

Post Mortem Examination and Viscera Preservation

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I was a teacher for thirty five years, and I will be a teacher even though officially or formally, I may not teach. We have heard recent advances in technology in 'forensic sciences. I will try to take you to the ground level. What happens in the villages? What happens when a suspected crime is committed? What are ordinarily the doctor's duties? How does the crime investigating agency work? How does interaction between medical profession and legal profession come into play? Let me give you some idea about forensic medicine? You might be getting a wrong idea that forensic medicine is a very important subject, it is a very big subject; it is not so. Otherwise, it would not be the most neglected subject in the medical curriculum. Some of us might give you an impression that legal jurisprudence is a very important subject I am just taking you through medical jurisprudence. Let me tell you a fact that fifteen to twenty years ago in some universities, there used to be a paper in medical jurisprudence. But those universities for practical reasons were constrained to remove that paper from the curriculum. Now with this age of increasing criminalization, urbanisation, industrialisation, and the agencies that have come into Play of advertisement, the explosion of recent technologies, and the crimes have taken lot of publicity. Many people have become aware by way of general information and knowledge that such crimes and such technologies are trying to follow these crimes. What is the scenario in a common place where a suspected crime Occurs or a crime against human body takes place, the person is supposedly dead? Somebody reports to the police. Police first ensures that the first information report is available to him. Then, if he thinks that it is within his jurisdiction, he goes to the site and his first reaction is to remove the body and send it to the doctor, so that he has done his official duty. Now, whatever has been said in the earlier sessions, if the body has been removed without consideration to its relationship with the surrounding location, surrounding objects, the foreign objects that might have been on the human body, the clothing, and some artificial Injury has been produced, some other foreign objects have been transported and transmitted on the human body during transportation. Quite a few of the clues would be misleading. So first and foremost from the doctor's point of view, he has to ensure, actually it is the police who if they wish they can ensure that the body is removed in the condition in which they have found it. In other words, no unauthorized person should handle the body, no unauthorized person should examine the body, no unauthorized person should take *away* anything from the body or from within the body; no unauthorized person should create any evidence on the human body. If this is followed, I think fifty per cent of the work will be done in the direction of proper medicolegal investigation of death. Then, the body is transported. I do not know what kind of transport is available in the cities. I am aware about what kind of transport is available in the city like Mumbai; that again is not satisfactory and many artificial artifacts are introduced during transportation even in a place like Mumbai, so what about tribal areas and hill areas and inaccessible areas where several kilometers or miles bodies have been transported In the vehicle that is available, It could be a bullock cart, or it could be through any human volunteers that could transport the body at the behest of the police official. *Anyway*, we come to the mortuary; generally we call it the morgue. What is the state of affairs in the mortuary? In many primary health centers, there is no mortuary. In *many* mortuaries, which they say exist, there is no adequate space, there is no adequate supply of water, so unless the body is washed, there cannot be any real examination of the human bodies, there is no adequate provision of light, so if there is no light, you cannot examine the bodies all through the year. Postmortem examinations are generally expected to be done during daylight, though the Maharashtra government has issued instructions that it can be done in artificial light, which approximates daylight. If adequate quantity and quality of light is available, then postmortem examination can be done during the nighttime. Now, a question *always* crops up. I would give you only the gist of problems. Whether during nighttime if a doctor is called to do postmortem examination, whether he should proceed to do a postmortem examination because they say there are different colour changes? Perception of colour during daylight and artificial light differs. So, what is the answer? Many doctors take recourse to the fact that they would say light Is not satisfactory and examination is not done. What should be done in a homicide under 302 in a murder case? *My* advice would be to go to the mortuary, to examine the body externally, to see the clothes, do not touch, do not remove, whatever *you* can see externally record your finding and say if it is really so that *you* cannot proceed with the examination and when the optimal condition of lighting, say the daylight, Is available, then you will start to proceed with the examination. For this, Police officer's presence in the mortuary at the site of the autopsy will necessarily have to be there. Most often, Police officers, mostly head constable or constable who Is there, he will submit the body In the mortuary end then he goes to do other work because he Is otherwise also a very busy person due to many multifaceted work, which Is thrust on, him. The medico legal autopsies in a medico legal Investigation of death are must. They *say* there

are two types of autopsies. Autopsy is a postmortem examination of the dead body. It is a word that is identical to the word, i.e., necropsy. There are two types of autopsies that are there, one is medico legal autopsies, with which we are primarily concerned where states come into picture because a crime has occurred or a suspected crime has occurred or at least it is certain that the death that has occurred, it cannot be said with certainty that the death is due to natural causes. Other is the clinical autopsy or pathological autopsy that is done after obtaining the consent of the nearest kin or nearest relative. This consensual autopsy, this clinical autopsy, this pathological autopsy can be part of autopsies also. If relations want that only the heart should be opened and seen 'whether myocardial infarction has taken place, the doctor is authorized to do only that part of the examination of the human body; he is not allowed to do other things. This clinical autopsy can be a partial autopsy, but postmortem examination in medico legal cases cannot be partial autopsies; they have to be complete autopsies. When I say they have to be complete autopsies, it means that all the three major body areas, i.e., head, thorax, and the abdomen have to be opened, examined, and deductions to be made. The objects of the medico legal autopsy are the identity of the body because *many* a times the identity of the dead body is not known, it is at times disfigured, at times it is decomposed, at times it has undergone putrefactive changes, at times it is burnt to such an extent that no facial features are available, no marks for identity are available, but you have to ensure that the identity is established. Two things that are must and which the doctor has to ensure are:

1. The police personnel who has brought this body for autopsy examination, identity has to be established from him.
2. If relations are available, identification is also to be obtained from relations.

There are many cases in which Police officers and police personnel have made wrong identifications. For vested reasons, there are many cases wherein the relatives also have made wrong identifications, so as a precautionary measure, it is essential that the doctor establish an identity from both the sources, i.e., from the police as well as the relations, if they are available. Whether death is natural or unnatural, if doctor is certain, attending doctor is certain that death is not due to natural causes and certainly if he is certain that death is not due to unnatural causes, and then medico legal autopsy is not necessary, certification of cause of death can be given by any doctor who was attending. If a doctor is certain that death is not due to unnatural causes, then he would not be amiss in issuing a death certificate. Now when I say that he can issue death certificate, I must tell you what this death certification means. Death certificate entails that doctor gives the cause of death. It is not sufficient that he gives the manner of death; it is not sufficient that he gives the mode of death; the modes of death are supposed to be asphyxia, syncope, and coma. If anybody gives the cause of death as syncope, asphyxia, or coma, these are useless; these are not the causes of death. If somebody gives the cause of death as cardiac arrest, it is not even worth the weight of a paper on which it is written. I might remind you in a recent case of one football player, Junior Christiano wherein how an autopsy report should not be given. In this, my information and knowledge is from general things that have appeared in the paper. This is a very classical case of apathy and inexperience or vested inefficiency of the person concerned. The cause of death in that particular case given was cardiac arrest; in simple words, heart has stopped. If heart has stopped, death would not have occurred. Brain might have been dead, but heart might have been saved if he was put on artificial respiration. It is like saying that somebody has drowned because he could not keep his head above water, so such kind of things do not indicate cause of death. Cause of death means you have to give the original disease, say atherosclerosis leading to coronary thrombosis. The part which that particular part of coronary has supplied the blood vessel has undergone death of a tissue, and resulted into myocardial infarction, so the cause of death has to be given as coronary atherosclerosis with coronary thrombosis with myocardial infarction or myocardial infarction with or without coronary thrombosis. Another thing, as future practitioners of law and the persons who are likely to adjudicate on these medical reports (the legal profession has tended to believe in doctors too much), I would try to tell you that expert's opinion is not infallible. If you go through evolution of a particular case, you would try to resuscitate and he will massage the body. He would try to give artificial respiration. There would be some fracture of ribs. Then as a last resort, there would be some injections given. There will be puncture marks on the chest, in the chest muscles, and in the pericardium or the heart, also. All these things have to be noted carefully, otherwise there is likely hood that the therapeutic part which the doctor has intentionally done to revive the patient, to treat the patient, to cure & the patient would be confused as injury that have been produced, so it would be the doctor's duty to note carefully that these are the therapeutic injuries and which are intentionally produced for the benefit of the deceased person. The main difference if you ask me between the medico legal examination of a postmortem and the clinical or pathological postmortem examination is external examination including examination of the clothing is of vital importance in medico legal examination.

While it is not that important in clinical or postmortem examination, which is done for academic or pathological or clinical purposes. This is the single most important examination. If external examination is done meticulously, properly noting all these things preferably on some recorder device, it would be of much better help. Actually, clothing is the first layer of external examination and while doing the examination of clothing, whether clothing is intact, whether buttons and zips, whether tears are there, whether blood stains are there, whether some seminal stains are there, fecal stains are there, all these things have to be noted and have to be recorded. Then after watch is there, that has to be seen, because it might give a clue. Then external examination of the body in external examination doctors have to employ some system, which would cover all part of the body from head to toe. Start head, examine the hair. If there are thick hair, it is quite possible that concealed injuries in the scalp that could be present. One important area on the scalp is hard blunt impact that causes lacerated wound that causes tearing of the tissues, looks like incised wound, like a cut in the scalp; that has to be noted. Then you come to the face, you examine the eyes for hemorrhages. The more important area is the neck. The neck is a very important area in medicolegal examination of a dead body. A large number of deaths that fall in the IPC section 302, i.e., infanticide and what not: all those cases come in the examination of the neck. Neck is a relatively narrow area; it encompasses structures going up and coming down from the brain to the body. There are carotid arteries, which supply blood to the brain. There are jugular veins that collect blood supply from brain to the heart, there is trachea. There is a respiratory passage. The larynx of an respiratory passages lies in here. What is this pretracheal part? Adam's apple. Thyroid cartilage is there, above and below that there are laryngeal cartilages. If any of these structures are compressed, death can result immediately. If respiratory passage is compressed, death can occur within one minute; if blood vessel or jugular vein is compressed, death would occur in three to four minutes. If carotid artery is compressed, death would occur within two to three minutes. Where asphyxia element is present predominantly, death may take a little more time, about five to ten minutes or so. So, examination of the neck is of vital importance. So, how to examine the neck? I will talk a little bit more about it in the slides. Then the internal examination. Generally, it would be a safe bet to examine the head first. In suspected cases of compression of the neck, it's good to examine the head because you do not have congestion that occurs in the examination of the head. If there is injury to the head or injury to the brain, then also it is better to examine the brain. Then we open the thoracic and abdominal cavity. will come to that later. This is one area, which is a little complicated in the sense that many of the natural diseases are predisposed to cause either a fall or an injury or a loss of balance on a vehicle wheel, so the presence of natural diseases, if any, has to be described in detail. Again, here the coronary atherosclerosis, hypertension, epilepsy are some of the things and some hormonal conditions come into this. One of the questions that is often asked by the lawyers and which they need necessarily to prove their cases is, if there are several injuries on the body externally and also there are some injuries on the body internally, everybody wants to know in precise terms, which external injury has caused which internal injury? Which external injury is corresponding to internal injury? Not that all external injuries will produce internal injuries and also vice-versa, not that all internal injuries would be showing or manifesting evidence of 'external' injury. This later stage happens in the blunt injury. At times, you may not see anything of the abdomen, but internally you might say that there is a rupture of the intestine or rupture of the stomach. You may not see any injury on the scalp; you may not see any injury on the skull done, but you may have a contusion or a hemorrhage in the brain substance. So the correspondence of injuries, external injury is a must for a doctor, and he has to try to match external injury with the internal injury if he can. There are many legal aspects, which I will not go into details, because if there are several resultants; one might have an axe another might have a hatchet, a third might have a hammer, and a fourth might have a stabbing instrument. So these are some of the things. Which have some more legal implications. We have heard about different examination, DNA finger printing brain mapping, and all others, but first is the basic collection of specimens. be it blood. The blood which is collected by doctors for examination the forensic science laboratory personnel, and they examine more often than not that is likely to be altered because I know from experience from several places that blood is collected from the cavities. Blood is collected from whatever altered blood has been seen either in the abdominal cavity or

thoracic cavity. Ideally, If It 'possible, blood has to be collected either from the Auxiliary vein or the femoral arteries or veins or any place wherein you would get pure blood. If these two fall, then you have to obtain blood from the right atrium; even if that is not available, from the heart. If that is not available avoid taking blood from the cavities, because that blood is, likely to give more misgiving or wrong results. which would worthless In Interpretation. Actually, they might come to a wrong conclusion. Again If you have to obtain CSF, fluid from the brain, you have to obtain directly from the cierternal Puncture. For histopathology, all organs are too collected in the saturated solution of the common self barring some exceptions, like acids where rectified spirit has to be used as a preservative. Now the organs that have been collected, normally procedurally, are the whole of the stomach and minimum 300 ml of its contents three feet of intestine and its contents have to be collected In one bottle. Preservation to be used is saturated solution od common salt ideally one-third has to be the visceral organs , and again there has to be a layer of preservative that is to be used for examination. In the second bottle you have to have half of each kidney , whole of the spleen if it is to be obtained in the second bottle , than the whole of the liver has to be obtained in the second bottle coming to the bottle , ordinary bottle are not to be used, only those that are given by the forensic laboratory . They are standards bottles. If they are not available by some chance, wide-mouthed glass Jars have to be used. Late tell you. now that Incidence Is diminishing. but for the earlier part of my 25-30 years of service, Invariably saline bottles used to be used as preservative. Saline bottles have a narrow opening, and WEI use to compress, press, and trust the tissue inside. That loses much of the finer points of the chemical examination. Then depending upon cause of death, If It Is alcohol poisoning. you may be required to take brain. If It Is respiratory poisoning likes carbon monoxide, you may have to take blood, you may have to take lungs. There are separate preservatives that have been directly given. And as and when you require you can take the Instructions from the forensic science laboratory. They have issued standard Instructions for collection and preservation. One point I must emphasize here, and that Is to maintain the chain of evidence el all cost. Every organ has to be collected by you or at least In your presence has to be put Into the bottle containing preservative, has to be sealed, has to be locked, and the lid has to be properly ensured. You have to sign. Locking, labeling, sealing of every material that you have collected is necessary, end giving the key end the envelope to the constable end after obtaining the receipt and enclosing a carbon copy of the memorandum that you have given Is necessary to be Included. If you los8 any of the chain of evidence, your efforts are likely to be misdirected efforts. This documentation form CM-23-e and CM.24-e have been given by forensic science laboratory. That has to be stated along with the gist of postmortem report end your deduction as to the can of death. In diagnosis, I have referred to in the Introduction. First the original disease that was existing that has given rise to the complications, that has resulted In death has to be given; associated diseases. which may have contributed may have to come later. Associated diseases. which may not have contributed will find place last. I am going to show you certain slides rapidly. Those slides are from medico legal cases. This Is a photograph from a palm. which has been cut open and you can see clearly blood. Similarly In the other slide, you can see that blood vessels have ruptured and they have extravasations of blood In the subcutaneous tissue between these tendons is clearly seen which has Manifested with a red color. This is a brain, I will Just emphasis the point that you have to examine. you have to pass your flingers throughout the scalp and try to find out whether Injuries are present. There Is some laceration present, which Is produced by a hard blunt Impact. This is blood, there is congestion. There is hemorrhage In the brain septum. in this, there as a cover all of the brain which Is known as dura mater'. This Is being reflected. Actually, there are two Incisions that are required to be taken. First Incision that 'has to be taken Is from one ear to the other ear across the vault, which Is the highest part and then you reflect this part further forward, which we call anterlorly and this part backward, which we call posteriorly. Then you examine It. Examination of the brain, either can be done serially or depending on the area. the detailed examination can be made; How do we remove this organ? The first Incision is from this point to this point, lowest point or midline excluding umbilicus, that is the first Incision, but If the neck structures are to be examined from this point to this point, which is known as 'manubrium sterni' on both the sides, so neck structures could be examined. If you went to still have detailed and meticulous examination of the neck structures, you can take Incision from this to this area and from this to this. This

is known as the 'xiphisternum', where the thorax ends and the abdominal cavity starts. If you take this Incision, the total area of the neck structure can be examined and the compression of the neck, this hanging strangulation cut all the attachment, remove the tongue, the trachea (windpipe), esophagus (gullet), remove all the attachments. And take this heart. There will be attachment of the lungs, remove these attachments, take out all thoracic organs after removing the attachment, cut the diaphragm, which is adherent to the posterior wall of the ribs and the liver. Severing or removing all the attachments, take as a whole all the organs en masse from the tongue to the rectum or the largest part of the intestine, which is the other end of the body. This particular case is a case of drowning. One of the classical signs of drowning or diagnostic sign of drowning is that copious large amount of leathery froth that comes in the trachea, larynx, and the bronchi and the small bronchioles including the alveoli but at times, there would be a minimal fluid. In this particular case, there was minimal fluid, but definitely discernible minimal fluid was there. Here, the trachea is open. There is a leathery froth. If you see this much, you could say almost 99.9% that death is due to drowning. You could exclude death due to poisoning due to Insecticide, and some other poisons. This diagnosis would be 100% certain. While removing all organs, the lungs, the liver, the stomach, and the Intestines; there is more than twenty feet of Intestine. You have to cut them through the mesentery. You have to cut the stomach; you have to go four Inches above the upper end of the stomach, apply two ligatures, cut between two ligatures. Down below, you go three centimeters below the lower end of the stomach, apply two ligatures, cut them, examine them, cut through the lesser curvature. see the contents of the stomach, see whether any for smelling or kerosene like Imparting small is present to the contents of this. Next is heart examination. The heart has to be dissected along the flow of the blood, along the pathway of the flow of blood, i.e., It would go through, the right side through the pulmonary artery coming back to the pulmonary wall and then to the left side and the aorta. You can see the contents of the stomach. Which are over here appearing as very congested because also blood is there in that? You are seeing the active response of the body by way of congestion and erosion of the stomach mucosa in that particular site. If we see this and if those contents as it has in this particular case Imparted kerosene-Like smell, we are going to say on the autopsy table that it is death due to Insecticide poisoning subject to confirmation by chemical analysis. When I say Medicolegal examination, postmortem examination has to be complete; all organs have been removed en masse, we have come to the vertebral column; the vertebral column or spine can be examined from this, but more often spine is opened from the other side. The body is put on the other side (back) and then examined. Then Incisions (cuts) are given on both the sides and laminectomy is done, and then the Spinal cord is examined. The spinal cord as a routine is not examined unless there is an Indication that the spinal column needs to be examined. This is one of the most neglected areas in forensic medicine in the sense that there are rules about viscera preservation, but there are no rules about viscera disposal, which can be practically utilised. I would not go into the rules regarding preservation of viscera because that has already been covered and you would know in any case. Let me tell you the fact that the Bombay Police manual says that the viscera has to be kept in police custody under the armed guard if it has not been claimed. In my thirty five years, I have not seen this being done. We do not mind keeping it, but we do not have infrastructure to keep them intact. That is one thing and secondly, there are no rules, which can be practically implemented about disposal of viscera. They say that after you obtain permission from the magistrate or police superintendent, you can destroy viscera. Believe me, I have tried for five years to get this permission from the concerned SP and the concerned authorities; I did not succeed. Our Infrastructure is such, our legal system is such, our rules of viscera disposal are such that they allow rats to take away and eat the viscera they allow thieves to rob the viscera, they allow the viscera to be disintegrated. They allow formation of alcohol due to certain fermenting bacteria, but there are no definite rules, which enables doctors to dispose of the viscera, which is kept with him, which is not his baby. I think if the Director, Forensic Science Laboratory can do something about this, to get certain implementable rules about the disposal of viscera, that would be a great help.

