

One cannot share this story back home to their parents in a week's time, so they wait longer to be abused till some day she gathers courage to make a complain, and they reach us. And till date, no one wants to file a police complaint, for same reasons mentioned above; there is no safe last resort.

Once she steps out of our doorsteps; we, who witnessed multiple injuries of different ages on part of body exposed and regional alopecia (hair loss) probably as a result of hair pulling, can say nothing else but to stay strong, imagining how much suffering she shall overcome this night. Until and unless police requisition letter is addressed to us, we cannot prepare any medico-legal document which she can use in court of law. When suggested to file a complaint; they are afraid of being victim of even severe form of

abuses following hearing from court of law. Some of these victims are lucky if they get to fly away into foreign country and start a new life; but for rest, it is a dream that comes later in life as psychiatric tagging of post traumatic stresses disorder, depression or even schizophrenia. That is when the woman is pronounced insane or even witches of the same society. She may also be blamed for attempting failure of marriage. Gossiping on her character and moral, all surrounding friends becomes her foes, which may heighten to maximum limits if she has a male friend or she drinks and smokes.

Being a human we fail to feel another human's pain and suffering. The weakness is within us as a human, as a person, as a society and as a nation to not be able to save her. The God has created this world; God never differentiated between women and men and gave equal capability to conquer the world.

Sufferers are parents of the women and family back home, who even after knowing the fact of their child being abused; are hurt and quiet at the same time, hoping bad times shall pass. And when courts say there is no enough evidence suggestive of domestic violence, there are no options left for her pain-free life, and opt for the final destination in the form of suicide.

During autopsy the cause of death is given based on the method she chose to end her life, examples could be poisoning, hanging, fall from height or even drowning. The descriptions of injuries present on her bodies tell many stories but court tend to focus on conclusions only, let alone the un-measurable mental injuries she suffered till date.

Being a human we fail to feel another human's pain and suffering. The weakness is within us as a human, as a person, as a society and as a nation to not be able to save her. The God has created this world; God never differentiated between women and men and gave equal capability to conquer the world. It is not only the women who are in pain but all men should also raise voice against domestic violence as at some point of any man's life, women are also found to play a role of their sister, mother, wife and daughters.

Laceration

Dr. Suraj Sharma
Resident, Dept of Forensic Medicine,
MMC, IOM, TUTH

Splits or tears in the skin due to blunt force injury are lacerations. They are more common where the skin can be compressed between the applied force and the underlying bone. They are rare over soft, fleshy areas of the body like buttocks, breasts and abdomen. The margins of a laceration are usually ragged. The shape of the laceration rarely reflects the nature of the impacting object unless accompanied by other patterned blunt force injury.

Lacerations can be very minute to very severe. There are associated abrasions and bruising with laceration. A blunt round end may produce **stellate laceration**. A hammer may produce **crescentric laceration.** A pipe may produce **linear laceration.** A flat object may produce **irregular, ragged or Y-shaped laceration.**

Lacerations differ from incised wounds in that continuity of tissues is disrupted by tearing rather than incising. There is persistence of tissue strands across the interior of the wound in laceration whereas

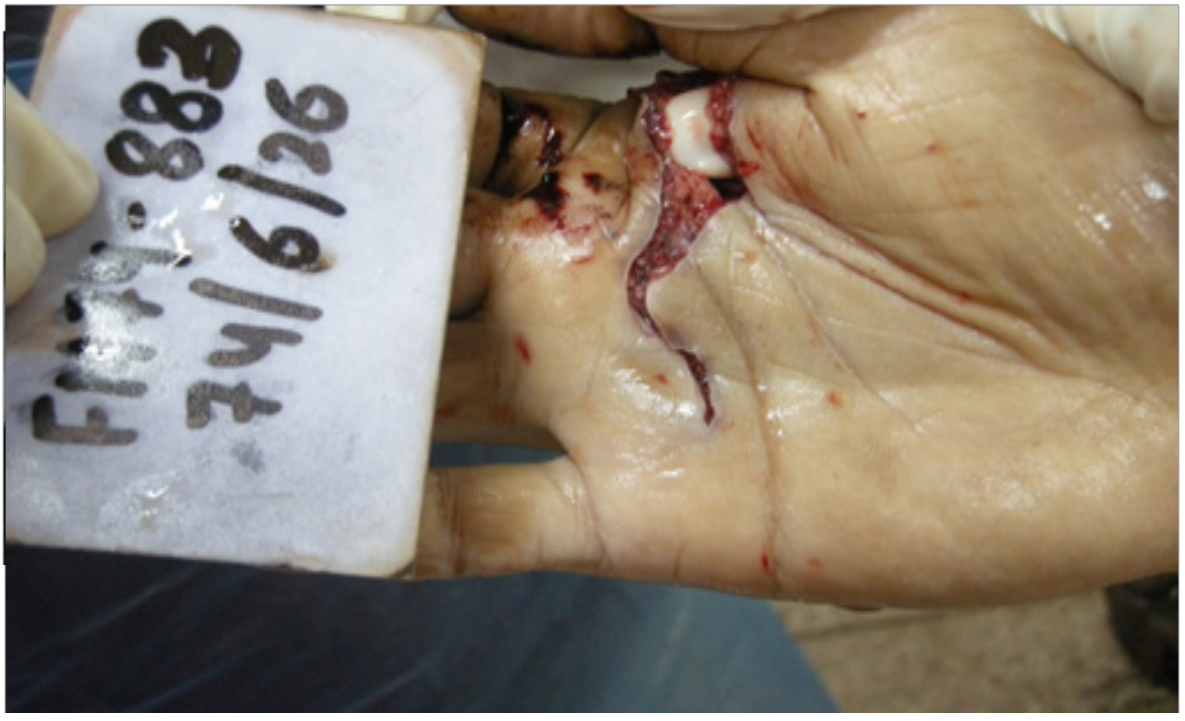


Figure Source: Department of Forensic Medicine, MMC, Maharajgunj

they are divided in cases of incised wound. Intact hairs can survive to cross laceration but not in case of incised wound.

Deaths from blunt force trauma are common cases encountered by forensic experts. Severe deep scalp lacerations may overlie a skull free of fractures, brain injuries or hemorrhages.

Lacerations are of **various types**: Split lacerations, stretch lacerations, shear or avulsed lacerations and tears. Split lacerations occur by crushing of the skin between two hard objects. Stretch lacerations are seen in running over by vehicles. Avulsion lacerations are produced by shearing forces delivered at an acute angle to detach a portion of traumatized surface or viscus from its attachments. Tearing of skin can occur from impact by or against the irregular or semi-sharp objects such as door handle of a car. When a heavy and sharp-edged object is used as weapon of offence it produces a chop wound, however if the edge is not sharp enough (due to rust or excessive use) then such instruments may produce injuries which are designated as cut laceration. Such injuries can be recognized if the margins are abraded.

Lacerations can also occur in various organs like liver, spleen, brain, uterus, vagina etc. Cerebral laceration is a traumatic brain injury where the brain is torn. It presents with signs of lucid interval with no change in level of consciousness. The level of consciousness will decrease as the laceration bleeds. Perineal, vaginal and uterus lacerations can occur during child birth. These lacerations if not repaired lead to genitourinary and sexual problems. Lacerations of the internal organs are produced by direct injury of the viscera by fragments of fractured bone, development of traction shears or strain shears in viscera, stretching of the visceral attachments, hydrostatic forces.

Suicidal lacerations are usually present over the exposed parts. **Homicidal lacerations** are usually present over the head.

Regarding medicolegal importance of laceration, the type of laceration may indicate the cause of the injury and the shape of the blunt weapon. Foreign bodies found in the wound may indicate the circumstances in which the crime has commited.

Ectopic Bruise

Dr. Malshree Ranjitkar,
Lecturer, Dept. of Forensic Medicine
KMCTH, Kathmandu

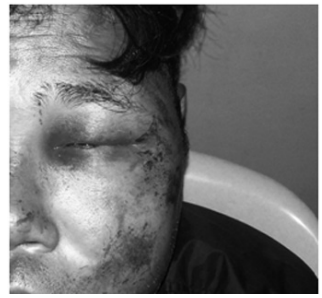
A contusion or bruise results from leakage of blood due to rupture of blood vessels (veins, venules & arterioles) into surrounding tissues following blunt force trauma. Bruising is most commonly seen in the skin, but it can also occur in the deeper tissues, including muscle and internal organs. For e.g.: when we bump into a cupboard or a person is hit by a wooden stick or any blunt objects.

A bruise may appear at the site of application of mechanical force or it may appear at distant site from the initial impact source. Bruise which appears distant to the site of injury is called ectopic bruise. Ectopic bruise is also known as migratory bruise or percolatory bruise. The extravasated blood may move along tissue planes under influence of gravity and it gets collected in the distant site. These bruises may take longer time from hours to days to appear in the surface.

While examining the injured patient for the first time, ectopic bruise may not always be visible. A second examination of the same injury should be carried out, which usually happens after 48 hours of injury production.

These are few examples of ectopic bruise:

1. Black eye or 'Raccoon's eye' or 'Spectacle sign' caused by either direct trauma, blunt force trauma to forehead or due to fracture of floor of anterior cranial fossa.
2. Bruise behind ear indicates basal fracture; also called 'Battle sign'.
3. Bruise over neck due to fracture of jaw bones.
4. Bruise on thigh due to pelvic bone fracture.
5. Bruise around knee due to impact on outer part of thigh.
6. Bruise over ankle due to impact on calf of the leg.



It is difficult to assess age in ectopic bruise as it may take longer time to appear, so time since infliction of injury cannot be assessed more accurately as in case of the bruise in general. It is not uncommon that the location of exact region of impact can be misinterpreted by many untrained eyes. Due to this reason, injury examination and documentation should be performed by the specialists or by those who have received adequate trainings in this field of forensic medicine. Then only, these hideous injury impressions over the body can be easily detected and documented. Hence forth, we can contribute in the fruitful outcome of different legal proceedings in the court of law.

गलाको पासो, हत्या कि आत्महत्या ?

डा. आलोक आत्रेय
उप प्राध्यापक
देवदह मेडिकल कलेज, रूपन्देही

सामान्यतया घाँटीमा पासो लगाएर झुन्डिएको लाशलाई प्रतिकूल बस्तुस्थिति र अन्य तथ्यहरूले न नकारेसम्म आत्महत्या नै मानिन्छ । मृतक उमेरको हिसाबले युवादेखि वृद्ध र लिङ्गको हिसाबले पुरूष वा महिला जो पनि हुन सक्छ । आत्महत्या गर्दा एकै तरिकाबाट मृत्यु नभएमा अन्त्यमा झुन्डिएर मर्ने गरेको पनि पाइएको छ ।

सानो बच्चा, मादक पदार्थ सेवन गरेर लठ्ठिएको, टाउकोमा हानेर अचेत पारिएको वा असक्त व्यक्ति वाहेक अन्यलाई एक्लैले बिना कसैको मद्दत गलामा पासो लगाएर झुन्डाउन सम्भव हुँदैन तर दुई वा दुईभन्दा बढी व्यक्तिहरू मिले भने झुन्डाएर हत्या गर्न सक्छन् । यस्तो अवस्थामा पिडितलाई घिसारेको, लतारेको चिन्ह शरीरमा भेटिन्छ ।

हत्या गरिसकेपछि हत्याराले पासो लगाएको डोरी आफैसँग लिएर जाने वा लुकाउने गर्दछन् तर आत्महत्यामा पासो लगाएको डोरी लाश कै घाँटीमा हुन्छ । हत्या हुदाँ आफुलाई बचाउन मृतकले पासो समाएर अगाडि तान्न खोज्दा उसका नङका निसान पासोको डामका तलमाथि देखिन्छन् । थाइराइड र श्वासनलीका केही भागमा घाउ चोट देखिन्छन् तर आत्महत्यामा सग्लै हुन्छन् । आत्महत्यामा पासो बनाउन प्रयोग भएको डोरी अड्काउन कुर्चीको वा अग्लो बस्तु प्रयोग भएको हुन्छ जुन घटनास्थलमा भेटिन्छ ।

आत्महत्यामा पासोको डाम वा पासो घाँटीमा रूद्रघण्टी र चिउडोको बीचमा हुन्छ भने पासो लगाएर मारेको व्यक्तिमा पासोको डाम, रूद्रघण्टी वा त्यसको तल हुन्छ । आत्महत्यामा पासो गलाको माथिल्लो भागबाट गलाको पछाडी र माथि तिर गएको हुन्छ । उक्त पासोले घाँटीलाई दाहिने वा देब्रे तिर च्याप्दा सोहि तिरको आँखा खुल्ला रहने र आँखाको नानी पनि ठूलो हुने हुन्छ । हत्यामा भने घाँटीमा पासोको डाम तेर्सो परेको हुन्छ । जिब्रो पनि आत्महत्यामा भन्दा हत्यामा मुख बाहिर बढी निस्केको हुन्छ । पासो लगाएर झुण्डाइएको लाशमा भन्दा झुण्डिएको लाशमा

आत्महत्या पुष्टिगर्न सहयोग गर्ने तथ्यहरूमा हस्तलिखित आत्महत्या पत्र, एकान्त परिवेश, सजिलै प्रग्न सकिने झुन्डिने ठाउँ र सहजै उपलब्ध हुने पासो बनाउन मिल्ने डोरी आदि पर्दछन् । मृतकको शरिरमा विषादि भेटिए पनि पासो लगाएर मरेको होइन भनेर भन्न मिल्दैन ।

मुखको कुनाबाट च्याल चुहिन्छ ।

पासोको डामले हत्या वा आत्महत्या छुट्याउन गार्हो हुन्छ । यदि नरम कपडा पासोको रूपमा प्रयोग भएको छ भने त्यसको डाम घाँटीमा नदेखिन पनि सक्छ । यदि मसिनो डोरी वा तार प्रयोग भएको छ भने त्यसले गहिरो डाम बसाल्छ र कहिले काँही घाँटी रेटिएको जस्तो पनि देखिन्छ ।

मान्छेको मृत्यु भैसकेको केही दिन पछि लाशलाई ब्याक्टेरियाले कुहाऊन थाल्छ । यसरी लाश कुहिँदा त्यस मृत शरीरमा विभिन्न थरीका ग्याँस बन्न थाल्छन् जसले शरीरलाई फुलाऊँदछ । गलामा टाई लगाएको

हत्या गरिसकेपछि हत्याराले पासो लगाएको डोरी आफैसँग लिएर जाने वा लुकाउने गर्दछन् तर आत्महत्यामा पासो लगाएको डोरी लाश कै घाँटीमा हुन्छ । हत्या हुदाँ आफुलाई बचाउन मृतकले पासो समाएर अगाडि तान्न खोज्दा उसका नङका निसान पासोको डामका तलमाथि देखिन्छन् ।

कुनै लाश दुई-तीन दिन पछि फेला पर्यो भनेपनि त्यसको गलामा पासोको निशान जस्तो चिन्ह देखिन सक्छ ।

डोरीलाई पासोको रूपमा प्रयोग गर्दा यदि एक फन्को छ भने आत्महत्या र एक भन्दा बढी फन्कोलाई हत्या मान्ने गरिए तापनि आजभोली डोरीको फन्कोको आधारमा हत्या वा आत्महत्या निर्क्योल गर्नु अवैज्ञानिक मानिन्छ । मैले मेडिकोलिगल प्रशिक्षणमा रहँदा थुप्रै आत्महत्याका शव देखेको छु जसका गलामा पाँच-छ फन्को सम्म नाईलन र जुटका डोरी बेरीएका थिए र फन्को पारिएको तिरको डोरिको फेर चाँही सुर्के गाँठो वा फुर्के गाँठोमा टुङ्गिन्थ्यो।

आत्महत्या पुष्टिगर्न सहयोग गर्ने तथ्यहरूमा हस्तलिखित आत्महत्या पत्र, एकान्त परिवेश, सजिलै पुग्न सकिने झुन्डिने ठाउँ र सहजै उपलब्ध हुने पासो बनाउन मिल्ने डोरी आदि पर्दछन् । मृतकको शरिरमा विषादि भेटिए पनि पासो लगाएर मरेको होइन भनेर भन्न मिल्दैन ।

मृतकको शरिरमा घाउचोटका निशानहरूले हत्या नै हो भनेर किटान गर्न सकिदैन । मृतकले आफ्ना हातपाखुरा र गला काटेर आत्महत्याको प्रयास गरेको हुनसक्छ र पिडा वा मर्दिन जस्तो लागेर घाँटीमा पासो लगाई झुन्डिएको हुनसक्छ ।

एउटा सुस्त मनस्थितिको व्यक्तिले पनि कोठाका सामानहरू छरपस्ट पारेर, आफैलाई आघात गरेर जतातै रगत लत्पत्याएर अन्त्यमा झुन्डिएर आत्महत्या गर्न सक्छ । यस्तो परिवेशमा घटनास्थल आत्महत्याभन्दा पनि हत्या जस्तो देखिन्छ ।

आत्महत्यमा मृत्युको दाग (पोष्टमार्टम लिभिडिटि) हात र खुट्टामा मोजा पन्जा लगाईने भागमा देखिन्छ तर पासो प्रयोग गरि हत्या भएको लाश जमिनमा छोडेर हत्यारा भाग्ने भएकोले लाशमा पोष्टमार्टम लिभिडिटि मोजा पन्जा जस्तो देखिदैन ।

लासले जमिनमा टेकेको, छोएको, लत्रिएको वा पुरै झुन्डिएको आधारमा पनि हत्या वा आत्महत्या किटान गर्न मिल्दैन। आत्महत्यामा डोरीले शरीरको भार थेग्न नसकेर अथवा तन्किएर भूँई टेकेको, छोएको वा लत्रिएको हुन्छ ।

पासोको डाम, घटनास्थलको परिवेश र उपलब्ध अन्य तथ्यका आधारमा हत्या हो कि आत्महत्या सजिलै छुट्याउन सकिन्छ ।

विद्युत शक्तिबाट सम्भावित चोट र प्रयोगका चुनौती

डा नुवादत्त सुवेदी
सहप्राध्यापक
फरेन्सिक मेडिसिन विभाग
गण्डकी मेडिकल कलेज, पोखरा

१. परिचय

संसारका सबै देशमा विद्युत शक्ति अपरिहार्य आवश्यकता भईसकेको छ । उद्योग, कलकारखाना, होटल, कार्यालय, घर लगायत सबै ठाँउमा विद्युतको प्रयोग अनिवार्य भएको छ । विद्युतको प्रयोग जति गुणकारी र उत्पादनशिल छ, यसको उचित तरिकाले प्रयोग गर्न नजाने त्यतिकै खतरा र प्रत्युत्पादक पनि । होशियारपूर्वक प्रयोग नहुँदा विद्युत शक्तिका कारण ठुलाठुला दुर्घटना, आगजनी र मानवीय क्षति भएका उदाहरण छन् । यो लेखमा विद्युतको उपयुक्त प्रयोग विधी र खतराबाट जोगिने उपायहरूका बारेमा सानो चर्चा गरिएको छ ।

२. विद्युतीय करेन्ट के हो ?

सामान्य बुझाइमा विद्युतीय करेन्ट भनेको विद्युतीय तार वा उपकरणहरूमा इलेक्ट्रनको प्रवाह हो । करेन्टलाई एम्पियर (Ampere) मा मापन गरिन्छ । जसको मतलब कुनै तार वा उपकरण सतहमा प्रति सेकेन्ड एक कलोम्ब (Coloumb)चार्ज प्रवाह हुनु हो । विद्युतीय करेन्ट प्रवाह हुनको निम्ति विद्युतीय सर्किट पुरा हुनु पर्दछ, अर्थात करेन्टको प्रवेश र बहिरगमन हुने स्थान हुनु पदर्छ, जुन एक विधुतीय तार वा उपकरणबाट अन्यमा वा धर्तीमा समेत हुन सक्दछ ।

३. करेन्टले कसरी मानव शरीरमा चोट वा नोक्सानी पुऱ्याउँछ ?

शरीरमा जैविक क्षती हुनको निम्ति शरीर वा शरीरको कुनै भाग विद्युतीय सर्किटमा सामेल हुनुपर्दछ ता कि विद्युतीय करेन्ट मानव शरीरको तन्तुहरूबाट बहन जरूरी हुन्छ । घातक करेन्टको लागि विद्युतीय करेन्ट मानव शरीरको महन्वपूर्ण अंगहरूबाट वहन हुनु पर्दछ ।

विद्युतीय करेन्ट शरिरको कुनै एक भागबाट प्रवेश गर्दछ । प्रायः यो मानिसको हातबाट प्रवेश गर्छ, किनकि मानिसले आफ्नो हातहरूले कुनै विद्युतीय उपकरण वा तारहरूमा काम गर्दछन र छुन्छन् । यसरी प्रवेश गरेपछि शरीरको अन्य भागबाट करेन्ट बाहिरिन्छ । प्रायजसो मानिसले छोएको जमिनबाट बाहिरिन्छ र यदि उसले कुनै निष्कृय विधुतीय उपकरण छोएको अवस्थामा त्यहाँबाट नै बाहिरिन्छ । शरिरमा करेन्टले बहनगर्ने मार्ग सम्भावित बहिरगमनका बिन्दुहरूको Resistance मा भर पर्दछ । करेन्टले सबैभन्दा छोटो दुरी तय गरी मानव शरिरबाट बहिरगमन गर्दछ र प्रवेश र बहिरगमनको विन्दुको मार्गमा पर्ने शरिरको भागमा करेन्ट प्रवाह भई सोहीमार्ग वरपर नोक्सानी पुऱ्याउँदछ । यदि सो मार्गमा शरिरका महत्वपूर्ण अंगहरू जस्तो मुटु, मस्तिष्क वा फोक्सो परेमा ज्यादा घातक हुन्छ । प्रायजसो करेन्ट कुनै एक हातबाट प्रवेश गरी अर्को हात वा कुनै खुट्टा धर्तीमा छोइएमा वा विधुतीय तार या उपकरण छोइएको अवस्थामा मुटु नजिकबाट बहन गर्दछ । दाहिने हातबाट प्रवेश गरी देब्रे खुट्टाबाट बहिरगमन हुँदा मुटु करेन्टको प्रत्यक्ष मार्गमा पर्ने हुँदा मुटुको चालमा

खरावी आई मुटुको धडकन बन्द हुने सम्भावना हुन्छ । छाती र पेट हुदै करेन्ट बहन हुँदा श्वास प्रश्वासका मांसपेशीहरूले काम नगर्नाले श्वास प्रश्वास बन्द भई मृत्यु हुन सक्दछ । यदाकदा टाउको र घाँटी हुँदै करेन्ट प्रवाह भएमा मस्तिष्कको अभिन्न अंग ब्रेन स्टिम (Brain Stem)मा असर गरेर मुटु र श्वासप्रश्वास दुवै वन्द हुन सक्दछन् ।

Alternating Current (AC) र Direct Current (DC) मा करेन्टले गर्ने शारीरिक क्षती फरक हुन्छ । प्रायजसो घरायसी विद्युतीय प्रवाहमा AC हुने गर्दछ । जसमा प्रायः प्रतिसेकेण्ड ५० Cyclesको Frequencyमा करेन्ट प्रवाह हुन्छ । व्याट्रीहरू लगायतका विद्युतका श्रोतबाट DC प्रवाह हुन्छ । एउटै भोल्टेज र करेन्ट प्रवाहको समयको ख्यालगर्ने हो भने AC DC भन्दा चार देखि पाँच गुणा वढी खतरा हुन्छ। AC ले मांशपेशीहरूलाई कसिलो बनाई खुम्चिन नदिई करेन्टको श्रोतबाट हात हटाउन मुस्किल पारिदिन्छ । करेन्टको चुम्वकीय शक्तिले शरिरलाई तान्ने नभई मांशपेशीको असरले गर्दा करेन्टको श्रोतबाट हात हटाउन मुस्किल हुने हो । यसले गर्दा धेरै समय करेन्ट प्रवाह भई झनै खतरा बनाउछ । साथै AC ले मुटुको चाललाई विगारेर धड्कन बन्द गराउन सक्दछ ।

शरिरमा हुने विधुतीय करेन्टको प्रवाहको मात्राले क्षती निर्धारण गर्दछ । चालिस मिलिएम्पियर प्रवाह भएमा मानिस वेहोस हुन्छ र ५० मि.ए. भन्दा वढी भएमा मृत्यूको सम्भावना वढी हुन्छ । मानिसको छालाको Resistance वढी हुँदा घातक करेन्ट प्रवाहको निम्ति न्युनतम भोल्टेजको आवश्यकता पर्दछ । १०० भोल्टेज भन्दा कममा मृत्यूको सम्भावना न्यून हुन्छ । छाला सुख्खा भएमा Resistance वढी हुन्छ र पसिना वा पानीले भिजेको भएमा Resistance कम भएर सहजै प्रवाह हुन्छ र धेरै नोक्सानी पुऱ्याउँछ ।

४. करेन्टको कारण शरीरमा हुने बाह्य घाउ चोटहरू :

शरिरमा करेन्टको प्रवेशले गर्दा तापक्रम वढ्दछ र प्रवेश स्थल वा वरिपरी करेन्टको जलनको घाउ भेटिन सक्दछ । करेन्ट वहिरगमन विन्दु वरपर पनि घाउ भेटिन सक्छ तर यदि करेन्टको प्रवेश स्थलमा Resistance कम भएको अवस्थामा कुनै घाउ नदेखिएता पनि शरिरमा नोक्सानी पुऱ्याएको वा मृत्यु समेत भएको हुन सक्छ ।

प्रायजसो प्रवेश स्थलमा तन्तुहरूको तापक्रम वढेर जलन भई फोका उठ्दछ र सो फुटेपछि जलनको ठोस स्वरूप गोलाकार घाउ देखिन सक्छ । तर सो घाउ विधुतीय उपकरणको स्वरूपमा निर्भर भई फरक पनि हुन सक्दछ । यदि भोल्टेज धेरै भएमा करेन्टको श्रोतले शरिरलाई नछोए पनि जलनको घाउ देखिन सक्छ जसलाई स्पार्क (Spark) घाउ भनिन्छ । करेन्ट बहिरगमनको स्थलमा पनि जलनको घाउ वा फाटेको घाउ (Laceration) हुन सक्छ यसको साथै करेन्ट लागेको अवस्थामा मानिस लडेर अन्य जुनसुकै घाउहरू पनि हुनसक्छ ।

५. करेन्ट लाग्नबाट रोकथामका उपायहरू

विधुतीय करेन्ट सम्वन्धि सामान्य ज्ञान राखेर र यसका रोकथामका उपायहरू बुझेर सोबाट हुने मानवीय क्षती धेरै मात्रामा सहजै न्यून गर्न सकिन्छ । तपाई आफै वा अन्यलाई भवितब्य हुने विधुतीय करेन्टको क्षती न्युन गर्ने महत्वपूर्ण उपायहरू यहाँ प्रस्तुत गरिएको छ ।

क. आफ्नो घरको वायरिङको बारेमा केही जानकारी लिनुहोस । फ्युज, सर्किट ब्रेकर र तारहरू कसरी र कहाँजोडिएका छन र कसरी काम गर्दछन भनी आफु जानकार भईराख्नुहोस् । शक्तिशाली उपकरणहरू तपाईको वायरिङले धान्ने वा नधान्ने

बारेमा जानेर मात्रै चलाउनुहोस ।

ख. विधुतीय सकेटहरू र वहिरगमनका विन्दुहरू जहिले पनि ढाकेर राख्नु बुद्धिमानी हुन्छ । विशेष गरी केटाकेटीहरू भएको घरमा यो निकै आवश्यक छ ।

ग. आफ्नो हात, शरिरको अन्य भाग, धातुयुक्त बस्तुहरू वा भाडाकुडा सकेटमा छुवाउन हुँदैन ।

घ. निकै पुराना वा बिग्रिएका विधुतीय उपकरणहरू प्रयोगमा नल्याउनुहोस । कुनै उपकरणहरूबाट झिल्का आएमा, सानातिना झड्का दिएमा, तारहरू टुटेमा, मर्मत वा फेरबदल गर्नुहोस ।

ङ. यदि भित्ताबाट तारहरू निस्किएमा नचलाउनु होस । तालीम प्राप्त जनशक्तिको मद्धत लिएर मर्मत गराउनुहोस ।

च. Extension Cord हरूलाई असामान्य तरिकाले मोडने वा गाँठो पर्ने नगर्नुहोस् । एउटै प्लगबाट धेरै उपकरणहरू नचलाउनुहोस् । यदी एउटै प्लगबाट Extension Cord जोडी धेरै उपकरणहरू चलाउनु परेमा अर्को वायरिङ थप गर्न उपयुक्त हुन्छ ।

छ. विधुतीय उपकरणहरू पानीको श्रोतभन्दा परै थन्काउने र प्रयोग गर्ने गर्नुहोस् ।

ज. विधुतीय उपकरण वा तारहरूमा काम गर्दा सावधानी अपनाउनुहोस् । घरायसी विधुतीय कार्य गर्नु परेमा पावरको श्रोतहरू बन्द गरी उपयुक्त पन्जा र जुता लगाएर मात्रै कुनै तार वा उपकरण चलाउनु होस् । अरू कसैले वन्द गरे होला भनी भर नपर्नु होस, आफैले बन्द भएको परिक्षण गरे पश्चात मात्र कार्य थालनी गर्नुहोस् । यदि सो कार्यमा तपाइको दक्षता नभए तालिम प्राप्त जनशक्तिको सहयोग लिनु उपयुक्त हुन्छ । सानो गल्तीले पनि घातक करेन्ट लाग्न सक्छ ।

झ. Capacitorsको बारेमा जानकार हुनुहोस् । Capacitors ब्याट्री जस्तै विधुतीय चार्ज सन्चय गर्दछन र पानी तान्ने मोटर, एयर कन्डिसनर, रेफ्रिजेरेटर, माइक्रो वेभ ओभन लगायतका उपकरणहरूमा जडित हुन्छन् । यिनिहरूले पावरको श्रोत हटाइए पनि घातक करेन्ट दिन सक्छन् । यदी तपाई यस्ता उपकरणको मर्मत गर्दा पुरा डिस्चार्ज गर्ने तरिका जान्नुहुन्न भने जानकारहरूलाई सो काम दिनुहोस् ।

ञ. विधुतीय उपकरणहरू चलिरहेको अवस्थामा पावरको श्रोत जोड्ने र हटाउने नगर्नुहोस् । उपकरणहरू चलिरहँदा सर्किटवाट करेन्ट उपकरणमा वहाव भइरहेको हुन्छ र उपकरणवाट पनि सर्किटमा फर्किरहेको हुन्छ । यस्तो अवस्थामा करेन्ट लाग्ने सम्भावना रहन्छ ।

यसरी विधुतीय करेन्ट लाग्न र मानवीय क्षतीवाट न्यूनिकरण गर्न सकिन्छ ।

६. निष्कर्ष

ज्ञान सत्य हो, विज्ञान सत्य हो । नयाँ युगका नौला र नयाँ प्रविधिबाट कोही पनि विमुख हुन सक्दैन । मानव जीवनलाई सुविधा सम्पन्न बनाउन आविष्कार भएका र हुने सेवा र प्रविधिको सचेतता पूर्वकको प्रयोगले संसारलाई सुखी र समय सान्दर्भिक बनाउने हुँदा नविनताको खोजी र सुरक्षित प्रयोगमा सचेत रहनुको विकल्प छैन ।

घाउ/चोट (Injury)
एक परिचय

डा. ज्वाला कँडेल
लेक्चरर,फरेन्सिक मेडिसिन विभाग
नोबेल मेडिकल कलेज, विराटनगर

सामान्य बुझाई अनुसार कसैको ज्यान, मानसिकता, प्रतिष्ठा र सम्पत्तिमा गैरकानुनी रूपमा आघात पुऱ्याउनुलाई चोटको रूपमा परिभाषित गर्न सकिन्छ तर मेडिकल विश्लेषण अनुरूप शरिरको कुनैपनि तन्तुको सामान्यबनोट वा भौतिक अवस्थाको क्रम टुट्नुलाई नै घाउ/चोट मानिन्छ । तसर्थ यसले शरिरको कुनैपनि भागको भौतिकक्षतिलाई जनाउँदछ ।

घाउ हुने विभिन्न कारणहरू लाई निम्न अनुरूप विभाजन गर्न सकिन्छ :-

१ भौतिक शक्तिले हुने :

- बोधो ताकत वा हतियारबाट -निलडाम, घर्षण, च्यातिनु, चुँडिनु, भाँचिनु
- धारिलो हतियारबाट -काटिनु, रोपिनु

२ चिसोतातोले हुने

- वाह्यप्रभाव –चिसोले हातखुट्टा खानु, तातो तरल पदार्थ वा आगोले पोल्नु
- आन्तरिक प्रभाव–जाडोल कठ्याङ्ग्रिनु, तातोको प्रभावले Heat Stroke हुनु

३) रसायनले हुने

- अम्ल वा क्षारले पोल्नु

४ अन्य

- करेन्ट, चट्याङ्ग आदिको चोट

कानुनी रूपमा महत्व राख्ने विभाजन भने निम्नअनुसार छ :-

१) साधारण घाउ (Simple)
२) अङ्गभङ्ग मानिने घाउ (Grievous)
३) ज्यान जान सक्ने खालको घाउ (Dangerous)

यस बाहेक स्वरचित (Fabricated), आत्माघाती (Suicidal), परघाती (Homicidal), दुर्घटनावस हुने (Accidental), बचाउका क्रममा हुने (Defense), मृत्यु अगावै हुने (Ante-mortem) र मृत्युपछि हुने (Post-mortem)घाउहरू पनि कानुनी आधारमा महत्वपूर्ण हुन् ।

जीउमा चोटहुने आधारभुत कारण तन्तुको थिचाई (Compression)वा तन्काई (Traction)नै हो । यिनीहरूको मात्रा र कोणले नै कस्तो खालको घाउको सिर्जना हुन्छ भन्ने कुराको निर्धारण गर्छ ।

कुनै पनि घाउको गम्भिरता यसको आकार, परिमाण र स्थानले निर्धारण गर्दछ । जिउका सम्वेदनशिल भागमा भएका साना घाउ पनि खतरनाक हुन सक्दछन् भने कहिले काही बाहिर केही नदेखिएता पनि शरिर भित्र ठूला चोट परेका हुन सक्छन् । मुख र नाक वरिपरीका ससाना खस्रेका घाउ अथवा साना निलडामले त्यसैगरी घाँटीमा भएका यस्तै घाउहरूले, नाक मुख थुन्न खोजिएको वा घाँटी न्याकिएको हुन सक्ने सम्भावना देखाउँछ । त्यसैगरी यौनाङ्ग वरीपरी वाभित्र देखिने कुनैपनि प्रकारका घाउले थप यौनजन्य अपराधीक गतिविधिको संलग्नता रहेको कुरा दर्शाउँछ । आफै लड्दा हुने चोटहरू प्रायः जिउका उठेका भागमा वा छाला र हड्डी सँगै हुने भागहरू जस्तै नाको डाँडी, टाउको, कुहिनो, घुँडा, नलिखुट्टा आदीमा देखिन्छन् । जाँघको भित्री भाग, कान पछाडीको भागआदि ठाउँमा अरूले चोट पुऱ्याउँदा प्रायः घाउ लाग्ने गर्छन । बचाउका क्रममा

हुने घाउ हात, हत्केला, कुहिनो, नलिखुट्टामा देखिन्छन्।नियतबस आफुले आफैलाई आघात गर्दा ससाना सतही धारिलो हतियारको घाउ र खोस्रिएको घाउहरू भेटिन्छन् । यस्ता घाउँहरू नाडी र घाँटीमा प्रमुख रूपले पाइन्छन् । करेन्ट लाग्दा हुने घाउहरू प्रायः हत्केला, औलाकाकाप, र पैतालामा विशेषरूपमा ध्यानपूर्वक खोजिनु पर्छ त्यस्ता घाउहरू सेता वा काला, दबेका वा उठेका सुख्खा टाटाका रूपमा भेटिन सक्छन् ।

जीउबाहिर वाभित्र देखिने घाउहरूको स्थान, सङ्ख्या र गम्भीरता प्रायः मेल खाँदैन किनभने त्यसलाई धेरै कुराहरूले निर्धारण गर्दछ । सामान्यतया छाती र पेटमा चोट पर्दा वाह्य घाउको उपस्थिति न्युनहुने गर्दछ । हात र खुट्टाका घाउहरू सामान्यरूपमा कम गम्भीर हुन्छन् भने टाउको, घाँटी, छाती र पेटका अलि बढी गम्भीर हुन्छन् ।

बच्चाहरूमा यदि विभिन्न समयको अन्तरालमा भएका अनेक खालका घाउहरू भेटिएमा त्यो शंकाको घेरामा आउँछ । यस्तो अवस्थामा ती घाउका कारणबारे सम्बन्धित व्यक्तिबाट दिइएको बयान घाउको प्रकृतिसँग मेल खादैन । यसले भौतिक बालशोषण भएको तथ्यलाई इङ्गित गर्छ ।

कहिलेकाही घाउजस्तै देखिने अन्यचिजहरू पनि हुन्छन् जसको गलत विश्लेषणले न्यायीक असमन्जस्य पैदा हुन सक्छ । विभिन्न फल–फुलका दाग धब्बाहरू निलो रङको हुन सक्छ र मृत्युपछि जिउको तल्लो भाग पल्टाउँदा निलडाम हो किभनेर भुक्किन सकिन्छ । मृत्यु पश्चात किरा फट्याङ्ग्रा मुसा, कमिला, स्याल, कुकुर आदीबाट भएको शरिरको भक्षणलाई हेर्दा मृत्यु अगाडीको चोट जस्तो लाग्न सक्छ । लाश ओसार पसार गर्दा हुने बाह्य र भित्री चोटहरूले पनि मृत्युको कारण बारे अनेक भ्रम पैदा गर्न सक्छ । मृत्युपछि हुने सामान्य प्रकृयाहरू जस्तै मुखनाकबाट रगत जस्तै पदार्थ निक्लनु, वीर्यमलमुत्र स्खलनहुनु, दाह्री, नंग बढेको जस्तो भ्रान्ति हुनु, कुहिएको शरिरमा पोलेका जस्ता फोका आउनु, रौंहरू सजिलै उप्किनु आदिले पनि सरोकारवालाहरूलाई अपठ्यारोमा पार्न सक्छ ।

तसर्थ शुक्ष्म विश्लेषण र आवश्यक आधारभुत ज्ञान बिना यस्ता परिस्थितिमा निर्णय गरिहाल्नु सान्दर्भिक हुँदैन । यसले पछि गएर न्याय क्षेत्रकै प्रभावकारिता माथी प्रश्न उठ्न सक्छ। घाउ यसका कारण र परिणामहरू चिकत्सकिय र कानुनी रूपमा महत्पूर्ण रहेको हुँदा सबै सरोकारवालाहरू चिकित्सक, कानुनव्यवसायी र प्रहरी,विशेष रूपमा यसका विभिन्न पाटाहरूका विषयमा अवगतहुनु अत्यन्त जरूरी देखिन्छ ।

Torture Victim and Injury Pattern

Prof. Dr. HariharWasti
Dept. of Forensic Medicine IOM

Background

Torture victims in our context, knock the doors of medical doctors time to time with a hope of justice and some compensation. There is decreasing trend in number of victims, if compared with past decades. There is lack of clear understanding about the meaning of torture in most of the people in Nepal. The word 'torture' is used very loosely covering many types of violence between people in different situation like family conflict, conflict between neighbors etc.

Definition of Torture

Torture means any act by which severe pain or suffering, whether physical or mental, is intentionally inflicted on a person for purposes such as obtaining from him or third person information or a confession, punishing him for an act he or a third person has committed or is suspected of having committed, or intimidating or coercing him or a third person, or for any reason based on discrimination of any kind, when such pain or suffering is inflicted by or at the instigation of or with the consent or acquiescence of a public official or other person acting in an official capacity. It does not include pain or suffering arising only from, inherent in or incidental to lawful sanctions (UNOHCHR, 2004).

The World Medical Association in its "Declaration of Tokyo 1975" defines torture as follows:

Torture is defined as the deliberate, systematic or wanton infliction of physical or mental suffering by one or more persons acting alone or on the order of any authority, to force another person to yield information, to make a confession, or for any other reason.

International Criminal Court defines torture as the intentional infliction of severe pain or suffering, whether physical or mental, upon a person in the custody or under the control of the accused.

Methods of Torture

Torture methods greatly vary in terms of concerned persons, places, time and other situations. The barbaric and brutal methods presented on past days are now not common occurrences. Perpetrators are now in search of more sophisticated methods which mostly effect on human psychology. There are some common methods applied mostly all over the world.

Following is a list of some common methods of torture. It would be impossible to create an exhaustive list all of methods of torture currently in use throughout the world. Torturers continue to develop new and more sophisticated methods of torture and ways to hide evidence of the torture.

Physical Methods of Torture

- Blunt trauma: beating, punching, kicking, slapping, whipping, truncheons, falling down
- Positional torture: forced body positions, suspension, stretching limbs, constraint of movement, binding
- Crush injuries; in Nepali practice 'chepuwa' is practiced occasionally
- Burning: instruments, cigarettes, scalding liquid, caustic substance
- Scratching with tip of knife, cutting with knife
- Wires, pins or needles under nails, electric shock
- Mutilating body parts, traumatic removal of body parts
- Amputation of digits and limbs, removal of organs
- Asphyxiations: drowning, smothering, choking, chemicals
- Chemical exposures in wounds, body surface
- Attacks by animals, dental torture
- Exhaustion, forced labor, starvation

Psychological Methods of Torture

- Threatening to harm or kill the victim or the victim's relatives
- Forced witnessing or hearing the torture of others
- Mock execution, forced to harm others
- Denigration and humiliations, threats of attacks by animals
- Violations of taboos, violation of religion

  Creation of various environmental situations greatly effect to human psychology like:
- Sleep, light or hygiene deprivation
- Exposure to extremes of temperature, sensory overload - loud noises, lights
- Isolation
- Denial of privacy, overcrowding

Sexual Methods of Torture

- Rape, insertion of objects, sexual humiliation
- Trauma to sexual organs, forced sexual acts, forced nudity

Pharmacological Methods of Torture

- Hallucinatory drugs, toxic doses of sedatives or muscle-paralyzing drugs

Examination of Alleged Victim of Torture
Procedure of examination

When there is infliction of physical or mental suffering to a detainee or prisoner or in any condition, he / she can complain before court. Relatives or lawyer of the victim can also go to court with application from victim's side. After receiving the complaints, usually courts order to concerned authority to examine the applicant by medical doctor at hospital and provide the report of physical and mental examination within three days. Very often, the victims directly or through some NGOs come to hospital for examination and reporting. Occasionally they go to National Human Rights Commission with complaints. NHRC issues a request letter to hospital for their physical and mental condition assessment and reporting.

As torture is one of the forms of gross violation of Human Rights, the case might be registered or filed in any national as well as international courts of law. International norms and standards must be followed to conduct such examination and to prepare

reports accordingly. The formulation of the standard operating protocol is very essential and will be helpful to perform examination and documentation of alleged victim of torture more scientifically, completely and uniformly throughout the nation.

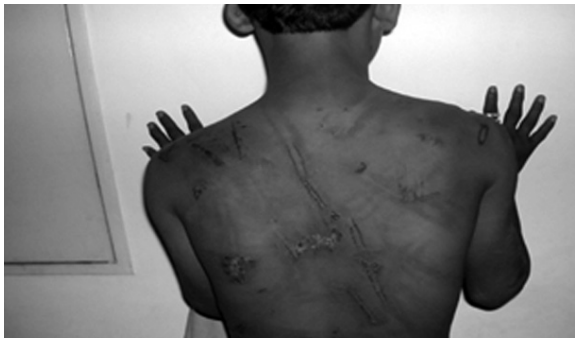
Detail information about time of arrest, transportation and detention must be noted. Following questions might be helpful to obtain the complete picture and series of incidents related with arrest of a person:

What time and date was it? Where was the exact place of arrest? What were you doing? Who was there? Were there any other witnesses? Describe the appearance of those who detained you. Were they in security uniform or civil dress? What type of weapons were they carrying? Did they provide you arrest letter or other papers? Was violence used? Threats spoken? Was there any interaction with family members? Was any method of restrain applied like use of force, handcuff, blindfold etc? Where and how you were taken? Was there any identification process (recording the personal information, fingerprints and photography)? Were you asked to sign anything?

Acute lesions are often characteristic since they show a pattern of inflicted injury that differs from non-inflicted injuries, e.g. by their shape and distribution on the body. Since most lesions heal within a short period of time, leaving no or non-specific scars, a characteristic history of the acute lesions is important. Also a history of the development until healing is of importance.

Description of Skin Lesions

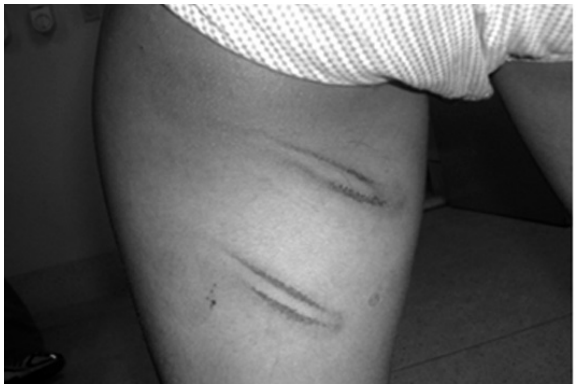
As beating is the commonest methods of physical torture, sign of injuries or in the form of scars are possible consequences. Abrasions and contusions or bruises are the common immediate findings in torture



survivors. The characteristic feature of such injuries is on specific sites of the body which usually the non-exposed parts and covered by clothes like back of the trunk, thighs, calves, upper arms, soles. Very often, imprint of objects like sticks, pipes, which produce tramline like pattern. More important another character is signs of repetition in particular part which is unlikely for any other circumstances of production of injury.

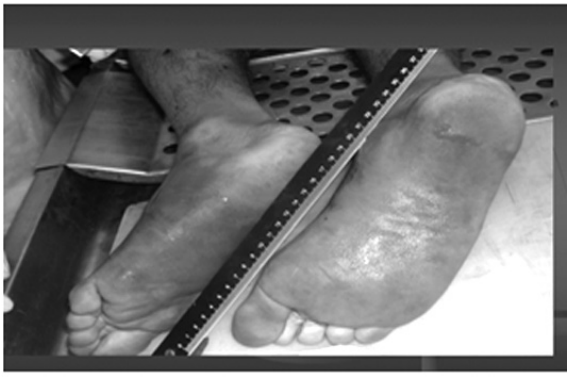
Description of skin lesions should include the following points:

1. Location (use body diagram): symmetrical, asymmetrical document with exact location
2. Shape: round, oval, linear, tramline



etc.

3. Size: (use ruler)
4. Color
5. Surface: scaly, crusty, ulcerative, bullous, necrotic zone in the periphery
6. Periphery: regular or irregular,
7. Demarcation: sharply, poorly
8. Level in relation to surrounding skin: atrophic, hypertrophic, plane.



The following findings are supportive of inflicted impacts:

1. Lack of symmetry (may also be the case for some skin diseases)
2. Linear lesions in irregular or crisscross arrangements and pattern of repetition
3. A linear zone extending circularly around an extremity
4. A regular, narrow, hyper-pigmented or hypertrophic zone surrounding a scar

Musculo-Skeletal Injuries

Symptoms related to the musculo-skeletal system are the most frequently reported physical complaints at the time of torture, as well as at later stages. The associated signs and symptoms in the acute phase are similar to those following other types of acute trauma causing lesions in soft tissues (muscles, joint, capsules, tendons, ligaments, nerves and vessels) and distortion/dislocation of joints and fractures.

Pain is the dominant symptom in relation to the musculo-skeletal system in the chronic phase. The clinical picture is one of localized or diffuse pain in muscles, joint pain, pain related to the spine and pelvic girdle, and neurological complaints mainly in the form of sensory disturbances and irradiating pain. Typical findings in the musculo-skeletal system in the chronic phase are:

- Increased muscle tone
- Tender and trigger points, especially in the muscles of the neck and shoulder girdle, muscles in the low back and pelvic girdle, and muscles of the lower extremities; tendinitis around the shoulder joint, elbow, knee and ankle joint
- Tenderness and restricted range of movement in peripheral joints, cervical and lumbar spine
- Tenderness in the soles and a compensatory altered gait

The clinical examination of the musculoskeletal system may be done:

- to document findings consistent with allegation of torture, and/or
- for the rehabilitation.

Assessment of the Musculo-Skeletal System should in General Include:

- Examination of muscles and tendons: inspection, palpation (tone, stretch range, tenderness, changes in tissue texture) and assessment of function (strength, endurance)
- Examination of peripheral joints and bones: inspection, palpation and assessment of joint function (range of

movement and stability)

- o Examination of the spine and pelvic girdle:
- o Inspection, palpation and range of movement in the cervical, thoracic and lumbar spine
- o Neurological examination: muscle strength, tendon reflexes, and sensibility.

Effects Due to Falanga

Beating over the soles with blunt objects like sticks, pipes is very common method practiced in Nepal. The following findings are likely present in those victims of torture.

- o There may be deformity if bones are fractured
- o The sole pad may appear flat and wider
- o Manner of walking; in early phase difficulty on walking to limping and not evenly keeping the sole pads on the surface
- o Difficulty in balance with one foot
- o Tingling and numb sensation in feet
- o Increasing fatigability on minimal walking
- o Pain on walking/running etc

Victims of electrocution

- o Electrical method of torture also not uncommon in NepalProblem in reporting such victim is not easy as the low voltage electrode contact usually does not leave any visible marks but creates an unusual sensation snd psychological trauma due to fear of immediate death during the procedure
- o Electrical methods also counted as sexual torture if the procedure is performed in naked individual targeting to the sensitive private part of the body

Asphyxial methods of torture

- o "Dry submarino" and "wet submarine" are the terminology for suffocation and drowning which also create fear of immediate death
- o Closure of mouth for a short time is performed which results suffocation in dry method and submersion of head and face in water till the vigorous movement of the full body demanding normal breathing
- o Medical examination may not reveal any specific lesions which can prove the situation

Suspension as method of torture

- o In the context of Nepal it is not commonly practiced method of torture
- o Tying around the wrists and hanging the body is performed in some of the countries of the world which can not only severe painful condition but also resulting lifelong consequences of various neurological complications and musculo skeletal injuries
- o Meticulous neurological examination needs to trace the after effects of such methods

Evaluation and Opinion

After complete documentation of physical findings and history taking, some of the general opinion can be derived as in injury examination and reporting in cases of other physical assault. Examples of such opinion could be:

1. The injuries or scars present on ….part of the body are produced by blunt or sharp or pointed objects or heat or chemicals

2. Age of the injuries/scars consistent or inconsistent with alleged time of infliction. Dating injuries is a guess work and dating scars is very unlikely to be accurate.
3. There are signs of repetitive impacts (if features are present!)
4. The injury or scar belongs under Angabhanga (If it falls under angabhanga as described in MulukiCriminal (Code) Ain 2074 section 192)

The following terms are generally used while framing opinion:

i. Not consistent: the lesion could not have been caused by the trauma described;
ii. Consistent with: the lesion could have been caused by the trauma described, but it is non-specific and there are many other possible causes;
iii. Highly consistent: the lesion could have been caused by the trauma described, and there are few other possible causes;
iv. Typical of: this is an appearance that is usually found with this type of trauma, but there may be other possible causes;
v. Diagnostic of: this appearance could not have been caused in any way other than that described.

References

1. Giffard, C. (2000). The torture reporting handbook. The Human Rights Centre University of Essex.
2. Chapman AJ. (2007). Death and deduction 2nd edition.
3. IRCT (2009). Medical physical examination of alleged victims of torture. A practical guide to the Istanbul Protocol for medical doctors. IRCT Copenhagen.
4. Muluki Criminal (Code) Ain 2074 (2017). Government of Nepal, Ministry of Law, Justice and Parliament Affairs.
5. Torture Compensation Act 2053 (1996). Government of Nepal, Ministry of Law and Justice.
6. UNOHCHR (2004). Istanbul protocol, manual on the effective investigation and documentation of torture and other cruel, inhuman or degrading treatment or punishment, United Nations Office of the High Commission of Human Rights 2004, Geneva

Sports Injuries and Ethics

Dr. Sharmila Gurung
Lecturer, Dept. of Forensic Medicine
Devdaha Medical College, Devdaha

Sport is a skilled physical activity which is undertaken as a hobby, to complete or for entertainment. It may be played by an individual or in a team. Since it involves physical movement, injuries become inevitable. The injury can range from simple to life-threatening or even debilitating needing rehabilitation and care. Hence, any sports team need a coach for supervision during practice and game and a physician for health and related problems. An occupational sports physician provides professional medical services with optimal ethics and care. They have a duty to improve athlete's performance and prevent injuries. A successful practice of sports medicine depends not only on the knowledge and assessment of functional impairment, loss and differential diagnoses and but also on skills in ethical decision making. Medical care as well sports have evolved considerably since its origin. However, the ever growing scope of athletic competition and lack of widely accepted code of sports medicine creates a dilemma in healthcare in sports injuries. This can make the relationship between sport and medicine sometimes confrontational unlike the traditional, where the relationship is established between only a doctor and a patient. There is a presence of a unique and dynamic interaction with other stakeholders such as representatives (coaches, general manager, and the team owner), families, the media, and fans who often have different interests and goals in the player. Their interest on player might sometimes conflict with those of health care professionals, while providing care for the injured player that it impends an ethical challenge to the physician. Even the basic norms of medical ethics as confidentiality cannot be easily applied in sports medicine. The mostly encountered ethical issues are: autonomy, confidentiality, informed consent, conflicting healthcare goals, advertising, newer technology, allowing risky behavior, use of recreational drugs and conflicts of interest within players and team management. This article focuses on the issues regarding confidentiality and care for injured players.

A sportsman or a player once injured to any extent, needs to recover full and quickly to be fit to play. Failure to apt can lead to loss of playing time, loss of salary, replacement or termination of employment. The various stakeholders who without a doubt have a stake in athletes demand for early return of injured players to sports. It can sometimes conflict with the medical treatment and care of such athlete. There is a pressure on the

physician, not just to treat the patient but also provide complete recovery within a limited time frame. The issue here, begins with understanding confidentiality, who has the right to information regarding the patient and to what extend?

Confidentiality is the commonest issue related to the information regarding player's health from the organization and media. While it begins with treating the patient in a shared facility such as locker room, training hall and not in privacy, the scope varies. Confidentiality is a norm and moral obligation that physicians and other health care professionals owe to their patients. It is also a legal obligation. Breaching confidentiality leads to breach in code of ethics except only when it is deemed that withholding the information may cause harm either to the patient or someone else than good. The protective privilege ends where public peril begins such that the duty to warn outweighs. However, a coach when recruiting an athlete for a team has a right to know about the player's fitness to compete for safety reasons, in which case it is morally permissible and in fact normally required. The relevant significant past and present medical history of the player can be used for precaution and to prevent harm. Thus, only relevant information regarding the player's ability to perform should be revealed a physician. However, if it involves illegal activity violating the rules for e.g. illegally taking performance- enhancing or recreational drugs, then the physician is not under strict obligation to follow and can reveal such information as law has priority over ethical concern. These issues, to some extent, can be addressed by explaining the nature of the physician patient relationship to the player before the examination, indicating that he or she is not the patient's private health care physician and that confidentiality is not guaranteed. It should be communicated to the other stakeholders as well, so that the nature and limits of confidentiality are made aware. Also, during physical examination, care should be taken to ensure privacy and use of screen whenever possible.

The other dilemma is in regard to responsibility to care for the patient and dealing with the pressure from organization, coaches, the injured player himself or herself and other players to resume the sport as soon as possible after the injury. Sports is a source of income to the players and management such that inability to play a game will cause an irreparable loss to them. It is not just the ability to play but also the ability to excel in performance as well. The stakes are higher and expectations are also high. Along with the financial loss, it often runs a risk of stigmatization among players for not being able to endure the pain and prove commitment. The need to resume sports despite the gravity of injury persists and due to the differing health care goals, they create a conflict of interest in care for the patient.

In addition, the physician also faces dilemma due to inadequate time for sufficient physical examination during the games such that, they end up prescribing analgesics or less-than-ideal procedure for symptomatic relief. They have been pressured to allow the players to return to game early, despite the severity of injury or need for surgery. It poses a long term risk to health and profession of player when focus is given to the immediate gain. The physicians are also threated to be

replaced or terminated when they do not comply with the management policies. They might as well conflict internally, due to the personal benefits of being a professional sports team doctor, and their belief in being a part of the team, hence risking the player's health for the sake of the team.

It is also noteworthy that while caring for such players, there can be an immense pressure from the press and public to use the latest trends in medical technology. Innovative research, advanced technology, and financial investments from commercial enterprises have affected sports medicine. Promising medical intervention that are still in its infancy are recommended. Physicians should never agree to a medical procedure that is not considered standard or appropriate. There is an ethical obligation for health care professionals to justify their medical decisions based on sound professional judgment. They must advocate for the evidence based, most appropriate course of medical treatment. They must cautiously analyze the new technology before running it on the patient and take informed consent while providing full knowledge of all aspects of the procedure, including its less proven nature. Even after obtaining the informed consent, the physician must still weigh the benefits and risks of doing an alternate procedure, and be aware that they have the right to to deny if they judge it to be inappropriate.

The professional responsibility of the physician is to protect the health and safety of the players. The physicians and other health care professionals must always act in the best interest of the patient whether one is an athlete or not, regardless of setting, and incentives. The ultimate loyalty of the physician must be towards the best interest and well-being of the patient and should not be compromised irrespective of spectators, promoters of the event, or even the injured player's personal gain. It should be based solely on medical considerations, balancing potential benefits versus risks and maximizing positive outcomes to achieve the well-being of the patient. During uncertainty, it is best to consult with trusted colleagues, preferably those who are not directly associated with the case and use multiple source of reasoning to discuss and compare on possible options. Self-reflection and educating oneself on the course and consequences of the action is also an important learning tool.

A team physician must reason ethically to choose the best course to address the needs of an injured player, major stake holders and maintain a trustworthy physician patient relationship.

Oral and Dental aspects of physical abuse in children: An overview

Dr. Nitin Kumar Agrawal
Lecturer
Department of Dentistry,
MMC, IOM, TUTH

An act by parents or caregivers which endangers a child's or young person's physical or emotional health or development is called as child abuse. In almost 50% of the cases of child abuse, injury takes place in craniofacial region. The reason attributed to increased trauma to this region is accessibility of this region, and head being considered as a representative of the whole being or self. In a study carried out in Children's Hospital Medical Centre, Boston, USA, oro-facial injuries accounted to be 49 per cent of the 260 cases of child abuse.

A thorough perioral and intraoral examination becomes an integral part of examination in suspected child abuse case. Oral injuries can be inflicted in multiple ways: forceful feeding with a bottle, scalding fluids, caustic substances or eating utensils can cause oral injuries. A blunt trauma sustained can lead to contusion in oral structures. Laceration of soft tissues like tongue, frenum, buccal mucosa or gingiva is a common finding. Trauma to teeth can result into discoloration, displacement, fracture or avulsion. Similarly, temporomandibular joint fracture or dislocation, and fracture of maxilla or mandible can also result from trauma with heavy impact.

Any injury, which is inappropriate for the child's age, or multiple injuries, which are in different phases of healing, are vital signs of identifying child abuse. This can be identified with a thorough history, circumstances of injury and display of injury.

Laceration of frenum and muco-buccal fold of lower jaw were striking features in almost half of the cases of child abuse with facial trauma is associated with bruising, lacerations and abrasions. Fracture of mandible is also not uncommon.

Golder opined that physical abuse commonly involves face and dental tissues, placing dentist in the best position to identify early signs of child abuse. Proper training of the dental team to identify signs of child abuse and the mechanism to report them to the concerned authority is a need of time.

Thus, a careful peri-oral examination combined with a thorough history can help a dentist or a pediatric dentist in identifying signs of physical abuse in children.

A medico legal case of forceful sexual intercourse

Dr. Neelu Hirachan
Lecturer, Dept. of Forensic Medicine
Gandaki Medical College, Pokhara

Dr. Eugene Dolma
Lecturer, Dept. of Forensic Medicine
MMC, IOM, TUTH

BACKGROUND

Sexual offence/violence is defined as "any sexual act, attempt to obtain a sexual act, unwanted sexual comments/ advances and acts to traffic, or otherwise directed against a person's sexuality, using coercion, threats of harm, or physical force, by any person regardless of relationship to the victim in any setting, including but not limited to home and work." (WHO, 2003). According to Muluki Ain, General code of Nepal, it has been mentioned under Chapter 14 on Rape "जबरजस्ति करणीको महल"

Number 1.If a person enters into sexual intercourse with a woman without her consent or enters into sexual intercourse with a girl below the age of sixteen years with or without her consent shall be deemed to be an offence of rape.

(a) A consent taken by using fear, coercion, undue influence, misrepresentation or use of force or kidnapping or hostage taking (abducting) shall not be considered to be consent.
(b) A consent taken when she is not in a conscious condition shall not be considered to be consent.
(c) Minor penetration of the penis into the vagina shall be considered to be a sexual intercourse.

Number 2. A person who commits rape with a woman within kinship (prohibited degree of consanguinity) shall be liable to the punishment as referred to in the Chapter on Incest, in addition to the punishment as referred to in this Chapter.

CASE HISTORY

An alleged victim of sexual assault was referred to Forensic Medicine Department, Teaching Hospital, Maharajgunj from Metropolitan Police Range, Bhaktapur on 2069-6-16. The victim was accompanied by her father and a female police constable. A valid written consent was taken from the father of the examinee.

According to the examinee, on 2069-6-12 at around 5 pm, the alleged perpetrator whom she had known for some time ,phone called her telling that his bus had broken down and also told her to cook dinner for him and his three friends. The examinee went up to the alleged perpetrator at around 5:30 pm .The perpetrator asked her to ride inside the bus and take a look. As the examinee climbed up, someone covered her mouth. After half an hour; one of the perpetrator's friends

gave her some water to drink after which she felt dizzy. When she gained consciousness she realized that she was being taken in a motorbike sandwiched between the driver and other pillion rider. They reached Banepa chowk at around 11~12 am. She was then taken to a guest house and was given to eat 1~2 white colored tablets which caused her unconscious. The next day, the examinee saw blood coming via her private parts. She felt burning sensation and difficulty during urination .She also felt pain during defecation. She complained of generalized body ache and pain in inner aspects of her mouth. She tried to escape but was beaten. She was again given something to eat which caused her semi-conscious. She was then taken to Jagate in a private taxi by the perpetrator at around 11-12 pm. when she saw her dad, she tried to call him but the perpetrator covered her mouth. She was taken to Kausaltar guest house on Sunday. On Monday morning, she found herself naked with a new dress set kept beside her. When she realized that she was alone in the room, she tried to escape for the second time but couldn't succeed. The perpetrator caught her and took her inside the room covering her mouth; she then tried to escape for the third time after hitting hard on his external genitalia. After walking for 20~25 minutes, one of the perpetrator's friend caught and took her back to the same place holding her right elbow. She stayed in the ground floor of the guest house where she had her lunch. The perpetrator asked her not to make any noise and ensured that he would marry her. he then brought a taxi at around 5 pm. They reached Chyamsingh at 7 pm where she saw the same bus and his three friends waiting inside. The perpetrator got out of the taxi and told her to come out as well. She refused and told the taxi driver that she was being taken forcefully and pleaded him to help her. The perpetrator and his friends tried to hit the taxi driver as well buthe was successful inescaping from them. The perpetrator and his friends followed them till Jagate .The taxi driver then dropped her at Lagankhel where her sanomummy (aunt) stayed. She then took a bath and changed her clothes after the last sexual act. Her menses started at the 13 years of age and her last menstrual period was on 069-5-31. There was no history of previous sexual act.

Physical examination: The averagely built girl weighed 51kg and was 60 inches in height. Her vitals were within normal limit. Her dental examination revealed twenty eight permanent teeth. On general body examination from head to toe, abrasions were present over the right side of face, chin, lower lips ,jaw, left leg , left ankle joint and back portion of the left side of her body. Contused abrasions were present over the left arm and the left elbow joint. Tenderness was noted over the right elbow joint. A yellowish colored contusion was present over the right thigh .A bite mark measuring 2.5x0.2 cm in the upper and 3.5x0.2 cm over the lower quadrant with a gap of 3.5 cm was present over the lower inner aspect of the left breast. A contused abrasion (Bite mark) measuring 4x0.5 cm and 3.5x0.2 cm with a gapping of 2.5 cm was present over the mid back of left side. The contusion present over the anteromedial aspect of right thigh appeared greenish yellowish whereas injuries over right cheek, lip, chin, jaw, left arm, left leg, left ankle joint and back had reddish bluish

discoloration. No puncture wound suggestive of injection mark was noted. On anogenital examination, multiple hymenal transections were noted at 1 o'clock, 2 o'clock, 5 o'clock, 7 o'clock and 10 o'clock positions. In addition, hymen looked slightly edematous. No fresh bleeding was noted. Clitoris, vulva, labia majora, labia minora, fossa navicularis, posterior fourchette anal and perianal regions were free from fresh injury. Whitish vaginal discharge, non-foulsmelling was present. Laboratory tests for pregnancy, HIV, HBS Ag and HCV along with blood test for drugs and substance of abuse were advised. Three vaginal samples from high, mid and low vaginal walls were collected. Also underwear collected and handed over to the female police constable present there. The opinions drawn from this case were as follows:

1. The contusion present over the antero-medial aspect of right thigh gave the estimated age of infliction to be 4~5 days
2. Injuries over right cheek, lip, chin, jaw, left arm, left leg, left ankle joint and back gave the approximate age of injury to be 2~3 days.
3. The findings over the genital and other body parts were suggestive of forceful sexual intercourse of 3-4 days duration which well collaborated with the history stated by the examinee.

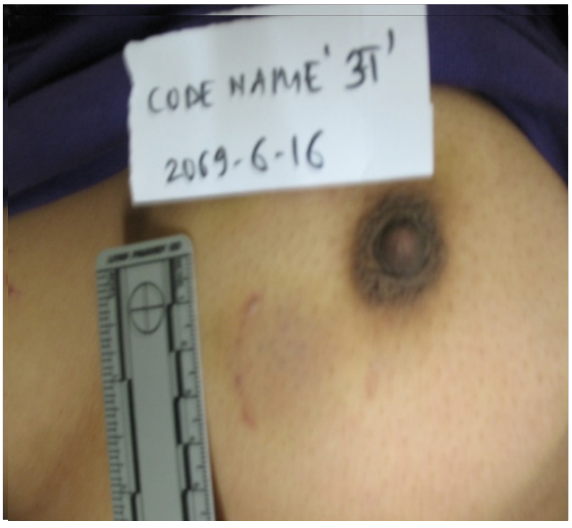
DISCUSSION

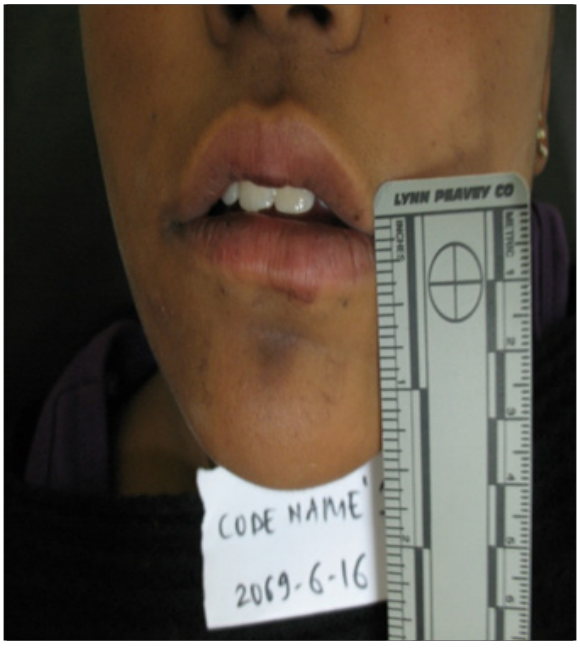
The genital profile of the victim in cases of sexual assault varies depending on factors like age, physical / mental status and sexual habituation of the victim. Considering the perpetrator, it can be influenced by use of physical force, use of sedative drugs or other substance of abuse. The findings can also be influenced by examination/reporting time of the case. We are well acquainted with the fact that the statement /allegations made by the victim can be strongly reinforced by the medico legal report of physical findings of injuries present over her body and the positive laboratory reports of the physical evidences collected during the forensic examination; e.g. vaginal swabs, undergarments collected, swabs collected from the perpetrator.

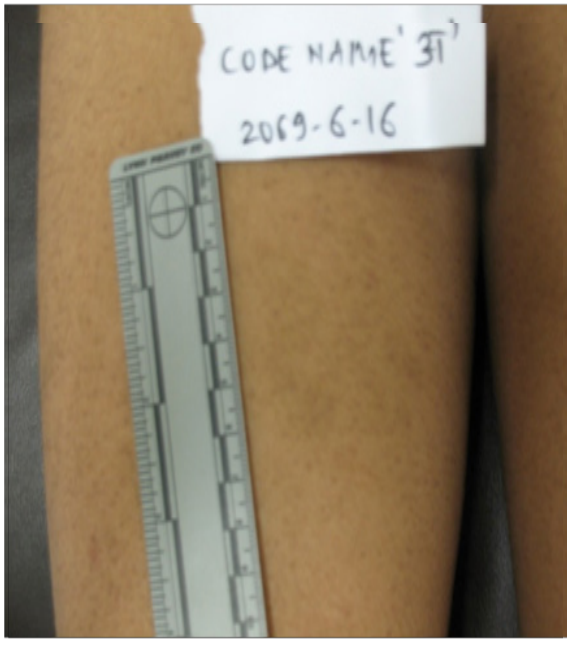
Anogenital injuries in cases of sexual offences are not a routine finding. The presence of gross and visible injuries over the body is not a common finding in our context as well. This could be due to various reasons like delayed reporting of the case, the absence of use of physical force by the assailant due to complete control over the victim by threatening, luring, making false belief or intoxicating victims using drugs or substance of abuse etc. On direct visualization, presence of injuries are not a determining factor that a sexual assault occurred. Anogenital injury prevalence in sexual assault varies from 11% to 75%, the findings generally indicate that micro trauma does occur after consensual intercourse. In sexually active women aged between 18 to 35 years, the most common types of lesions prevalent are petechiae, erythema, abrasions, and edema. Even in cases of complete vaginal penetration, presence of genital injury is evident in roughly one fourth of total cases. However, if the victim is virgin with no history of prior sexual intercourse, there are more likely chances of sustaining genital injuries.

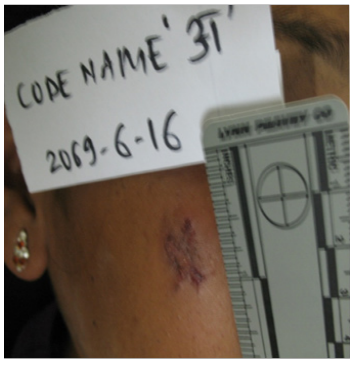
CONCLUSION

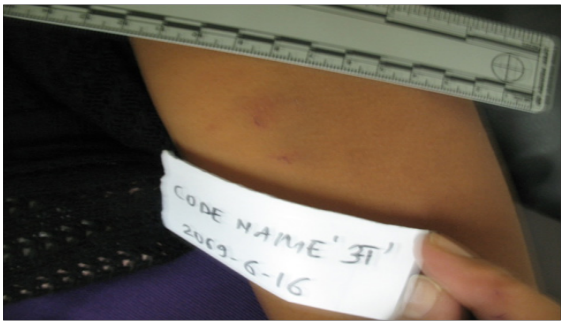
The physical findings discovered during the forensic examination of the victim as well as the perpetrator can play a key role in providing justiceto the victimin any case of sexual assault. For this reason, meticulous examination following the standard protocol and guidelines should be practiced. In case of confusion and difficulty, one should not hesitate to refer the cases to the concerned specialist such that medico-legal negligence does not take place in this kind of sensitive cases as sexual assault.











Difficulty in Reporting of Medicolegal Cases of injured Patients as per Nepal Muluki Ain

Dr. Bikash Sah
Asst. Professor, Dept. of Forensic Medicine and Toxicology,
BPKIHS, Dharan.

Case description

A 14 years old boy sustained firearm injury on the left side of forehead but survived. His skull radiograph showed multiple metallic pellets in frontal region bilaterally. Fracture was present on frontal bone above left orbit [Fig 1].Computerized tomography

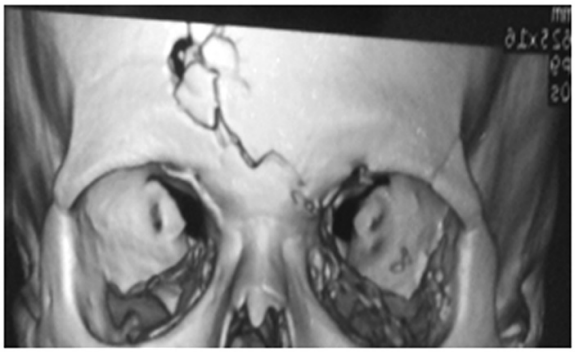


Fig.1: Fracture of left side of frontal bone produced by firearm entry wound.

(CT) scan showed intracranial hemorrhage

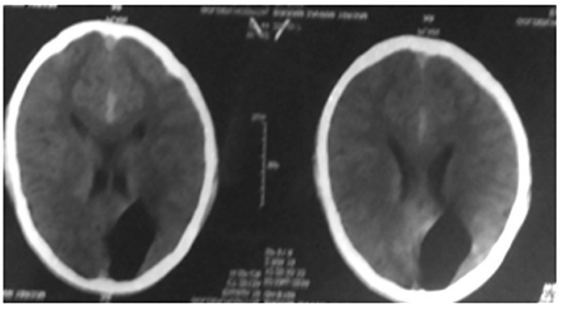


Fig. 2: Intracranial Hemorrhage on left fronto-parietal region.

[Fig 2] as a result of which he had right sided hemiplegia. Externally his face was permanently disfigured with underlying cranial fracture and intracranial collection of blood. Nature of the injuries in the present case was simple yet dangerous produced by firearm.

Discussion

As per Muluki Ain (General Code) of Nepal Part IV, chapter 9, Article 2, the following injuries are considered grievous:

1. Loss of eyesight or blind
2. Deprivation of smelling capacity of the nose
3. Making deaf upon damaging the hearing capacity of the ear
4. Damage to the speaking capacity of the tongue
5. Making useless upon cutting the breast of a woman
6. Making impotent upon destroying the capacity of the male organ and testicle (नालफाल)
7. Making useless the backbone (Vertebra/Spine) hands, legs or joints of such organs upon causing destruction, fracture or dislocation.

In the present case although the victim had sustained injuries which endangered his life, none of the injuries could be designated as grievous as per the existing Nepalese law. Any penetrating injury of the cranial cavity leading to hemiplegia is of grievous nature but legally it is non-grievous one. Injury to the face leading to permanent disfiguration should be considered grievous because in some professions looks are considered as assets for professional career. Examples include video jockey, air hostess, models, actor/actress etc.

As per article 9 in the same section of Nepal Muluki Ain, the punishment for any injury by cutting, striking or poking with weapons like gun, arrow, any heavy sharp cutting objects or any other hazardous risky weapon is fine of Five Hundred Rupees and imprisonment for a term of one month for per inch of wound, but not exceeding Two years of imprisonment. In Nepal, possession of firearm is illegal without having a valid license, yet possession of sharp weapon is not illegal. The irony of the fact is punishment for injuries produced by firearm and sharp weapon is the same.

Conclusion

This case is just one of the many examples to highlight the urgent need to update the existing legal framework to describe and punish various injuries.

Signature Fracture of the Skull:A Case Report

Dr. Kaschev Shrestha
Resident, DoFM,
MMC, IOM, TUTH

Background

Fracture: A bone fracture is a medical condition in which there is damage in the continuity of the bone.

Skull fracture: A skull fracture is a break in continuity of one or more of the eight bones that form the cranial portion of the skull.

Anatomy: The skull bones each consists of a thick outer table of bone, the spongy diploe and the thinner inner table. The inner table is lined by a thick fibrous adherent membrane (the dura mater).

Skull fracture is an indication that severe force has been applied to the skull. Fracture occurs when the elastic limit of the bone has been exceeded and fracture of skull bone depends upon the:

- The force applied
- The point of impact
- Direction of impact
- Presence of scalp hair

Classification of skull fractures:

A. Fracture of vault of skull:

- Linear fracture
- Depressed fracture
- Mosaic fracture
- Pond fracture
- Gutter fracture
- Diastatic fracture
- Perforating fracture
- Blow out fracture
- Elevated fracture

B. Fracture of base of skull:

- Fracture of anterior cranial fossa
- Fracture of Middle cranial fossa
- Fracture of posterior cranial fossa
- Transverse fracture

Case History

A case of a 55 years old female from Rasuwa living in Taulung, Budhanilakantha was found dead in her house. According to the letter from Metropolitan Police Circle, Maharajgunj dated 2074/04/13, "the deceased was assaulted with weapons including a metal hammer, sustaining injuries on her head and other parts of her body following which the assailants robbed the place."

Autopsy findings:

General

- Body was of an adult Nepalese female of average build.
- Her clothes were stained by blood.
- She had multiple injuries over her entire body, mainly laceration and abrasion over the head.

1. External:

a. Laceration, exposing underlying muscle

and bones, measuring 2 cm x 0.2 cm, with surrounding abrasion measuring 2 cm x 2 cm, present over the right temporal region, located 8.5 cm from top of head and 8.5 cm from the anterior mid line.

b. Skin deep laceration, measuring 2 cm x 0.1 cm, present over the left temporal region, and located 10 cm from anterior mid lie and 3 cm from top of head.

2. Skull:

a. Oval depressed fracture, measuring 1.5 cm x 0.4 cm, present over right parietal bone, located 7 cm from posterior midline and 2 cm from vertex, underlying external injury 1(a).

b. Oval depressed fracture, measuring 1.5 cm x 0.56 cm, present over left parietal bone, located 4 cm from posterior midline and 4 cm from vertex, underlying external injury 1(b).

3. Brain:

a. Sub – dural and sub – arachnoid hemorrhage over bilateral temporal lobe.

Cause of Death: Blunt Force injuries to the head

Discussion

Signature fracture: Also known as depressed fracture or "fracture a la signature" are produced with a heavy object having large kinetic energy but small surface area, like hammer, chopper, axe, stone etc. in this type of fracture, the skull is driven inwards, often causing damage to the brain or its coverings. The shape of the fracture may indicate the type of shape of the weapon used or the object which caused the injury and thus also called as "fracture a la signature."

Features:

- Produced by local deformation of skull.
- Causes: Typically produced by heavy weapons with a small striking surface, may be produced due to fall on a sharp corner of furniture.
- Outer table is driven into the diploe and inner table shows comminuted fracture. Rarely only the inner table may be involved, leaving the outer table intact.

Picture showing depressed fracture

Picture showing signature fracture Resembling shape of hammer)

Medico legal importance:

- Identification of weapon from signature fractures.
- Compression of the brain which may lead to severe dysfunction, coma or death.

Summary: In case of signature fractures, the weapon or object which caused the injury can be identified; in this case it was a hammer .

*Pictures have been taken from the archive of Dept. of Forensic Medicine, Maharajgunj Medical Campus.

Death by hanging- should we expect injuries?

Dr. Geshu Lama
Resident,
Dept. of Forensic Medicine,
MMC, IOM, TUTH

Suicide is an act of killing oneself intentionally. Hanging is one of the most common modes of suicide adopted in our country. In the year 2008, the World Health Organisation (WHO) reviewed 56 countries in which hanging accounted for 53% of the male suicides and 39% of female suicides.

Cases of hanging present with a ligature mark as an external injury in almost all cases. Any injury besides the ligature mark sparks suspicion and controversy. A common misconception prevails that the deceased who hang themselves present with no injuries apart from the ligature mark and when an autopsy examination concludes the contrary, an invited and sometimes overwhelming response from the near ones of the deceased may be received. While performing an autopsy, a careful inspection and noting of ligature mark is vital. Apart from the ligature mark, other injuries may be found on the neck, surrounding the ligature marks which are known as peri-ligature injuries. They may consist of blisters, bruise, abrasions etc. and are influenced by the type of ligature material used. They may also be sustained as a result of change of mind, while trying to free oneself from the ligature. Injuries on other parts of the body may be sustained, which may be as a result of going through a convulsive state in which abrasions are caused by fingernails of the deceased himself, most common site being the thighs.

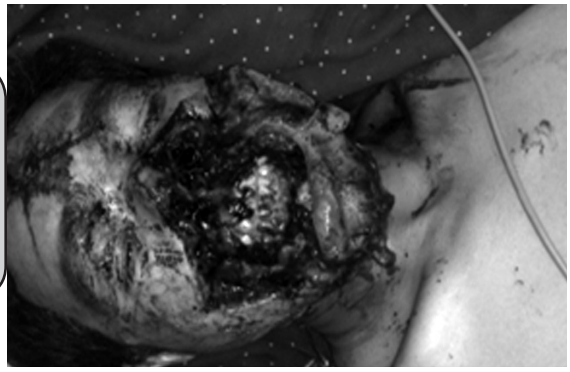
Injuries to the neck structures are common in hanging. It requires greater attention and strangulation should be ruled out. Studies have shown that the most common neck structure to be injured was sternocleidomastoid muscle accounting for 54%. Apart from muscular injury, fracture of hyoid bone and thyroid cartilage may also occur. Injuries to cervical spine have also been recorded which was concluded to be a consequence of loop pressure to the posterior aspect of neck and cervical spine hyperextension. Various factors including age, weight of the deceased and time of suspension contribute to the injuries.

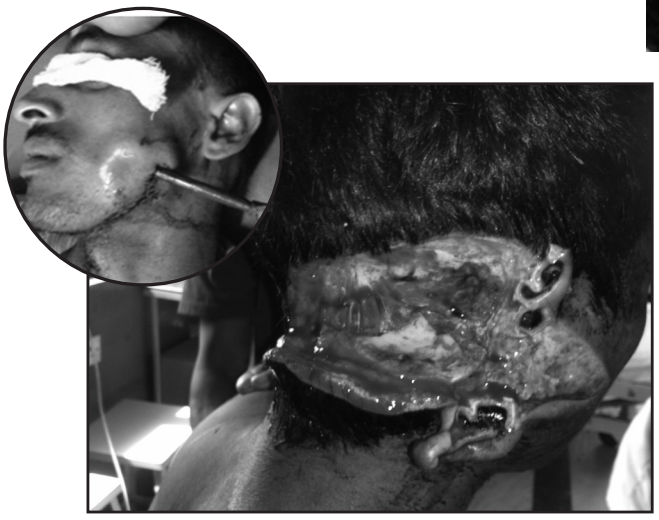
Injuries may be sustained in an effort to manipulate the body either in an attempt to release the body by the family or during the transfer to the mortuary. Injuries thus sustained may be found on the upper and lower limbs most commonly and sometimes may manifest as head injuries as well. These injuries may stir controversies and requires a careful examination of the crime scene as well as an immaculately performed autopsy, in order out foul play and also to aid in justice deliverance.

Different pattern of injuries in different scenarios:

Compiled by Dr.Alok Atreya

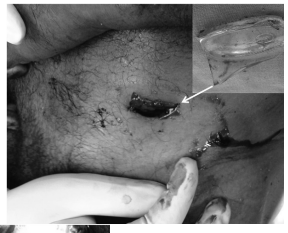
Case 1:
Brown bear attack in upper Mustang. [Bearinflicted injuries-A report from Nepal. Med Leg J 2016; 84(2):94-6.]

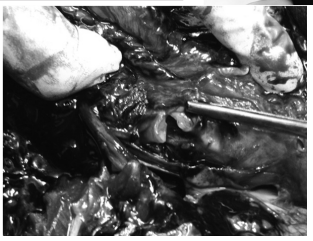


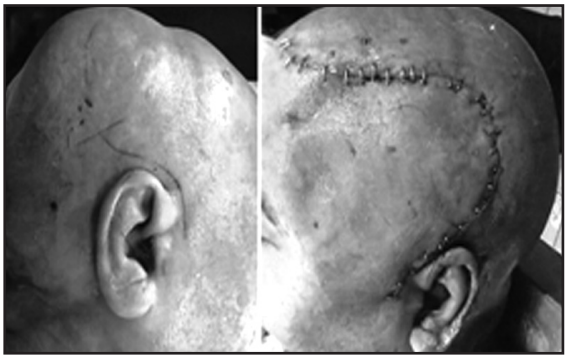


Case 2:
A. Grievious looking yet simple injury inflicted by khukuri under influence of alcohol. B.Penetrating injury on the cheek by fish hook. [Face off and alcohol consumption – A case series.Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology 2015; 16 (1):1-11.]

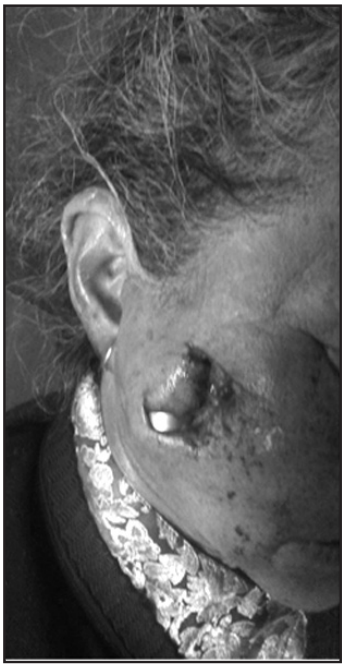
Case 3:
Accidental death of a man who was stabbed by broken piece of whiskey bottle clad in his lungi.A. Position of the bottle and accident site. B.Penetrating injury by broken piece of glass. C. Near total transection of femoral artery.[An unusual case of fatal transection of femoral vessels. Egyptian J Forensic Sci 2016;6(3):307-309.]

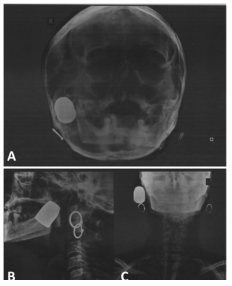




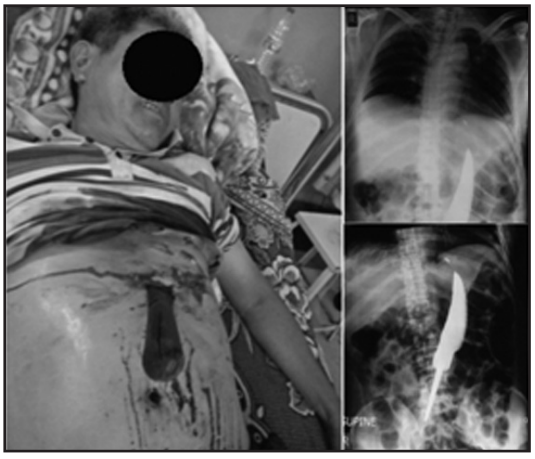


Case 4:
Initial marking for craniotomy was on the right side.[When the 'right was wrong': A case of 'missednegligence'. Asian J Pharm Clin Res 2015; 8(2):9-10.]



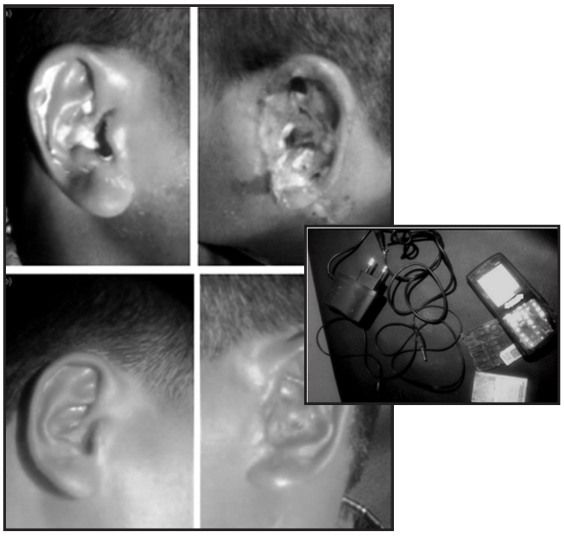


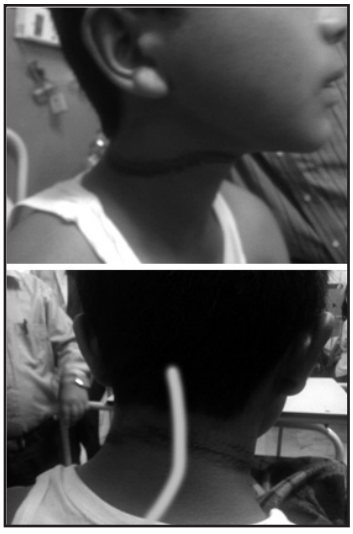
Case 5:
Pressure cooker explosion A. Nozzle impacted into the chin. B. Radiograph showing the position of impacted foreign body.[Pressure Cooker- A potential hazard in domestic setting. Kathmandu Univ Med J 2016;54(2):181-3.]



Case 6:
Self-stabbing using a kitchen knife that penetrated the abdominal cavity, and radiographs showing the location of blade inthe abdominal cavity[Abdominal self-stabbing: A case report. Med Leg J 2016;epub ahead of print]

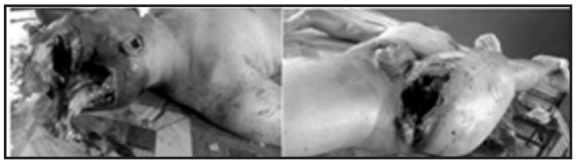
Case 7:
Mobile phone explosion. A.The mobile phone, charger and the earphone that exploded spontaneously. B. Burn injuries over both the external ears (a); complete healing occurred after two months (b)C. Burn injuries sustained over right palm (a); healing with scar formation (b).[Cell phone explosion. Med Leg J 2016; 84(1):18-21.]





Case 8:
A 15 year old schoolboy who attempted suicide by hanging. [EEG and psychological assessment in attempted hangings: A case of near-hanging from Nepal.J South India MedicolegalAssoc 2015; 7(1): 40-44.]

Case 9:
A case of fall from height where a male and female in their mid -20s formed a suicidal pact. [Inter-caste lovers' suicide pact – Case report from Nepal. Med Leg J 2017;epub ahead of print]



Words commonly used in autopsy and injury examination reports and their meaning

प्रो. डा. हरिहर वस्ती

- **Injury:** शरिरको कुनैपनि तन्तुको संरचनागत निरन्तरतामा आंच आउनु, जो भौतिक,रासायनिक, वातावरणीय वा अन्य कारणले हुने गर्दछ
- wound: घाउ वा चोट
- Ante-mortem wound: जीवित अवस्थामा परेको चोट
- Post-mortem wound: मृत्यु भैसके पछी परेको चोट
- Peri- mortal wound: मृत्यु हुँदाहुँदै वा तत्काल मृत्यु अगाडी वा मृत्युको तत्काल पछी परेको चोट
- Iatrogenic wound: चिकित्सकले उपचारको क्रममा बनाएको चोट
- Abrasion: छालाको बाहिरी पातलो भागमा (epidermis) परेको चोट
- Scratch or scrape abrasion: कन्याँउदा, कोतार्दा, नंग्राउदा, वा काँडा जस्तो तिखो तथा सानो बस्तुले हुने छालाको बाहिरी भागको चोट
- Brush or grazed abrasion: घिस्रिदा हुने छालाको बाहिरी भागमा परेको चोट
- Pressure abrasion: चोट लगाउने बस्तु वा हतियारकोचाप बाट परेको छालाको बाहिरी भागको चोट
- Patterned abrasion: कुनै बस्तुको बुट्टेदार छाप जस्तो छालाको बाहिरी भागमा परेको चोट
- **Abraded contusion:** छालाभित्र मासुमा रक्तस्राब भई छालाको बाहिरी भागको abrasion सहितको नील
- Contusion: छालाको बाहिरी भागमा केहि नभएको तर छाला मुनि रक्तनलीमा चोट परी रगतले तन्तु रंगाएको कारणले देखिने चोट वा नील
- Contused abrasion: त्यस्तो निल जसमा छालाको बाहिरी भागमा समेत चोट परेको छ
- Ectopic or migratory contusion: ठक्कर लागेको ठाउँ भन्दा अर्को ठाउँमा देखिने नील
- Black eye -peri orbital contusion_: आँखाको वरिपरी देखिने नील जसको कारण टाउकोमा परेको चोट वा अनुहारको माथिल्लो भागमा चोट पर्दा हुने गर्दछ
- Patterned contusion: बुट्टा जस्तो देखिने नील जसमाचोट लगाउने बस्तुको छाप जस्तोदेखिन्छ
- Tram line contusion: दुइ समानान्तर रेखाहरू को छाप देखिने नील जुन लम्बकार लाठी जस्तो बस्तुको ठक्कर बाट लागेको हुन्छ
- Laceration: छाला लगायत छालामुनिका तन्तु समेत च्यातिएर भएको चोट
- Split laceration: हड्डी भएको शरिरको भागमा बोधो बस्तुको ठक्कर वा प्रहार बाट भएको च्यातिएको घाउ, यदि कडा हड्डी र पातलो छाला र मासु भएको ठाउँमा पर्यो भने धारिलो बस्तुले भएको घाउ जस्तो देखिन्छ
- Tear laceration: छाला तथा मासु च्यातिएर भएको घाउ
- Avulsion: चोट परेको ठाउँको केहि भाग हड्डीबाट छुटिएको वा केहि भाग शरिर बाट छुट्टिएरभएको घाउ
- Stretch laceration: अत्यधिक तन्किएको कारण

बाट भएको च्यातिएको घाउ

- Chop wound: ठुलो र गहिरो घाउ जसको कारण गह्रूङ्गो र प्राय धारिलो हतियार बाट भएको हुन्छ,जस्तो खुकुरी, बन्चरो, तलवार आदी
- Stab wound: घोपिएको गहिरो घाउ जसको गहिराई अरू नापी भन्दा ज्यादा हुन्छ र प्राया धारिलो चुच्चो बस्तुले बनाएको हुन्छ
- Drawing cut: धारिलो हतियारले शरिरकोसतहमा लामो आकारमा काटिएको घाउ
- Firearm injury: बन्दुकजन्य हतियारबाटशरिरमा परेको घाउ
- Entry wound: गोलि वा छर्रा शरिरमा प्रवेश गर्दा भएको घाउ
- Exit wound: गोलि वा छर्रा शरिरबाट निस्कदा भएको घाउ
- Abrasion collar: गोलीबाट प्रवेश गर्दा भएको घाउको प्वाल वरिपरी देखिने गाढा रंगको दाग
- Tattooing: बन्दुकजन्य हतियारबाट भएकोभलतचथ धयगलम को चारैतिर बुट्टाभरे जस्तै देखिने टाटु जो करिब एक मिटर को दुरी भित्र बाट परेको प्रहारमा देखिन्छ
- Smoking: entry wound को वरिपरी ध्वाशो लागे जस्तो देखिने दाग जो करिब छ इन्च सम्मको दुरी बाट भएको प्रहारमा देखिन्छ
- Scorching: entry wound को चोटमा रहेको मासु तथा अन्य तन्तु केहि पोलेको जस्तो देखिनु जो नजिक बाट भएको प्रहारमा देखिन्छ
- Beveling: हड्डीको चोटमा प्वाल भन्दा भित्र वा बाहिर सतहमा हड्डीको भाग तछिनु entry wound मा भित्र पट्टि र भहष्त धयगलम मा बाहिर पट्टि दभखभष्लिन भएको हुन्छ
- Fracture: हड्डीमा लागेको चोट (हड्डी भाँचीएको)
- Linear fracture: रेखाको रूप भएको हड्डीको fracture
- Fissure fracture: Gap कमभएको fracture
- Comminuted fracture: दुई भन्दा बढी टुक्रामा विभाजित भएको fracture
- Depressed fracture: सताहबाट तल तिर दबिएको fracture
- Comminuted depressed fracture: दुई भन्दा बढी टुक्रार दबिएको fracture
- Pond fracture: कुवा जस्तो आकारको प्रयाश बच्चाको टाउकोको हड्डीमा हुने ाचबअतगचभ
- Greenstick fracture: लामो हड्डी बांगीएको अवस्था जसमा हड्डीको तन्तुमा निरन्तरता नटुटेको पनि हुन सक्दछ बच्चाहरूको हात पाखुरा, तिघ्रा नालि खुट्टाका हड्डीमा प्रयाश देखिने गर्दछ
- Bucket-handle fracture: लामो हड्डीको टुप्पोको कुनामा भएको fracture जो प्रयाशः child abuse का अवस्थामा पाईन्छ
- Bumper fracture: गाडीको दगफउभचको ठक्कर बाट तिघ्रा वा पिडुलाका हड्डीमा पर्ने चोट
- Complete fracture: हड्डी पूर्ण रूपमा टुटेको
- Epiphyseal fracture: हड्डीको टुप्पा तिरको भागमा (epiphysis) हुने fracture
- Gutter fracture: डुड जस्तो आकारको fracture
- Perforating fracture: हड्डीमा पुरा प्वाल परेको
- Fracture-dislocation: हड्डी र जोर्नीको संयुक्त चोट जसमा जोर्नी खुस्केको वा सरेको र हड्डीमा समेत चोट हुन्छ
- Sub periosteal fracture: हड्डीको बोक्रो (पेरिओस्टियम) भन्दा तल हड्डीमा मात्र परेको चोट वा fracture
- Stellate fracture: हड्डीको मुख्य चोट बाट चारतिर फैलिएका अरू चोटहरू सहितको fracture
- Closed fracture: बाहिर नरम तन्तुमा चोट नदेखिने तर हड्डीमा भने fracture भएको
- Bone deficit: हड्डी misssing भएको अर्थात्

चोटका कारण हड्डी टुटेर हराएको अवस्था

- Tissue deficit: नरम तन्तु missing भएको अर्थात् चोटका कारण छाला, बोसो, मासु आदि टुटेर हराएको अवस्था
- Dislocation: जोर्नी पूर्ण रूपमा आफ्नो ठाउँ बाट खुस्केको वा सरेको अवस्था
- Subluxation: जोर्नी आफ्नो ठाउमा केहि सरेको अवस्था
- Sprain: जोर्नी वा जोर्नीको छेउमा परेका चोटको कारण ष्निकभलत मा परेको चोट वा दुखाई
- Strain: मासुमा चोटका कारणले हुने दुखाई
- Coup contusion: गिदीमा देखिने चोट जो टाउकोमा जहाँ चोट परेको छ, त्यसको सिधा तल पर्ने ठाउमा देखिन्छ
- Contre-coup contusion: गिदीमा देखिने चोट जो टाउकोको बाहिर देखिने चोट भन्दा बिपरित भागमा देखिन्छ यस्तो चोट टाउको चलायमानभएको अवस्थामा मात्र हुन्छ अर्थात् व्यक्ति लड्दाको अवस्थामा हुने गर्दछ
- Extradural hemorrhage: गिदिको बाहिरी खोल भन्दा बाहिरतिरको भागमा हुने रक्तश्राब
- Subdural hemorrhage: गिदिको बाहिरी खोल भन्दा भित्र तिर हुने रक्तस्राब
- Subarachnoid hemorrhage: गिदिको बिचको खोल भन्दा भित्र तिर वा गिदिको सतह पट्टि हुने रक्तस्राब
- Intracereberal hemorrhage: गिदी भित्र नरम तन्तुमा हुने रक्तस्राब
- Intracerebellar hemorrhage: गिदिको पछाडिको भाग (cerebellum) भित्र नरम तन्तुमा हुने रक्तस्राब
- Sub mucosal hemorrhage: भित्रि अंगको सतहको मुलायम तह (mucous membrane) भन्दा भित्र पट्टि हुने रक्तस्राब
- Ecchymosis: छाला मुनि वा mucous membrane मुनि भएको रक्तास्राब्को दाग
- Hematoma: कुनै तन्तुमा रगत एक निश्चित स्थानमा संकलन भै सुन्निएको जस्तो देखिने अवस्था
- Sutured wound: सिलाएको घाउ
- Infected wound: संक्रमण भएको अर्थात् पाकेको घाउ
- Granulation tissue निको हुने अवस्थामा रहेको वा तन्तु पलाउदै गरेको अवस्था
- Burn injury body surface area in percentage: शरिर को सतह लाई सतप्रतिसतमानी विभिन्न भागलाई सोही अनुसार कति भाग पर्दछ भनि गणितीय रूपमा(प्रतिसत) दिईने हिसाब जो जलेको घाउका बिरामी हरूमा वाशब परिक्षण प्रतिबेदनमाउल्लेखगर्ने गरिन्छ
- Burn injury; according to depth of the tissue involved: पोलेकाघाउ हरूको गहिराई को आधारमा गरिने बर्गिकरण जुन first, कभअयलम, तजष्चम आदि डिग्री भनि उल्लेख गर्ने गरिन्छ
- Haemothorax: छाती भित्र रहेको खाली स्थान (cavity) मा रगतसंकलन भएको अवस्था
- Pneumothorax: छाती भित्र खाली स्थानमा हावा संकलन भएको अवस्था
- Hydrothorax: छाती भित्र खाली स्थानमा पानी संकलन भएको अवस्था
- Pyothorax: छाती भित्र खाली स्थानमा पीप संकलन भएको अवस्था
- Incised looking lacerated wound: धारिलो बस्तुले भएको जस्तो देखिने च्यातिएको घाउ जुन टाउको तथा निधारमा बोधो बस्तुले बनाएको हुन्छ
- Concussion: टाउकोमा परेको प्रयाश बोधो बस्तुको ठक्कर वा प्रहार बाट उत्पन्न अचेतन भएको अवस्था जुन छोटो समयको लागि हुने गर्दछ