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Review Article

Examination protocol of dismembered bodies in railway track: A suggestive review in the Indian railways backdrop

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ABSTRACT

Railway-related fatalities often involve dismembered bodies, which pose unique forensic challenges. There is the need for standardized examination procedures, especially in India, where about 30% of bodies in railway track are unidentified. Distinguishing accidental trauma from criminal dismemberment requires sophisticated forensic expertise. The protocol emphasizes a systematic approach, including scene investigation, body part documentation, and post-mortem examination. Key aspects include proper handling of multiple body parts, assessment of postmortem intervals, and precise injury documentation. Ancillary investigations, such as radiological examination including PMCT and Micro CT, histological sampling, object or tool mark analysis and entomological analysis are to be used to meet the secondary objectives of autopsy. The review aims to standardize investigation procedures, improve forensic reporting accuracy, and enhance the quality of railway-related death investigations.

1. Introduction

Railway accidents are classified as train accidents, movement accidents and non-movement accidents. On-movement accidents include death in train coaches, platforms and death on track not attributable to train.[1] According to Indian Railways, the Class P accidents results in loss of human life or grievous hurt due to fall out of a running train (P.1) and run over or knock down by a train (P.2). Grievous hurt or deaths which are accidental or natural within railway premises are classified under Q.1, whereas Q.2 denotes homicide or suicide in a train or within railway premises.[2]

The International Railway Safety Council reports a steady decrease in casualties per train-km since 2016, with the 2021 fatality indicator being the lowest since 2006 despite the pandemic (as per UIC Database).[3] NCRB, as per its data in 2020, reported that 'Railway Crossing Accidents' and 'Railway Accidents' accounted for 8.2% and 0.8% of the transport related accidental deaths respectively. The incidents like 'Fall from Trains or Collision with People at Track' amounted to 70% of total railway accidents, whereas 95.6% of railways accidents were attributed to 'Other Cause' (fall of persons from trains, persons coming under trains, etc.,). Approximately 2600 suicides were due to deliberate presentation under the running vehicle or train.[4] About 26% of dead bodies in railway tracks remained unidentified, as per the data of Karnataka railway police.[5]

The pathologic alterations in cases of railway-related decapitation and transection of the body interfere with the autopsy process of arriving at the manner of death. Not all dismembered bodies found on railway tracks are due to train run-over ante-mortem but also may be a disposal after homicide.[6] Apart from railway run over,

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decapitation and dismemberment injuries are also observed in homicidal deaths. We present a review on managing a case of dismembered body in the railway tracks in India.

2. Incidents in Railway Tracks

In any antemortem dismemberment due to train collision, the surgeon is to assess the possibilities of accident, suicide or homicide. If the person is run over by train, the data regarding the witness, day or night-time and evidence of blood stains in train engines are to be checked. Accidental run-over is common in track at level crossings in case of normal users and track workers who may be further electrocuted due to overhead cables.

3. Mechanism of Railway Accidents

Injury biomechanics and dismemberment due to train collision: The Indian trains include bullet trains, express passenger trains and goods carriers. The distance between the rails in narrow, meter, standard and broad gauges are 2 ft 6 inches, 3 ft 3 $\frac{1}{4}$ inches, 4 ft 8 $\frac{1}{2}$ inches and 5 ft 6 inches, respectively. The maximum height of vehicles in broad gauge and meter gauge are 4.72 m and 3.43 m, respectively. The height of the floor of the unloaded vehicle above the rail level is about 134.5 cm. The weight of the Indian WDG 4G locomotive is about 132,000 kg with height and width of a locomotive being 4.227 m and 3.2 m respectively, and ground clearance measuring 690 cm.[7] Apart from tractive force and adhesion-traction **t**o put the train in motion, the locomotive must overcome two opposing forces namely friction (surface contact between train wheels and the rail) and air drag (resistance of the air to the train movement).[8]

Railway injuries are usually suicidal or accidental with nature of the injuries depending upon the posture or position of the individual when struck.[9] As per Bernoulli's principle, the high-speed moving train drags faster the air with it, and the dynamic pressure near the train increases, thereby decreasing the local static pressure near the train. The high-pressure region pushes the pedestrians walking or the people standing close to the train, where static pressure is low, causing unexpected accidents.[8]

The force of crushing a human or animal body by the train locomotive is dependent on the weight of the train locomotive and train wheel, wheel-rail interface, tread (surface of the wheel that rests on the rail), and wheels (single or two flanged).[10]

Railway injuries are due to the enormous amount of kinetic energy imparted by a motile train to a person and is dependent upon the mass (m) and velocity (v) of the moving train (Kinetic Energy = $\frac{1}{2}$ mv^2).[11] At the speed of 60 km per hour, the kinetic energy of a moving train will be 208000 J. Kinetic energy required for breaking the human bone differs with the angle of impact ranging around 9920 J at 90° impact to 375 J at an impact less than 5°.[12] The agents causing injuries are partly blunt forces (engine's front and ground, spoiler) and partly semi-sharp forces (wheels).[11,13,14] According to A.I.Mukhanov, Ternopil, 2008, the body sustains trauma due to crushing, squeezing and dragging while coming into the wheel rail interface after being knocked down. Crushing by the train wheel deforms the body parts with cracks and ruptures in the skin from its excessive tension. During the whole process of impact, the lateral surface of the wheel brushes against the body part like rubbing the walls of a trough.[15]

4. Pathomorphology of Injuries

An upright individual sustains a significant grazed abrasion during a front collision, with preceding longitudinal scratches indicating the primary impact of the wheel. Imprint contusions or lacerations are caused by handrails and projecting train parts. Ballast and ground particles cover wound surfaces and bodies, filling natural orifices. Pressure stripes with uneven edges indicate skin fleecing by lateral rails. The musculo-aponeurotic fascial complex splits due to squeezing of body, leading to extrusion of internal organs through the neck and perineum. Associated bone fractures and blood effusion on the contralateral aspect of the body are also found.[15]

Sleepers and rails can cause bone fractures, dragging the body along the road surface. Ballast materials may dust wound surfaces and natural orifices with ballast particles. Posture on rails during a run-over can dismember the body into multiple parts, causing limb separation. Front-impact collisions can result in decapitation and transection injuries, sometimes with loss of viscera.[15–17] Head or higher body mutilation may occur while standing on footboards or over trains hit by side poles or overhead lines. Clean decapitation is usually suicidal, and amputated limbs may suggest accidents.[18]

5. Differentiation from a Staged Crime

In the decapitated bodies, the run-over by wheels of trains and postmortem dismemberment following homicide are to be differentiated. The cut ends of the body parts on the rail usually face the rail/wheel, lying at a distance of 5-10 cm from each other and, at times, some parts may be found.[15] The splatter of body fluids and blood from the fresh damaged blood vessels may seep with the train track in the closest perimeter. In homicidal cases, decapitation is usually complete, associated with further mutilation of the body.[19] One should check for any ropes or materials of restraint and if present, describe the knots and relationship with the rail at the scene of incident.[20] Any possibilities or evidence for incapacitation of the individual, like inhalational or ingestible poisons/toxins, are to be searched for.[21–23]If the body segments are found in large geographical regions, the

interval between the recovery of the first and last remains poses a difference in the morphology due to decomposition or animal predation.[24] The railway patrolling is to be done in less than 1 day.[25] In such cases, PMI of any bodies in any antemortem train collision deaths should be less than 24 hours and, if dismembered body parts are found decomposed, it should raise a strong suspicion of murder.

Further, accidental falling or lying on track following the natural cause of death or preceding adoption of other suicidal methods like poisoning is also possible.[26,27] If homicidal assault is suspected, the surgeon shall look for blood stains near the spot where the body was found, stab injuries in the body and ligature marks etc.[28] However, to rule out the preceding death due to natural cause, other suicidal or homicidal methods preceding the dismemberment, dissection of viscera/body parts are mandatory.

In case of placement of an already dismembered body in the train track, there will be less blood at the spot if the severance is committed elsewhere and the body parts are thrown on track. If the aim of disposal/dumping the body parts in the train track by an assailant following defensive criminal dismemberment is to mimic a train collision dismemberment, he/she may have placed all the body parts in the same site rather than using multiple disposal sites.The train run-over may cause superimposition by the second act of dismemberment of the body, masking the evidence of weapon pattern or tool marks either partly or completely sustained during the first act by the assailant.[28] The possibility of animal predation is to be ruled out if the location of the body is on the outskirts. In all such cases, the determination of the post-mortem interval and of the methods used for dismemberment is indispensable.

5.1. Injuries and dismemberment due to weapons

Dismemberment most often is preceded by fatal or lethal injury caused by physical assault. Then, the assailant utilizes sharp cutting tools to cut the limbs and then the body into small pieces. The common six-piece dismemberment is done by removing the head from the neck, both arms, and both legs, thereby leaving the torso with the pelvis intact, with/without evisceration of the chest and the abdomen. The technical challenge of disarticulating a head through the first cervical spine is more than that of disarticulating limbs through the joints.[29,30]

Mostly, the sharp force agents/weapons like handsaw, cleavers, machettes, axes, and kitchen knives, etc., are used for criminal dismemberment. Sawing of bone is preceded by removal of skin and soft tissues usually, where the protective guard of the weapon affects the cutting depth. Heavy-duty long-arm ratchet anvil loppers assist in rapid and deep slicing and cutting. Usage of more than one saw or other tools is possible when blades may be blunt or may break.[31]

Apart from the striking feature of homicidal dismemberment being symmetrical, all the acts of separation leave marks of evidential value for detecting the weapon. Care should be taken to rule out any evidence of animal predation while examining the cut surfaces for tool marks.

Forensic surgeons may suspect sharp tools in cases of disarticulation, decapitation at C4-C5, proximal humeral or femoral amputation, and open or eviscerated chest and abdomen. Mutilation injuries with serrated edges in the forms of square or oblong segments suggest sawing movements to remove tattoos, digits, genitalia, and breasts. Cauterization and induration of tissues at cut ends may indicate a hot, heavy-duty sharp weapon. Flesh snagging with cloth fabrics and angular skin pieces on dismemberment edges suggest a saw. Also, with the saw, wider cuts with square cross sections and striations parallel to the kerf floor may be found. Striations are perpendicular in knife and axe cuts, while wounds in axe cuts are wider in cross section.[31]

6. Derived Autopsy Protocol

6.1. Accident reporting and notice

Reportable railway accidents, as defined in section 113 of the Railway Act 1989, are notified by the station master/railway servant in charge after receipt of information to the commissioner of railway safety, district magistrate and district Superintendent of Police through telegram without delay. The incident report includes the details about the time, site, stational jurisdiction, description of the accident, description, class and speed of train and nature of the location (straight road, curve, on level or grade) along with a rough sketch and probable cause of the accident. It enlists the number and details of persons injured and killed, mode of disposal of bodies and properties and nature of injuries.[32] The Divisional Railway Manager will further forward this to the appropriate authorities and field officers from various departments including medical officers and forensic surgeons.

6.2. Investigation of scene of incident

The incident report is to be verified for the preliminary understanding of the situation. The challenges for a forensic surgeon in railway deaths include body parts of multiple individuals, extreme deformity of the body due to mutilation, carbonization, early decomposition changes and multiple dismemberment injuries.[11] In order to preserve and record proper evidence, the forensic surgeon shall participate in the examination of the incident site along with the investigating officer and forensic unit team members before or during retrieval of the body. The statements and other details from drivers, train crew and witness with reports of inspection/examination of track, signals,

locomotives and rolling stock may be verified personally, particularly regarding impact of the train over the decedent.

Number and position of pieces/body parts due to dismemberment by train is dependent upon the mode of trauma which is further associated with position of the body of the individual during the collision, rail gauge, and the stature of the individual.[33] Depending upon the nature, manner and mode of dismemberment, scene to be investigated can be localized or widely spread. The body segments may be found inside the premises of the station. In such case, the position of body parts of the deceased, the apparent injuries caused and the circumstances causing injuries, including weapons or cutting materials if found nearby, are documented and photographed. The forensic surgeon shall, along with a veterinary pathologist, check the body remains belonging to a human or animal in case of mixed casualties.[34] For human remains, the forensic surgeon shall assist in devising the forensic strategy to retrieve, pack and transport followed by evidence preservation with the preparation of the scene examination report.

6.3. Postmortem examination

A systematic postmortem examination includes the status of the body in terms of dismemberment, tagging and numbering the pieces, identification features of individual(s) with determination of number of individuals, signs of electrocution, manner of dismemberment and association with time of death (AM/PM). The PMI and its variations with different pieces based on postmortem changes in the dismembered pieces is to be determined. The body parts collected by the investigating officer may be in a wrapping or any body bag to the mortuary for the postmortem examination. Sometimes, all the body parts may not be available at a time and presented at different times. In such case, it is better to collect all the parts intended to be received and examine them individually in a single window, preparing a single consolidated or combined report.[30]

6.4. Verification of documents and records

The medical records of the individual/people dead or suspected to be dead, if available, are to be explored thoroughly for any diagnosis, findings, fractures, hospitalizations, operative and other scars and missing organs. Any history or details regarding substance addiction and infectious diseases like HIV/AIDS, hepatitis and, tuberculosis etc., are to be checked for.

6.5. Examination of wrapping or body bag/sack

Uncovering any wrapped body part with care is essential as they retain evidential trace material. Examination is to be done on a sterile or clean surface and not on untidy mortuary tables. Limbs may be fully flexed at the joints to accommodate easier transport or disposal. Precipitin test is done for blood stains in wrappings and other items to confirm the species. Any ropes, ties and other materials found in the body part either inside or outside the wrapping. Fingerprints, and DNA samples may be retrieved from adhesive tape from the plastic bin bags or wrapping used for disposal.[29]

6.6. Examination of clothing and personal effects

Absence of body clothes should increase suspicion towards criminal dismemberment. Clothes, if present, are all examined both in situ and after removal and are described in terms of type, primary colour, brand/make, material and size. In case of railway collision, clothes may show blood stains, ballast bed particles and dustiness, smearing superficially and spreading into pockets, folds, layers and natural concavities associated with damages by sand or slag particles.[35] There may be stripes and ruptures in trousers and sleeves, plicated smoothing and, its contamination by black particles with metallic brilliance, due to impact against the ground. Displacement and inversion of clothes in an inside-out pattern, with or without tears, indicates the drag for a distance.[15] Any clothing in the body part shall be primarily sampled for trace evidence like taking fibre lifts and swabbing for different stains. Clothes and personal effects like rings, bracelets and watches in arms, jewellery and cosmetic piercings in other body parts after examination are collected and packed individually.[29,30]

6.7. Preliminary examination of body parts

The identification process is directed towards ascertaining the number of individuals in the fragments examined and establishing the identity of the individuals. Any approved identification proforma forms may be used as any unidentified deceased may be of national or international origin.[36] Each fragment presented is to be arranged in human body form by a tentative matching process with basic anatomical knowledge for numbering and tagging. The available areas of examination are first enlisted in all identified body parts. Any missing body part/organ/big chunk of tissue is noted, and the part shall be shaded/crossed out in the body chart in proforma. Any body part of unrecognizable obscurity is placed separately. The body parts are photographed with a standardized colour balance photographic scale perpendicular to the body part on both the sides, front, back, proximal and distal ends.

6.8. Photography

Without removing any tissue from the bone, all the marks in the cut edges and surfaces are preserved and photographed with a scale perpendicular to the skin. It is followed by dissection of the skin, soft tissue and muscle, exposing the cut end of the bone with care not to cut or scrape the closest

tissue layer around or from the bone itself. Any broken blades or blade pieces, embedded inside the remains are preserved. Any marks on bone produced during autopsy are noted. Then the bone can be cut a distance of at least 5 cm from the free cut end to produce a sample bearing witness marks. In this way, false start kerf marks or breakaway spurs in the bone are not ignored from examination. Marking or giving a notch into the new cut end is insisted to differentiate it from the cuts of the dismemberment act.[29,30]

The hairs on all the body parts are examined, described, and preserved if possible. The skin complexion with length and weight of each body part are recorded along with survey for the presence of regular features of identification, including externally evident pathologies, features of natural disease, medical treatment and body modifications like in forearms. Any evidence of an attempt for de-identification, like erasure or excision of tattoos and cutting off digits, genitalia and breasts if present, is to be noted.[29] Special attention is to be paid towards old healed or recent injury whether sustained and self-inflicted. External prosthesis may be noted with its unique number. The other findings of medicolegal importance include burns, evidence of torture, bite marks and the action of predators.[37]

Pertinent to odontological examination, particularly in the decapitated head, the presence of jaws with or without teeth, dislocated free teeth and teeth fragments are all detailed. With the help of notation chart, all the regular and peculiar features of the available teeth are marked and enlisted corresponding to the FDI code, along with the estimation of the dental age, if possible.[38] The findings shall be later correlated with antemortem radiological and photographic records if available or retrieved later in cases of mutilated/disfigured face.[39]

6.9. Anthropological examination of the body segments

A skeletal bones inventory shall be prepared for an anthropological survey.[36,40] Earlier dissection and delivery of an intact long bone is not advisable, considering the artefactual toolmarks created on the bones. The gender, sex, ethnicity and age can be considerably inferred from the external examination. Attempts to determine the sex of individual using a single body part may mislead with errors in comparative sex identification of a developing human examined with the missing individual.[30] Post-mortem CT scans, mainly MSCT total-body 3D with a 64-slice MSCT system for 3D reconstruction of the bone fragments, helps with accurate macroscopic analysis.[29] PMCT findings could facilitate the identification process in determining the chronological age of epiphyseal fusion and estimating the stature. Body parts of lower extremities have a stronger association with the stature of an unidentified individual, where a single dimension has an accuracy deviation of 7 cm.[41]

6.10. Examination for trace evidences

Blood/ blood stains, muscle, bone (small bones of the hand>long bones), scalp hair and fingernails should be sampled for DNA identification. In case of the victim being a female, the cytospin approach brings the cellular components, specifically those from internal organ structures. Swab cards may be used for blood stains, buccal cells and tissue bits.[30] The state of specimen, whether fresh, decomposed (stages), skeletonized, or burnt, is recorded while sending the samples for forensic serological analysis.[24,39] Sampling shall be done based on reliable methods recently employed for identification like friction ridge analysis, comparative dental analysis, DNA analysis and nail-isotopic analysis.[30] The fingerprints and palmar/ footprints are recorded after inking the appropriate surfaces in the body part. In countries with established systems of biometric databases, an intact fingerprint shall be used for matching and identification of the individual.

6.11. Pre-autopsy radiological examination

The radiological examination report shall include the type of diagnostic modality used, technical details and limitations, type of remains, state of remains, disease processes, dental work, implants, fractures, deformities and other forensically significant findings and hazards with supplementary details inferred.[38]

6.12. Examination of injuries

No attempt to fit the body parts is advised as this could obscure the tool marks if present.[30] Each body part shall be examined in two aspects, the intact skin surface and the cut surface/edges/margins for facilitation of proper recording without loss of details.[41] The circumference and diameter of the cut surfaces are noted in each part/fragment.

The first step is to look for primary and secondary impact injuries in the body parts more towards an exclusion of homicide or suicide. The primary injuries are usually seen on the lateral portions of the head and shoulders when the person is crossing the line and on the posterior regions and buttocks when the person is bending down. Secondary injuries are sustained on the face and anterior aspect of the body. In cases where the deceased was hit in the upright position. The second step is to look for any evidence of recent/fresh cut/incised and contused injuries in the skin surface of the body parts that stand out from other injuries. The third step is that injury to the skin pertinent to dismemberment is noted in terms of the number and direction of the injuries in relation to the position on the limb, to determine the manner of presentation to the agent of force (wheel or weapon) during the act of dismemberment.[30] The regular railway injuries with typical characteristics, if absent or comparatively minimal, with features of

atypical presentation, should raise a suspicion.[42] Hence the knowledge of mechanism of the train-pedestrian collision and method of homicidal dismemberment is mandatory in cases for distinctive approach regarding antemortem impact by train or by antemortem assault/torture associated with offensive/defensive postmortem dismemberment.

The postmortem dismemberment by railway collision is mostly preceded by a homicide. Dismemberment by weapon is commonly postmortem and rarely antemortem. In the case of the trunk/torso, any evidence of old self-inflicted injuries and recent partial/complete mutilation obscuring genital organs whether male or female are to be noted. In both upper and lower limbs, evidence of subcutaneous or intravenous drug abuse are noted. Evidence for use of bindings or restraints and old self-inflicted injuries are to be checked for, in the body parts, especially in legs and forearms.[43] Any old signs/scars of assault in the thighs or visible prosthesis in the cut ends are noted.[38]

Presentation of a pedestrian hit by a train, either accidental or suicide, shall include the deceased being thrown off while the body being dismembered into multiple parts lying wide apart either at a distance from rail track on one or both sides. Another possibility is that the engine or rolling stock may drag the deceased's body, with only the neck being run over by the train on the track.[40,43] Electrical lesions may also be found in suicides by run over in subway platforms of an underground 'tube' or 'metro' system due to the elevated typical traction voltage crossing 600 volts.[44]

6.13. Post-mortem interval

Temperature-based PMI calculation methods shall be employed for the body segments with rectum, brain or external auditory canal when presented within 24 hours of death.[38] The external examination along with assessment of general state of decay of the body parts shall be applied in the determination of time since death. Galloway and Megyesi's models may be applied to assess the decomposition stages.Four stages of decomposition as mentioned by Galloway et al. are fresh, early decomposition, advanced decomposition and skeletonization. Based on those stages, Megyesi et al. derived the Total Body Score (TBS), further anatomically dividing into head, neck, trunk and limbs, along with the application of accumulated degree days (ADD), a measure of the total energy supplied to a system. ADD, indicating the accumulation of thermal energy required for chemical and biological reactions during decomposition, is the sum of the average daily temperature between the date of death and the date of detection.[45]

The size of carcass, depending upon accessibility for necrophagous insects, has its place in PMI determination. During the examination of head, decomposition changes to the brain may be assessed using PMCT and 1H-magnetic resonance spectroscopy to attempt the estimation. Radioactive isotopes with a short half-life may be used for PMI assessment from mid-shaft humerus and fingernails in the body parts discovered at longer intervals.[29,30]

However, to assess the time since dismemberment, the details regarding PMI and final contact or traces of the deceased when alive are required. The rigor mortis and PM lividity are assessed in each of the body parts individually. Postmortem lividity in case of criminal dismemberment may be sparse.[29,30]

6.14. Ancillary investigations

Further, diagnostic investigations and laboratory examinations are employed/performed to assist and support with subsequent findings for corroboration in autopsy. In case of body transection or dismemberment, histological sampling of skin, muscle, soft tissues, bones, ligaments, herniating or severed visceral tissues in the cut ends/surfaces of the body parts for dating of the trauma in relation to death,[46] Microscopic examination of the sampled skin and soft tissues from the cut ends in antemortem and perimortem dismemberment shows signs of vital reaction.[47] Samples from the cut or fractured ends of the bones may be haemorrhaging with subsequent clots if fresh injury. The fibrin network forms with inflammatory changes in a few hours, followed by bone necrosis, partial organization of blood, eosinophilic fibrin clots in 2 days. Migration of polymorphs and then macrophages occurs in 4 days.[48]

When required, an extended examination of bone is done. The bone sample is cleaned by manual/detergent cleaning or maceration, not affecting the toolmarks. Oblique lighting helps in the proper revelation of the tool mark morphology. The photograph of the cleaned bone specimen, shot under standard conditions perpendicular to the bone, shall be then combined with the reconstructed 3D views from PMCT assorting the images to illustrate the sites of dismemberment for judicial proceedings.[47] Maggots, if present, are collected, properly sampled and submitted to for forensic entomological analysis. Micro-CT helps to examine, without invasion, the internal contents of pupae to estimate the time since death.[29,30] Along with routine viscera, brain, lung, muscle and bone samples are mainly helpful in toxicological analysis with its main focus on the incapacitating drugs or inhalational volatile/gaseous agents.[49]

7. Conclusion

The Commission of Railway Safety, under the administrative control of the Ministry of Civil Aviation, supervises the investigations into serious railway accidents along with inspection and sanctioning works. As per the protocol, the consequential and unusual incidents are reported to and handled by the safety directorate and

security directorate respectively.[50] Handling of all serious consequential and unusual incidents in railway transport includes medical personnel in the team for handling injured patients and managing death cases. Meticulous data collection with a systematic approach is needed while handling the cases of dismembered bodies in railway track right from the scene of the incident till the completion of an autopsy. The checklist of the postmortem examination of a dismembered body in a railway track includes identification, injury documentation with differentiation of the antemortem and postmortem wounds, ruling out criminal act, intent or foul-play, ascertainment of cause of death and determination or confirmation of manner of death. The Derived protocol of postmortem examination from the respective states may be utilized for refined implementation to aid in the reporting under Railway Passengers (Manner of Investigation of Untoward Incidents) Rules, 2020.

8. Abbreviations

NCRB: National Crime Record Bureau; UIC: International Union of Railways; WDG: Broad-gauge (W); Diesel (D), and Goods traffic (G) [Engine]; PMI: Postmortem Interval; PMCT: Postmortem Computed Tomography; MSCT – Multislice Computed Tomography.

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None.

10. Conflict of Interest

None.

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