

Analogy of Injury & Intoxication during Cross Examining Medicolegal Issues: A Case Review

Vivekanshu Verma¹, Santosh Kumar Verma²

¹Associate consultant, Department of Emergency and Trauma Care, Medanta-The Medicity, Gurugram, Haryana-122001, India.

²LLB Student, Senior Advocate, Department of Law, Rajasthan High Court, Jaipur-302005, Rajasthan, India.

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Abstract

Injury & intoxication are interrelated medicolegal cases, as the intention of the crime, needs to be investigated, to save the life of victim, its eye witness

& to collect evidence from the scene of crime, and last but not the least, is to punish the culprit, if it is caused deliberately, with criminal intent, and not just an accident. The most common defence of the accused, is that, it occurred accidentally, and not intentionally. But, it's the responsibility of the judicial court, to administer justice, by examining all the witnesses involved, to decide whether the victim suffered accidentally or it is a deliberate act of hurt.

Keywords: Accident, assault, poisoning, murder, defence, toxin.

Introduction

Background: Death investigation has been performed for centuries in all societies, although not always by medical professionals. A common question asked is, "Why does it matter? The person is dead."

While it is true that the dead cannot benefit, the value in death investigation is to benefit the living and future generations. In a culture that values life,

explaining the death in a public forum (the meaning of "forensic") is crucial for many reasons.

And this interest goes beyond simple curiosity.

Toxic Detective investigation: By our nature's gift of 5 senses on scene of accident/ assault/ poisoning/ murder:

- See (with safe distance),
- Touch (texture, feel with safety),
- Smell with precautions),
- Hear the dying declaration, death rattle, sounds in dying victims, venomous animals
- Taste (not advised, better test it in analytical Laboratory)

Leading Question to Cross Examine.

The most important cross-examination technique—for all Lawyers – is to ask good questions.

- Leading questions
- One fact per question
- Build incrementally
- Build in a logical order
- Can be a declarative statement
- Avoid conclusions
- Avoid adjectives

Defence lawyer may put forward many irritating, vague, conflicting questions to the prosecution witness (treating doctor, investigating police officer or eye witness), well calculated to disparage witness's skill, acumen & integrity.

Corresponding Author: Vivekanshu Verma, Associate Consultant, Emergency & Trauma care, Medanta-The Medicity, Gurugram. Haryana-122001, India

E-mail: prasansha0828@gmail.com

The main objectives of defence lawyer in cross examination are to elicit facts favorable to his client, such as some discrepancies, inaccuracies, contradictions that could have crept in during the process of recording statement in chief.

Purpose of cross examination is to weaken, disqualify or destroy the case of opponent.

Accident Verses Assault

Murder or Accident- Section 80 IPC1

Q. What is the most common defence by Accused facing Charges of Murder?

The Murder was an accident. Accused Act kills the victim - Accused plea to judge in court that his act was just an accident. Accused may plea guilty under Section 304-A IPC1- death by accident. It has lesser punishment and is bailable offence, unlike Murder under Section 302 IPC1- non-bailable offence.

Especially in unconscious victims:

The stone hits him (by Assault) by the accused Its common defence for the accused of suspected murder of victim, that it was an accident & not murder.

He fell on the stone by falling on the ground and hitting a stone (Accidental).

Section 351 IPC defines Assault:¹

Whoever makes any gesture, or any preparation intending or knowing it to be likely that such gesture or preparation will cause any person present to apprehend that he who makes that gesture or preparation is about to use criminal force to that person, is said to commit as assault.

(1) that the act was done by accident or misfortune;

(2) that it was done without any criminal intention;

(3) that it was the doing of a lawful act;

(4) in a lawful manner;

(5) by lawful means and

(6) with proper care and caution.

Q. Where in IPC - the act classify as excusable act as Accident or not?

Accused's defence in Charges of Murder- Section 80 IPC.1

To invoke the help of Section 80, there should be the absence of both criminal intention as well as criminal knowledge.

No act is per se criminal unless the actor did it with criminal intent.

As the object of criminal law is to punish only serious infractions of the rules of society, it cannot punish a man for his mistakes or misfortune.

If people in following their common occupations, use due caution to prevent danger, and nevertheless happens unfortunately to kill anyone, such killing is homicide by misadventure.

Q. Why we doctors must read and learn about this accused's defence of the act as accident and not murder?

When treating doctor is called in the court for evidence in MLR (Medicolegal Report) or postmortem of killing act of offence with no eye witness, and defence lawyer tries to irritate the doctor by making him wait for hours in court and then asks doctor multiple irrelevant questions about the mechanism of injuries by firearm / stab or any dangerous weapon, duration of injury, credibility of doctor and the falsification of facts mentioned in MLR about history of assault.

The main goal of the accused's lawyer is to prove that it was an accidental death, and no fight occurred between victim and accused. So the lawyer asks for any other injuries on the body of victim or not. If the doctor is able to justify in court that there were defensive wounds on the victim's arm or back, than it proves to be an intentional act and not an accident.

Q. Describe a case of an offensive act not considered as "accident" and the act is not excusable in law?

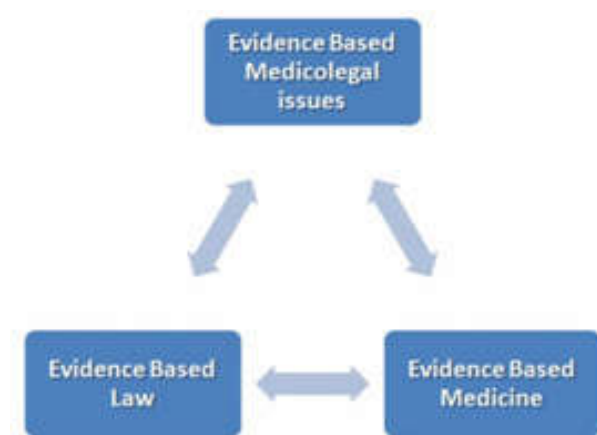


Fig. 1: Evidence based medicolegal issues in Trauma & Toxicology

Q. What are the essential ingredients to constitute justifiable plea of accident or misfortune?

But where the accused was engaged in a fight in which a woman intervened, whereupon the accused aimed a blow at her, but it accidentally killed the infant she was carrying, it was held that the case was not protected by the provisions of Section 80 as the assault on the woman was a wrongful act.

Q. Describe the most common defence taken by accused killing victim in firearm injury?

'A' takes up a gun and without examining whether it is loaded or not points it in sport at 'B' and the gun goes off killing 'B'.

Such a death is an accident or misfortune and 'A' had no criminal intention or knowledge in pointing it at 'B', but since there is an absence of proper care and caution on his part his act shall not be excused under Section 80 of IPC1.

The position would have been otherwise if 'A' had reason to believe that the gun was not loaded and he had acted with proper care and attention.

Case Report

Case 1

Supreme Court: Acquittal in attempt to murder case upheld

Appeal against acquittal - Prosecution case that respondent fired from pistol on temple of deceased on account of quarrel regarding more weighing of paddy

Contention raised that parties involved in case, were known to each other then why complainant did not mention respondent's name in complaint and the pistol alleged to have been used in commission of offence, blood stained shirt and soil were also not sent for forensic examination

Moreover, if as per prosecution case, the shot was hit from very short distance then as per doctor's report particular type of mark must be there but no such mark noticed on body - No explanation given for this

No infirmities in order of acquittal - Hence, acquittal held proper.

Citation: Supreme Court in: State of Uttarakhand Vs. Jarnail Singh. 2018 ALL MR (Cri) 445.²

Case 2

From the evidence on record, it can safely be concluded that victim had died of violence on the day, time and place, as alleged by the prosecution. It

has to be stated that the medical evidence placed on record cannot be considered in isolation and it must be taken in conjunction with all the circumstantial evidence on record. It has to be further pointed out that in the cross-examination of P.W. 1, the defence has suggested that the deceased had sustained the injuries due to a fall from the bus and also on account of hitting the stone slabs, which has been clearly denied by the complainant P.W. 1.

Likewise, it has been suggested to P.W. 2 in the cross-examination by the defence that on the date of the incident, her father P.W. 4 had assaulted her mother and for that reason, her mother had left the house to go to her parents' house which has also been denied by P.W.

The evidence of the Doctor P.W. 10 would clearly indicate that the death of the deceased was due to shock as a result of bleeding from the major vessels supplying blood to the brain and other vital organs by a sharp weapon and he has clearly denied the suggestion that the said injuries can be caused to the deceased due to a fall from a moving vehicle on the sharp edged surface.

No doubt, the Doctor P.W. 10 had stated that he had seen actually only one injury on the dead body of the deceased.

But the inquest proceedings held on the dead body of the deceased would clearly reveal that there were two injuries, one on the head and the other on the neck.

Of course, the fatal injury was on the neck.

Even the photographs of the dead body of the deceased taken by the photographer as per Exhibits P-17 to P-21 would reveal that there was one injury on the head also besides the fatal injury on the neck. It may be that the injury on the Head could have been lost sight of by the Doctor due to the presence of the long hair on the head of the deceased.

So, that by itself is not sufficient to discard the medical evidence of the Doctor P.W. 10.

Therefore, on the facts and circumstances of the case, it is more realistic to conclude that the death of the deceased was homicidal and not an accidental one as sought to be suggested by the defence.

Citation: Venkatachalaiah vs State of Karnataka on 4 September, 2000.³

Case 3

The evidence of the doctor PW 3 showed that once the injury was found on the skull of the deceased, that ruled out any possibility of an injury being

sustained by the deceased by falling on the ground and hitting a stone. If there was a fall because of the effect of liquor, there would have at least been some scratches on his body. Learned Counsel for the appellant contended that, in contrast, the High Court had given very flimsy reasons for not accepting the evidence of PW 5, PW 2 and PW 4 and that, therefore, the Judgment of the High Court was liable to be set aside. The above reflects broadly the analysis and reasons given by the learned Sessions Judge for coming to the conclusion that the prosecution had proved beyond reasonable doubt that the accused was guilty of murder of the deceased and the assault on PW 5.

Citation: State Of Maharashtra vs Manohar on 20 October, 1997.⁴

Case 4

Ld. Counsel for the accused Sunny and Hunny submitted that no quarrel has taken place between deceased and injured with the accused. He further submitted that accused have not caused any injuries to the deceased or injured. He further submitted that deceased has fallen down on the ground when his over was in progress and his head hit on the stone. He further submitted that deceased has sustained injuries by fall on the ground and doctor has categorically stated that injuries are possible by fall on the ground. He further submitted that the single external injury on the body of deceased rules out the possibility of hitting him badly with bat and cricket stumps by the accused.

He further submitted that stumps are State v. Sunny etc - SC No. 2027 of 2016 Page No.25 / 39 planted upon the accused in order to show that these stumps were used to hit the deceased otherwise recovery does not inspire confidence.

Citation: Delhi District Court decided in State vs Sunny on 12 April, 2018. SC No. 2027 of 2016.⁵

<https://indiankanon.org/doc/84110530/>

Case 5

The accused pressed the neck of victim by an electric wire causing her falling on the ground and hit upon her face with a granite stone inflicting severe injuries. Hearing the screaming sound of victim, two school going children playing in the adjacent compound listened and found the accused. The accused told them that, victim was bitten by a snake and children were sent away to bring their parents. Thereafter the accused, after inflicting severe injuries on the face and neck of victim, snatched away her gold chain

and disappeared. To attract the offence under Section 397 IPC, at the time of committing robbery or dacoity, the offender should use any deadly weapon or cause grievous hurt to any person or attempt to cause death or grievous hurt to any person. In this case, from the oral evidence of PW1 to PW4 and the medical evidence, it is clear that, the injured sustained grievous hurt and the accused committed robbery.

Citation: Kerala High Court: Senthil Kumar Alias Yasayyavs State of Kerala on 19 May, 2020.⁶

Case 6

(Mr Nitish Katara murder case)- Homicidal Physical Assault by blunt weapon- comminuted depressed skull fracture of frontal bone by hammer- Postmortem Burned by accused to destroy identity of victim.

Defence lawyer proposed that it was a case of high speed RTA (Road Traffic Accident) followed by vehicle's petrol tank burst due to collision and resulting burn as the cause of death, as the victim was found by police in the bushes near roadside.

Now defence lawyers asked 1st question to doctor-Can skull fracture be caused by falling on hard & blunt surface?

क्या यह चोट सख्त सतह पर गिरने पड़ने से आ सकती है? (हां या नहीं)

Doctor replied -No.

Wound of this nature could be caused only when a moving person hits a stationary hard surface - results in 'countercoup injury' and will result in a lesion in an area opposite to the point of impact.

But no countercoup lesions found in Nitish Katara's Head.

Lawyer lost the case, and the accused were imprisoned for life.

Citation: Infamous case of honor killing of Nitish Katara by his girlfriend's brother, mentioned in Delhi High court judgment in Vishal Yadav Versus State of UP, CrI.A. 741/2008 decided on 2nd April 2014.⁷

Case 7

Definition of Accident: The term accident for the purpose of the law relating to compensation for the personal injuries sustained by the workmen & the employer liability in that behalf includes any injury which is not designed by the workmen himself, and it is of no consequence that the injury was designed and intended by the person inflicting the same.

Citation: Glasgow Coal Co. Ltd. V Welsh, 1915, SC 1020.⁸

Case 8

Disease as accident:

If the injury or death from the point of view of the workmen who dies or suffers the injury, is unexpected or without design on his part, then the death or injury would be accident although it was brought about by a heart attack or some other

cause to be found in the condition of the workmen himself.

Citation: Parwatibai Vs Manager, Rajkumar Mills, Indore, AIR 1959 MP 281,

National Insurance Co. Ltd Vs Balawwa 1993 (2) TAC 357: 1993 ACJ 815.⁹

Discussion

For legal purposes in India, however, the exact definition of a 'poison' is not essential, because the law usually paraphrases in explanatory form its reference to poison.

Thus in the causing of hurt and grievous hurt by poison, 324 and 326 IPC state: Any poison or any corrosive substance or any substance which is deleterious to the human body to inhale to swallow or to take into the blood.

Hence for conviction under these sections, it is not necessary to establish that, the substance by means of which the hurt or grievous hurt was caused, is a poison.

It is sufficient, if it be proved that, it is a substance which comes under the stated description. 328 IPC1: Causing hurt by means of Poison.

- Whoever administers to or causes to be taken
- by any person, any poison or any stupefying, intoxicating or unwholesome drug or other thing with intent to cause hurt to such person or with intent to commit or to facilitate the commission of an offence, or knowing it to be likely that he will thereby cause hurt shall be punished with imprisonment of either description for a term which may extend to ten years and shall also be liable to fine.¹
- Here again it will be observed that the addition of the words any stupefying intoxicating or

unwholesome drug or other thing renders the exact definition of, the term a poison unnecessary for the purposes of this section.

- It should however be noted that the other thing must be read other unwholesome thing.
- Hence administering a substance as to whose nature no evidence "as given which was intended to act as a charm was held to be milder offence.

How to Cross Examine a witness:

The C's: to Cross Examine

- C-Confirm -That is not what you said before
- C-Credit- Volunteering statement
- C-Clarify-So, the answer to my question is yes?
- C- Confront- is it Hearsay?

Fatal criminal Poisoning: (Homicide) section 299 IPC1 declares "Whoever causes death by doing an act, with the intention of causing death, or with the intention of causing such bodily injury, as is likely to cause death, or with the knowledge, that he is likely by such act, to cause death, commits the offence of culpable homicide".

Hence if A administers a substance to B with such intent or knowledge and thereby causes B's death, A may be convicted under this section, of the offence of committing culpable homicide, irrespective of whether the substance administered may or may not strictly be called a poison.¹

For it is the intent, which suffices to constitute a crime, irrespective of the dose or even the nature of the substance.

Four Legal Principles to Prove Criminal Poisoning during Cross Exam to Punish & send in Prison

(All P's for easy recall- Poison- Purpose- Possession- Pierce-Perish-Punish in Prison)

- (1) there is a clear *Motive* (Purpose) for an accused to administer poison to the victim;
- (2) that the victim *died due to* Poison said to have been administered to sick him;
- (3) that the accused had the poison in his *Possession*, to chemically kill him;
- (4) that he had an *Opportunity* to administer* the poison to the victim body by P-Piercing via injection, ingestion or inhalation intentionally (All I's), that Perish (die, especially in a violent or sudden way)

the victim.

It becomes Punishable offence legally Proven by evidence.

Citation: SC decision in AnantChintamanLagu v. The State of Bombay, AIR 1960 SC 500.¹⁰

*Interrogating & Cross Examination of witness in Poisoning:
All W's for easy recall*

- W- Who is victim (Name, Age, gender, address)
 - W- Which occupation (spy, college students, banker, policeman, journalist, politician, lawyer, doctor)
 - W- What poison consumed
 - W- What quantity consumed (fatal dose)
 - W- When consumed (fatal period)
 - W- What is route of poisoning (ingestion/ inhalation/ injection)
 - W- Where consumed (place of crime)- to collect evidence by police
 - W-What number of victims (mass casualty)
 - W- Who gave poison (suicidal/ homicidal/ accidental) - dying declaration
 - W- Why(intentional, non- intentional, suicidal, homicidal, accidental) dying declaration – suicide Notes
-

Case 9

Murder or suicide Discarded specimens absolve accused

Facts: A man visited home of his estranged wife and her mother to check on his children.

- He allegedly goes for a morning walk, returns home seriously ill and dies en route to the hospital.
- Based on the wife's statement, the investigating officer documents the cause of death as "suicidal Celphos* poisoning."
- At autopsy the pathologist states that there is "no presence of poison" and finds a hyoid bone fracture and ligature marks consistent with strangulation.
- However, the autopsy also shows visceral congestion, cyanosis of the nails, and large blisters on the entire body, all of which are consistent with Celphos poisoning.
- The victim's brother accuses both the ex-wife and mother-in-law of choking the victim to death.
- The women are both charged with murder.

- The estranged wife dies awaiting trial, but her mother is found guilty in trial court and sentenced to life in prison.
- That verdict is sustained on appeal but is then taken to Supreme Court of India

Prosecution: Based on the hyoid fracture and ligature marks, this was a murder.

- Toxicology studies were done and were negative but the samples and reports have gone missing.

Defense: This was a setup.

- My client has been falsely accused.
- My son-in-law's brother just wants our property.
- The lower courts have negligently sidelined the issue of suicide.
- The prosecution does not have a single independent witness to support its case.
- There is ample evidence that the victim used Celphos to take his own life.
- This was a suicide.
- The State has conveniently failed in its duty to preserve the victim's organs that would prove my client innocent.

Result: The Supreme Court determined that witness statements, the investigating officer's report and gross autopsy evidence of suicide had been set aside in the lower courts and never addressed.

- They agreed that organs are expected to be preserved for further toxicology studies in such cases.
- The Doctor's statement that the organs were not preserved because there was no evidence of poisoning was deemed insufficient.
- The court ruled that the accused had not been allowed the benefit of doubt to prove her innocence and overturned the verdict.

Takeaway: Justice eventually prevails in delayed duration, but not denied... but it might take a while.

Citation: Supreme Court decision in DevkanyaTiwari v. State of Uttar Pradesh. Criminal Appeal No. - 720 of 2016, decided in March 2018.¹¹

Case 10

Manufacturing industry related toxicology: Whether act was accidental Or Intentional

Toxic Gas exposure- Methyl Isocyanate (MIC)-Bhopal Gas Tragedy in Pesticide manufacturing plant (Union Carbide), Water pollution due to toxic chemical release in waste disposal, Cyanide gas in wool processing & plastic manufacture. Mr. Anderson, the CEO of that Union Carbide plant, claimed that it was a sabotage, by his competitors.

Arson or sabotage as a crime can be defined as willful and maliciously setting fire to a property to cause damage.

Section 435 of IPC states that "Whoever commits mischief by fire or any explosive substance intending to cause, or knowing it to be likely that he will thereby cause, damage to any property to the amount of one hundred rupees or upwards

But, on investigation, Negligence on part of Union Carbide plant management was found.

The Union Carbide company involved in what became the worst industrial accident in history immediately tried to dissociate itself from legal responsibility.

Eventually it reached a settlement with the Indian Government through mediation of that country's Supreme Court and accepted moral responsibility. It paid \$470 million in compensation. The disaster indicated a need for enforceable international standards for environmental safety, preventative strategies to avoid similar accidents and industrial disaster preparedness.

Citation: Supreme Court of India judgment in Union Carbide Corporation Etc. vs Union Of India; 1992 AIR 248, 1991 SCR Supl. (1) 251.12<https://indiankanoon.org/doc/27098883/>

Case 11

In One of Los Angeles -L.A.'s Most Outrageous Murder Cases, a Rattlesnake Was the Weapon. In 1935, Accused became L.A.'s worst husband. A.K.A.: "Rattlesnake Killer". Wife Killed by snakebite, by the Husband intentionally, to claim insurance fraudulently for simulating wife's death accidentally by drowning in his home's waterpool. Investigators discovered that Accused had been married previously and that one of his prior wives had died under similar circumstances.

Accused was convicted of first-degree murder and sentenced to death by hanging.

Classification: Murderer

Characteristics: To collect insurance money
Number of victims: 3

Date of murders: 1932 - 1935

Date of arrest: April 19, 1936

Victims profile: Winona Wallace (his wife)/
Cornelius Wright (his accident-prone nephew)/
Mary Busch (his wife)

Method of murder: Poisoning
(rattlesnake)- Drowning



Fig. 2: Crime Scene Reconstruction (CSR) using Snake Box: Diamondback Rattlesnake (American Viper) to bite-murdering by drowning, after snakebite on her leg on bed, for insurance claim fraud. Police re-enacted the murder with help from Charles Hope (right).¹³

Location: Colorado/California, USA

Status: Executed by hanging at San Quentin State Prison in California on May 9, 1942.¹⁴



Fig. 3: Diamondback Rattlesnake (American Viper) rattlesnakes were brought into the courtroom during the trial.

Citation: U.S. Supreme Court 314 U.S. 219 LISENBA v. PEOPLE OF STATE OF CALIFORNIA. Nos. 4 and 5. Decided Dec. 8, 194115

Similarly, If we analyse Venomous Bites & Stings Toxidrome:

This can be broadly classified based on whether the venomous organism is a vertebrate, which has vertebral spines to support its body and vital organs, or an invertebrate (spineless).

Venomous vertebrates are mostly P-Predators, and use the venom to paralyse their P-Prey, so that they can eat it without any resistance from the prey, and it's P-Paralytic, prevents the prey from escaping from the predator.

But invertebrate venomous organisms have poison to defend themselves from predators, which irritates their predators preventing them from eating them, creating a self-defense mechanism.

So to enumerate below, basic differences between the Toxidromes of bites and stings.

It bites U or U bite it, U will be hurt. Why do Snake Bites painless.

What, if you eat a poison dart frog.

Why we avoid eating fish (taking a bite) in rainy season.

Why do Scorpion Stings so painful.

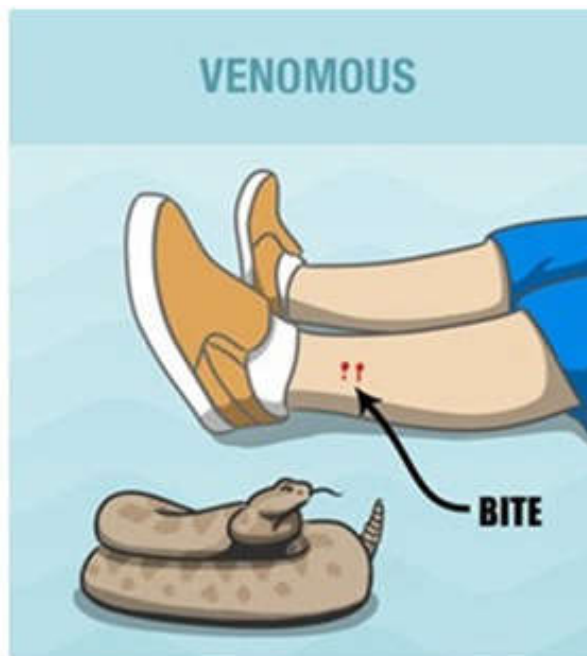


Fig. 4: Vertebrate Bites predator paralyzes prey painlessly, All P's Mnemonic for easy recall.

It's both ways paralyzes you, either the vertebrate snake, bites you, or, you take a bite on vertebrate frog.

- Snake Bite = Sympatholytic (S-S)
- Nag Cobra & Krait – Neurotoxic (N-N)
- Viper – Vasculotoxic (V-V)
- Sea snakes - Myotoxic
- Venomous Lizards, GilaMonster – Neurotoxicparalysis
- Frogs (poison dart frog) – Batrachotoxin - paralysis, dyspnoea
- Fish- Ciguatera (algal blooms in rains): paralysis of limbs & facial muscles
- Tetrodotoxic fish (Fugu, puffer fish) - ascending paralysis

So it's both ways, will paralyzes you, either the vertebrate bites you (eg., Snakes), or you take a bite on vertebrate (Fugu fish, Ciguatera Fish, Poison Dart Frog).

Invertebrate Irritates

All I's for Easy Recall: Invertebrate Irritates (I-I)

Invertebrate (Arthropod) Stings = Irritants / Stimulants to vital centres of the victim

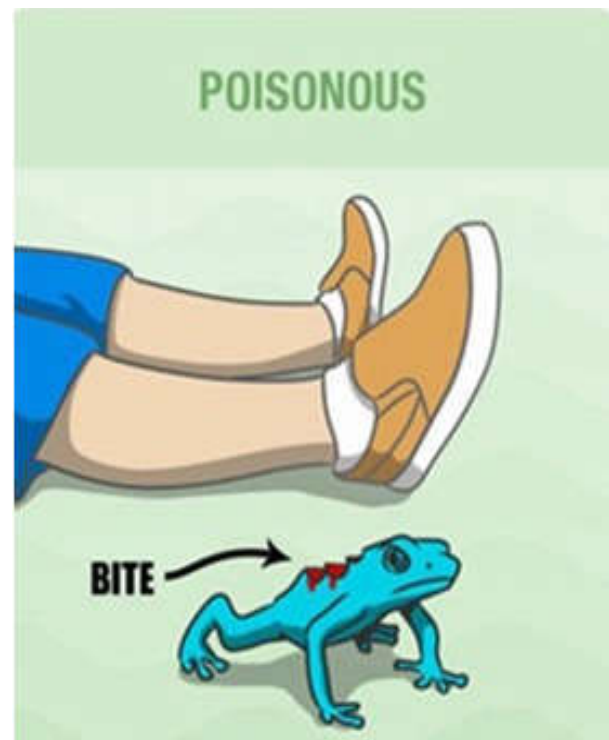


Fig. 5: It's both ways paralyzes you, either the vertebrate snake, bites you, or, you take a bite on vertebrate frog.

- Scorpion sting = Sympathomimetic, Autonomic storm
- Indian Scorpion sting = Cardio-stimulant, priapism
- Bee sting & Wasp sting = anaphylaxis by stimulating histamine release
- Spider bites (black widow, brown recluse, tarantula) – cramps, convulsions
- Spanishfly= Cantharides - priapism, convulsions
- Centipede & Millipede - pain, swelling
- Shellfish (oyster, clam, mussel, snail) = paraesthesia, tremors, convulsions

There is analogy to this scientific principle in trauma & toxicology. Either you fall on stone, Or the stone falls on you, it's you, who will be hurt,

Not the stone, anyways.

चाकू सेब पर गिरे

चाहे सेब चाकू पर

कटेगा तो सेब ही

Its common medicolegal argument taken by lawyers in defence, for injury caused by dangerous weapon, which the victim, fell on the weapon accidentally, and it's not intentionally caused by the accused.



Fig. 6: Judges, Lawyer & Culprit.

Thus, if there is no eye witness to the crime of grievous hurt, Lawyers are able to bail out the accused (their party), based on this reasoning of injury caused, both ways.

The reasoning works for benefit of Doubt, to the accused assaulter.

Was there any visible bleeding, blood stain?

Khoon (खून) has multiple meanings in various contexts in common= it is the urdu word used for describing blood, bleeding & resulting murder (खून कर दिया) by violent means – like gunshot, stabbing by knife or dagger. Note the use of word Khoon literally blood, as a synonym for "murder". And Khoon word is also used for the inheritor (son), as

born by the drop of blood (myth from old beliefs in orthodox people).

In past, Many Indian medicolegal experts considered taking of life by bloodshed a greater crime than poisoning or strangulating etc.

A medical witness is puzzled by the persistence with which a lawyer will cross examine to know if there was any blood spilled on the clothes etc.

Was there any visible bleeding, blood stain on victim's body, clothes or scene of crime?

Many legal counsels argued that, if no blood is shed, the manslaughter does not amount to murder, and the punishment to the accused should be less.

Citation: Lyon's Medical Jurisprudence for India With Illustrative-Cases. Seventh Edition.Modes of Poisoning. p441.¹⁶

10 K's Mnemonic for-Cross Exam in poisoning

- K-Kaunhai victim (Name, age, gender, address)
- K-Konsa occupation (High risk :Housewives/ spy banker/ judge/lawyer / policeman/Journalist/ politician/ witness of heinous crime)
- K- Kya Khaya
- K- Kitna Khaya (fatal dose)
- K- Kab Khaya (fatal period)
- K-Kese Khaya (ingestion/inhalation/ injection)
- K- Kahan Khaya (place of crime)
- K- Kitne victim (mass poisoning)
- K- Kisne diya (suicidal /attempt to murder)
- K-Kyun Khaya (Intention-accidental/homicidal/suicidal)
- K- Khoon: खून ने ही खून कर दिया

Poisoners Described In Indian Medico-Legal Treatise:

In 1889, the mother of a 2 month old female child, left her child in verandah of her house, while she went to fetch water.

On returning she found the child sucking the finger of a woman who had come during her absence.

This woman on being asked, what she was doing hastily wiped her right hand in piece of rag and told the mother that she was giving the child some bread, a piece of which she showed in her left hand.

The woman than left, and the child soon commenced vomiting, and died within a few hours.

Opium was detected in the viscera of the child, and the rag on which accused woman wiped her finger was also found to bear stains of opium.

The bread which the accused held in the left hand contained no opium.

The mother wiped the mouth of the child, when it vomited with a piece of cloth which was also forwarded for examination and in the stains on which opium was detected.

Citation: Lyon's Medical Jurisprudence for India With Illustrative-Cases. Seventh Edition. Modes of Poisoning. p441.

Is there any scientific hypothesis for toxic assassins, as Poison Damsels, in reality?

Is it possible, to feed a chosen animal first, on the toxin in low doses, and gradually increase it chronically, till the tolerance develops, and that animal can ingest large doses later, without any toxic effects.

But when, this first animal is sent to co-habit with another animal, to stay in close physical contact for days, and the first animal still keeps on consuming the toxin secretly, but the second animal in first's close association, develops its acute toxicity, due to secondary exposure to the culprit toxin in fatal dose actually & dies suddenly.

And the first animal walks out safely, not only medically, but also legally, without getting any punishment, for culpable homicidal killing of the second animal, in the court of law.

Scientific Hypothesis of Poison Damsels

That the chosen ones (विषकन्या) would be ultra-rapid metabolizer of opium.

As Poisoner might have multiple duplications of specific cytochrome P450 metabolizing opioids in their body.

On its chronic administration, instead of converting the normal 5% to 10% of codeine to morphine, they would convert nearly all into morphine, and excrete it all in their body fluids – saliva, breast milk, urine.

Opioid ultra-rapid metaboliser multiple duplications of specific's cytochrome P450, Instead of converting the normal 5% to 10% of codeine prodrug to morphine.

Genetic polymorphisms of this Cyt P450 enzyme result in three phenotypes: poor metabolizer

phenotype, extensive metabolizer phenotype, and ultrarapid metabolizer phenotype.

Ultrarapid metabolizers have duplication of the gene, resulting in increased enzymatic activity.

Poisoner would be converting nearly all of the toxic opioids.

Table 1: Case reports providing evidence on the impact of polymorphisms of metabolizing enzymes on the safety of codeine. Source: Eugenia Y. Pharmacogenomics and Opioid Analgesics: Clinical Implications. International Journal of Genomics Volume 2015, Article ID 368979, 8 pages.¹⁷

Author	Metabolizing enzyme	Polymorphism	Adverse event
Gasche et al., 2004	CYP2D6	CYP2D61 × 3, in a patient suffering from renal insufficiency and co-treated with CYP3A4 inhibitors	Life-threatening intoxication
Voronov et al., 2007	CYP2D6	CYP2D6 × 2	Apnoea and brain injury
Madadi et al., 2007	CYP2D6	CYP2D62A and CYP2D62 × 2	Death of the breastfed 13-day-old boy
Ciszkowski et al., 2009	CYP2D6	CYP2D61 × N	Death due to respiratory arrest
Kelly et al., 2012	CYP2D6	CYP2D61 × N	Two deaths, one case of severe respiratory depression

A case of death of a breast fed baby 13 days after birth

His mother was prescribed codeine as an analgesic after delivery.

Postmortem examination of stored breast milk samples showed morphine levels 4 times higher than expected.

Upon genotyping, the mother was found to be heterozygous for a CYP2D6*2A allele and a CYP2D6*2 × 2 gene duplication.

Thus the mother had three functional CYP2D6 alleles and was classified as an ultrarapid metabolizer. The extra CYP2D6 enzyme resulted in increased O-demethylation of codeine

to morphine, and consequently, very high concentrations of morphine were found in both the breast milk and in the blood from the child.

In this case, the mother was acquitted from charges of homicide of her child, as it was unintentional & unknown to mother herself, that she is genotypically hyper secretor of opioids, till the last, found only after the investigations.

Citation: P. Madadi, G. Koren, J. Cairns et al., "Safety of codeine during breastfeeding: fatal morphine poisoning in the breastfed neonate of a mother prescribed codeine," Canadian Family Physician, vol. 53, no. 1, pp. 33-35, 2007.18

Mythological Opium misuse to kill: Infanticide

In Indian Mythology Bhagavata Puran, Demon Pootana was, one of the chosen Poison Damsel, who tried to kill infant stage of Lord Krishna.¹⁹

Damsel lady Pootna was sent by Mathura King Kansa for killing his infantile nephew lord Krishna, by breastfeeding laced with toxic opium, as she was the active secretor of opioids in her secretions- saliva, breast -milk, urine, sweat.

Lethal Lullabies: Opium misuse to Infanticide:

Lullabies are soothing songs in rhymes, for making the infant sleep, by their babysitters, mostly.



Fig. 7: J. Poison Damsels: Opium's toxicity for infanticide

But, in past, few babysitters used opium for inducing sleep to their infants, in care.

Golden rule of Crime Scene investigations (CSI): from most to least

Prioritising your 5 Senses (See, smell, hear, test (not taste), touch) which to use **best**, and which to utilize **least**:-

Use your eyes the most (observe more),

Hands the less (disturb and contaminate to lesser extent) and

Mouth the least (first analyze the facts then opine,)

and (never disclose to social media, always disclose to the appropriate legal authority with proper reasoning, relevant evidence & scientific logic),

Never taste the suspect poison to find what it is as it's shown wrongly in our movies & serials) Better get it chemically tested by authorized analytical toxicology lab.

Take Home Message: All I's for Easy Recall:

- How to I-Identify common poisons, weapons
 - How to I-Investigate a case of poisoning, accident, assault
 - How to I-Interpret the findings in scene of crime
 - How to I-Interrogate the victim, witness & accused of injury or intoxication
 - How to I-Initiate the criminal proceeding for justice to the victim
 - How to I-Intervene the dying victim by first aid as scene of crime
 - How not to I-Incite" Nor "I-Instigate" unnecessarily at scene of crime
 - I-Innovative approach of crime scene Toxic Detectives
 - I-Intoxicated/Injured
 - I-Imitation Crime Reconstruction of Drug facilitated assault, to prove the causal relationship in Locard's principle
 - I-Injuries by irritant / caustic poisons/ weapons
 - I-Initiation of first aid by bystander (good Samaritan)
 - I-Improvising techniques on-spot for pelvic binder from bed-sheet in Sexual assault victims
 - I-Injection marks over arms in opioid abuse in rave party
 - I-Installing Pocket mask for giving rescue breath, to dying victim on spot
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Conclusion:

Court evidence is essential component for administration of justice, in which the treating doctors & investigating police officers, play crucial role, by honestly presenting the facts of case, in best possible manner, to prove the guilt of accused. Cross examination by defense lawyers, examining witnesses becomes important for getting the bail of the accused, and for acquittal in court trials. This case review may help the young budding professionals in the field of medicine & law, to understand the basic principles & the logical approach.

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