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Documentary and oral Scientific expert Evidence and Modes of Scientific Examination under Pakistani Laws

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Abstract

The crime scene operation and the investigative process is important stage of pre-trial construction of the events for assessment of occurrence of crime which helps to collect the material or physical evidence to be presented before the court during a trial. This process hinges upon intelligent and expert handling of the crime scene so that the prosecution may build the case beyond reasonable doubt and to link the evidence with real criminal instead of conviction of innocent. This paper presents an overview of the kind of evidence with relation to the crime scene which is important for the assessment that what expertise and scientific examinations might be needed for a potential crime scene investigation. In doing so, this paper underlines the kinds of expert evidence with reference to law of evidence in Pakistan and emphasizes legal perspective to be kept in mind while investigative operation is conducted.

Keywords: Crime Scene, Expert Evidence, Medical Report, Post-Mortem, Forensic Expert Evidence, DNA Analysis

Introduction

In the light of Qanoon-e-Shahadat Order, 1984 (QSO 1984), the evidence includes all statements which the court permits or requires to be made by the witness in relation to any fact. The Article 2 (d) defines fact as anything, any state of things, and relation of things capable of being perceived by the senses including the mental condition of a person (QSO 1984). For proving the fact, it is necessary to gather the evidence and depose the same before the Court for fair decision of the case. The evidence purported by the legislators does not only include the direct evidence

but other kinds of evidence which are admissible by the Court under the relevant provisions of the law.

This article discusses various kinds of evidence with reference to scientific expert evidence especially medical and forensic experts which are vital for a criminal trial. In doing so, the article will emphasize on the scientific and legal considerations needed to be kept in mind by the medico legal officers, forensic analysts and experts. Lastly it covers kinds of scientific examinations and rules of practice for the admissibility of expert evidence in Pakistan.

Research Methodology

The qualitative research is conducted in this paper using black letter law legal research method by means of primary and secondary research material ranging from text books and reference books, law and legislation, case laws, research articles, webpages information and newspaper articles.

Kinds of Evidence

Evidence can be in the form of personal observation of the witness and the statement of that observation as such in the court, and it may include material objects, documents and opinion of the experts which are gathered and brought forward before the Court. Evidence either makes the underlying proposition more probable or dispels the same. At the criminal trial one piece of evidence is medical evidence which proves the mode of injuries, cause of death, duration between injury and death and duration between death and post mortem. This proves the cause of death and nature of hurt but does not identify the assailant. For the purpose of identifying the assailant, the other pieces of evidence which connect the accused with the crime are to be taken in to account. According to Qanun-e-Shahadat Order, 1984 (hereinafter as QSO 1984) and as well the Black Law's Dictionary there are various kinds evidence. These kinds of evidence generally include oral evidence, documentary evidence, primary and secondary evidence, circumstantial evidence, and medical evidence which will be the focus of this article underhand.

Article 70 of the Qanun-e-Shahadat Order, 1984 (QSO 1984) deals with the oral evidence and lays down the rule using the oral evidence for the proof of all facts except the contents of documents. Similarly, Article 71 of the Order lays down a principle that the oral evidence must be direct which renders hearsay evidence as no evidence at all. Similarly, Article 72 provides for documentary evidence and its proof either through primary or secondary evidence. In the absence of primary evidence, contents of documents may also be proved through secondary evidence (Article 73 & 74 of QSO 1984).

On the contrary, circumstantial evidence is not the personal knowledge or observation of the witness rather it is based on suggestion or some conclusion drawn after observing some fact. According to Osborn circumstantial evidence can be understood as some suggestion drawn from observation of facts which concluded that the accused is linked with commission of crime and this evidence is important when direct personal or other primary evidence is not available in the case (Osborn 2000). Such as last seen evidence is considered a kind of circumstantial evidence, in which the witness depose that the victim was last seen with the accused before death (Article

19 of QSO 1984). Moreover, conclusive evidence is a kind which is so strong that there is no need of further supportive evidence to prove the fact (Article 111-113 of QSO 1984).

Medical Evidence and its Kinds

Medical evidence is a corroborative piece of evidence (Article 59 of QSO 1984). The medical evidence is used to corroborate the ocular account as to seat of injuries, nature of injuries, duration between injury and death, duration between death and post mortem. It could not identify the assailant/culprit but can distinguish between the natural and unnatural deaths. (Sajjan Solangi vs. The State 2019). The medical evidence before the court takes two forms; documentary evidence and oral deposition.

Documentary Evidence of the Medical expert witness

This category includes the medical certificates, reports and dying declaration of the deceased if recorded before the medical expert (Article 72 of QSO 1984).

Medical Certificates

The medical certificates are form of documentary evidence which proves the medical or mental condition of a person such as ill-health, unsoundness of mind, age of the person etc (Article 46 of QSO 1984). The common example of medical certificate includes the death certificate wherein the cause of the death of a deceased is mentioned. The medical expert who has been visiting or diagnosing the health issues of the deceased before his death he is required to give a written statement as to the cause of death as to his knowledge. This to note that there is no charged fee for such certificate to the family of the deceased about the cause of death of the deceased (Akbar Khan, 2010). This implies that in case if the medical expert who visited the deceased for his health issues, is not sure of the cause of the death he should not undertake to write the death certificate. The clause 16 of Pakistan Medical & Dental Code of Ethic, 2001 states that whenever a registered Medical Practitioner is asked for issuance of death certificate or any other certificate, the document must be such that the personal knowledge of the expert should have a support of facts proving the cause of death as the expert is stating in the certificate, similarly the date and time when the deceased was last examined by the medical expert must be mentioned so that the legal information does not remain unattended. (PMDC Code of Ethic, 2001). That is the reason where a case where the medical report did not mention the date of examination was declared nullity in the eyes of law (Mehboob Ilahi vs. State, 2019).

In some cases, the death certificates are to be counter signed by the superior medical officers but they should not sign the same without inspecting the body. Often the death certificate issued by the hospitals become unreliable for the cause of death is not backed by the forensic/chemical test reports, in this way mere statement of the doctor is not sufficient to prove the cause of death the statement must be backed by medical tests and reports. The medical practitioner is to give documentary evidence before the Court, and it is the right of the accused to cross examines the medical practitioner issuing the medical reports and death certificates. If such doctor absents him from the court proceedings the medical report produced would be treated as nullity and would lose its evidentiary value thereby supporting the defense of the accused (Mehboob Ilahi vs. State, 2019).

Medico-legal reports

Medico-legal reports are prepared by the medical officers at the request of an investigating police officer or a judge for the purpose of recording the fact or detail of cause of death of a deceased person, or details of commission of crimes such as rape or assault to be used in the court during the trial of in criminal cases (Akbar Khan, 2010).

The validity and admissibility of medico-legal reports depends on the time of the recording the details of examination of the dead body or the victim and it is preferred to note such record at the earliest. The report should state facts as observed only because the uncertainty and non-specific terms will make the report less reliable in the eye of law. The opinion should be briefly expressed and should be to the point. On drawing the conclusion, the medico legal officer must not base his opinion upon the information received from others but if the information given is in correspondence with the findings of the report then the medical officer may refer it in the report.

Dying Declaration

The dying declaration can be in the written or oral form. The dying declaration mentioned in the Article 46 (QSO 1984) is an exception to the well-established rule of evidence that hearsay is not admissible evidence. It is the statement made by the deceased before his death about the circumstances or events which can be re-stated by those hearing him; this will be only permitted for the purpose of linking the cause of his death or detail regarding circumstances which resulted in his death afterwards. The medical officer in charge should consider calling the law personnel and court officials when he feels that the injured victim wished to give some detail or statement regarding the incident and that he seems to live no more due to his state of health. It is not advisable for the medical officer to record the dying declaration of a dying man, but the procedure requires him to call the investigative personnel and the judicial officers to record the statement as per the legal process. In exceptional cases where there is not enough time and the declarant is likely to die only in that situation the medical officer can record the statement (*Muhammad Aslam vs. State* 1989). The dying declaration should be recorded in the same words of the deceased person which he uttered before his death, it is better to relate to the narrative like the questions asked and replied but these should be in the presence of trustworthy witnesses.

While recording dying declaration the overwriting and cutting should be avoided as the same would make it dubious in the eyes of law. The person making the statement should sign or affix his thumb at the bottom of the statement. The medical officer recording the statement must affix the certificate with the statement that the declarant remained conscious throughout the statement. If during the record of the statement, the declarant becomes insensible or lifeless the medical officer should sign the information whatever he has received and get the signatures of trustworthy witnesses in the presence of whom he will have recorded the declaration. The declaration is then transmitted to the Magistrate in a sealed envelope (Akbar Khan, 2010).

According to Police Rule, 1934 the dying declaration if possible, should be made in the presence of the Magistrate and the declarant should be examined by the medical officer. These rules are directory in nature and can be ignored if otherwise the dying declaration seems to be free from every sort of taint. But in cases where there was apprehension as truth was not uttered by the declarant the medical report of the declarant can be considered. For instance, in a case where the

post mortem report suggested that the person receiving injuries was unable to make any statement the dying declaration would lose its value (*Muhammad Aslam vs. State* 1989).

Oral Evidence

The oral evidence of the medical officer is of more importance than the documentary evidence; because now the medical officer is stating oral account of the event as he has personally observed and recorded in front of witnesses, and he has to prove the truth of such statement on oath or assertion that the documentary evidence or the record of declaration or the medical report and its contents are provided by him to the court is true and correct to his and that the report or declaration is recorded in his own handwriting (Article 70 & 71 of QSO 1984). The oral evidence is recorded and stated orally by the medical officer before the court as to the examination and inspection of the victim. The medical officer conducting an autopsy is called upon by court as witness and cross examined by the defense counsel on the medical report generated by him.

Forensic Expert Testimony

With the advancement of technology in the twentieth century the litigation now involves the technical and scientific expert evidence to explain the facts of technical and scientific in nature and these experts range from chemical expert to engineering and construction expertise to explain collapse of bridges and roads these phenomena require the technical experts who testify before the court the reason for failures of construction projects resulting in injuries, deaths and structural damages. Similarly, in the litigation pertaining to airplane crashes the court may call upon engineers and other technical experts to give opinion on technical or human failures (Smith and Bace, 2002).

When the courts are in need to seek help from some scientific and technical expert so that they explain a fact according to their expert knowledge and assist the court to reach at a fair and just decision. In Pakistan, the expert opinion is not a conclusive proof the court treats it as a relevant fact (Article 59 of QSO 1984). Sometimes as a prudence and caution the courts corroborate the expert opinion with the other piece of evidence available to the judge. The expert opinion is to be considered with great caution and merely based on expert opinion the conviction cannot be granted. The nature of expert opinion is corroboratory and explanatory to the direct evidence available to the court (*Abdul Qadir vs. State* 2015; *Qazi Abdul Ali vs. Khwaja Aftab Ahmed* 2015; *Sanaullah vs. State* 2018; *Land Acquisition Collector, Sargodha vs. Muhammad Sultan* 2014).

Qualification of an expert witness

For the purpose of giving evidence which is acceptable and admissible in the court the expert witness has to begin with the proof of his expertise in his field based on academic qualification or the experience otherwise his evidence will not be admissible (*Land Acquisition Collector, Sargodha vs. Muhammad Sultan* 2014). Article 59 of the Qanoon-e-Shahadat Order, 1984 though not exclusively giving the detail of competency and qualification of the expert but refer to only “especially skilled” which is not very clear in this regard. However, the section 2(f) of the Punjab Forensic Science Agency Act, 2007 lays down that “an expert includes a qualified

foreign expert working in a forensic science facility and whose evidence is admissible in the country of his origin” (PFSAA 2007).

In the same manner, section 3(f) of the Investigation of Fair Trial Act, 2013 (hereinafter as IFTA 2013) defines expert as “a person qualified or trained or experienced in conducting surveillance or interception who is nominated by the applicant or the federal Government as an expert for analysis of the intercepted material” (IFTA 2013)

An overview of the criteria followed by the American courts in accepting the opinion of the experts during the legal proceedings is as follows (Petherick, Turvey and Ferguson, 2009)

There must be field of specialized knowledge

The field or area must be the one which is beyond the understanding, knowledge and experience of the judge who must decide the case in hand and that for his assistance the expert opinion is required. For that reason if an expert opinion is presented and later on it is noticed that the judges have earlier decided cases on the similar subject without taking any expert opinion or without summoning any expert for assistance of the court, the application for calling upon the expert opinion may be turned down by the judge.

Expertise of the witness

The witness must explain that he has become expert in the field due to study, training or experience. Such as in medical science the practical experience and post graduate research articles are given more weightage than formal academic expertise. Therefore, if the witness fails to point out that he has got specialized knowledge on the subject by virtue of research, study, training or practical experience the opinion could not be taken into consideration.

Opinion to be relevant to the expert knowledge claimed

The opinion must be relevant to the expert knowledge or area as claimed by the witness for instance if the knowledge of the witness is far superior to the general public, but he lacks any practical experience or expertise, the opinion cannot be regarded in the Courts.

Expert Opinions should be based upon the facts

The expert opinion should be grounded in the baseline facts which are observed, identified or assumed or deduced as a fact sheet which is acceptable in that field of knowledge. For instance, while explaining to the court reaction of medicine on the mental faculties of the person using it. The expert must depose that he has seen the patients with similar dosage reacting in the same way or the medicine has been tested and the results should be observed by the expert.

Proper foundation of the opinion

The expert must base his opinion on the proper foundation otherwise the opinion will be disregarded by the courts. That is to say that the experts should not base their analysis and opinion based on untested theories which are likely to be challenged in the courts.

Forensic Examination and its Kinds

There are various kinds of forensic examination which are subject to certain standards and protocols. These kinds of examination include autopsy, examination of blood and hair, DNA analysis and fingerprints examination (Punjab Forensic Science Agency Guidelines, 2012).

Autopsy

An autopsy and post mortems are invasive inspection of a body after death. There are two kinds of autopsies; forensic or medico-legal autopsies and hospital or medical autopsies (Prahlow and Byard, 2012). In the former case the autopsy is ordered by the medico-legal officer in whose jurisdiction the death has occurred. The consent of guardian or next to kin is not required in such event. Whereas, in hospital autopsy a properly executed consent in the presence of witnesses is required and the consent form must be signed by the next-to-kin of the deceased (Prahlow and Byard, 2012). The autopsies are conducted to answer the intricate question as to extent of disease, the effectiveness of therapy, radiographic tests such as x-rays etc., the drug analysis and chemical analysis in case of intoxication. The difference between two kinds of autopsies lies in the fact, that the forensic autopsy require external examination of the victim whereas the hospital autopsies are largely concerned with internal examination of some specific organ such as heart in case of cardiac arrest or brain in the event of brain injury leading to death during an accident. (Prahlow and Byrad, 2012).

It is the duty of the forensic analysts (such as pathologists) to closely liaison with the crime scene investigator in order to get information regarding the cause of death before starting the autopsy (Punjab Forensic Science Agency Guidelines, 2012). There are two kinds of examination during an autopsy.

External Examination

This kind of inspection of the dead body is crucial for the identification of the deceased, or to estimate the interval between the post-mortem and death, or to ascertain the interval between injury and death. In doing so it serves its purpose of injury documentation, evidence collection and helps to analyse the potential cause and impending manner of the death. External examination also includes collection of blood samples and other samples for the identification through DNA/serology analysis (Prahlow and Byrad, 2012).

The body during an external examination must be identified by the police officer who brought the body to the mortuary or the close relative or friend of the deceased present at the spot. The persons who identify the body must depose the facts as to identification of the body before the court during the trial in a case when the criminal case is tried against the person who has caused death of the deceased. (Akbar Khan, 2010).

In case of unknown body, the general appearance describing age, sex, race, features, scars, tattoo marks should be noted for the purpose of identification. The photographs of the body should be taken, and the fingerprints should also be taken on record. The photographs should be taken now the body was first seen by the police officer or brought to the medical officer in case the same is brought by friends or relatives. For the reason, the body becomes bloated and distorted after

putrefaction and the features of the body are not been able to identify once it starts decomposing (Akbar Khan, 2010).

In case of clothes on the body, the same must be carefully examined and the report must state any struggle or difficulty in removing the clothes, if occasioned to the examiner. The blood stains, mud drops and other marks on the clothes must be clearly identified in the report of the postmortem. In case of cuts and incisions on clothes due to fire or acid or holes cause by the firearms or cuts by the knife must be carefully noted on the clothes and then compared with the injuries on the body (Akbar Khan, 2010).

The time interval lapsed since the death of the deceased must be reckoned by noting down the temperature, state of body, rigor mortis, stage of putrefaction and the extent of digestion of food in the body should be carefully documented otherwise the report would be of no value to the case (Akbar Khan, 2010).

If injuries are present on the body the sketches and photographs of the same should be made in order to describe the details given in the postmortem report. Such a report as to seat of injuries, size of wounds, holes on the body is necessary for the court to ascertain the nature, extent and way the injuries would have been inflicted (Akbar Khan, 2010). It would also be helpful in the cases where the innocent persons are implicated in the frivolous criminal litigation due to enmity or other personal reasons. For instance, if the verbal statement of the eyewitness as to the angle of the fire shot by the accused does not corroborate the medical evidence as to seat and extent of injury it would cast doubt in the statement of the eyewitness. Therefore, in order to reach the ends of justice the forensic analysts have heavy responsibility in saving the innocent from the punishment and the real culprits may be hanged down.

Internal Examination

The internal examination includes the invasive inspection of body organs such as chest, abdomen and pelvis followed by the examination of head and then neck. Neck dissection is usually performed to drain out the blood so that the underlying bruises and injuries may be examined. Various ancillary procedures are done such as radiological examination to identify any foreign objects in the body such as bullets or any fractures of the bones. Moreover, toxicology examination is done to identify the presence of drugs, poisons or toxins in the body (Prahlow and Byrad, 2012).

Rules for the estimation of time after death

The medical officers estimate the interval between the death and postmortem by the postmortem changes in the body. These changes are of prime importance to the legal aspects of the case. The courts do not take in to account the postmortems held after the lapse of five to six hours and the benefit of doubt is given to the accused in such cases. Following are the postmortem stages;

Livor Mortis

This stage is reckoned by the settling of the blood in the veins because impact of gravity and it can be noted as pink or purple spots on the body. Lividity appears about eight to ten hours of the

death and can be lightened by applying pressure whereas it becomes fixed after lapse of this time and cannot be removed from the body (Prahlow and Brayd, 2012).

Rigor Mortis

Rigor Mortis means stiffness of death. It normally this effect of expiry of a human being appears within few hours of the death as contractible tissues in the body bind to each other and become rigid. It usually develops between 6 to 12 hours after the death. In extremely cold weather, the process of rigor mortis is slowed down to a large extent (Punjab Forensic Science Agency Guidelines, 2012).

Algor Mortis

It is the cooling of the body that takes place after the death. This is the stage when the temperature of the dead body is equalizing with the external environment, and it becomes extremely cold in the winters and may become extremely hot in the summer season due to exposure of heat. The tables are available wherein the temperature of the body and the environmental factors determine the time of death. The more the time has been lapsed after the death, the more inaccurate the examination will become (Prahlow and Byard, 2012).

Decomposition

It refers to decomposition of body after the death, at room temperature the changes associated with the decomposition usually occur after twenty-four hours of the death. The decomposition occurs due to autolysis when the body's own enzymes act on the body tissues and organs and starts decomposition. Another type of decomposition is due to putrefaction, that is the growth of microorganisms on the body that feed on dead tissues (Prahlow and Byard, 2012).

The estimation of the time since death must be made with great care and caution. For the reason the postmortem changes and the body temperature is much influenced by the environmental factors such as humidity, cold and hot weather, absence of clothing, size of the deceased etc. It is also important that besides the postmortem report the telephone record, shopping receipts, last seen evidences should also be considered while determining the interval between death and the postmortem examination. Some investigators try to use the gastric emptying and concentration of potassium in the eyes for determining the postmortem interval which is not very helpful. The postmortem interval of the badly decomposed body is usually reckoned by the entomologists by determining the insects infesting on the body. Such as the size and number of maggots on the decomposed body could tell where the dead body was lying and how much time has been lapsing since death (Prahlow and Byard, 2012)

Cause of death

After postmortem the medical officer notes his observation and conclusion for an opinion as to cause of death of the deceased and concludes as to the manner of commission of his death and records these observations and conclusions in his report. The report should be clear and concise and if the medical officer has taken in to account the opinion of police constable or relative of the deceased who brought the body to the hospital, the same should be mentioned in the report. The body along with report is then handed over to the police officer or the relative of the deceased.

However, to maintain the chain of the custody of the dead body in this case, a proper documentation is ensured which includes the name of person who has taken the body and at what time the body is handed over to him and it is important to note that this detail must be mentioned in the separate document as well so as to maintain the chain of custody documented to be proved later on. All the samples as to tissues and other fluid samples such as semen, blood, pus should be sent to the forensic laboratory for the appropriate chemical examination of the evidence. Moreover, the name of the person handing over the samples to the laboratory or the chemical examiner, the date, time and purpose for which samples are sent to them should be mentioned on the transmitted samples. Any delay in the handing over of samples to the forensic laboratory would cause the deterioration of the sample. Therefore, proper chain of custody and time and place of sampling should be mentioned in the report accompanying the sample (Punjab Forensic Science Agency Guidelines, 2012).

The observation and conclusion as to cause of death must be given in clear and definite terms. Any doubt or probability would cast a bad impression on the mind of the judge as to reach any conclusion based on medical report (Akbar Khan, 2010).

Examination of Blood and Hair

Bevel and Gardner, in the second edition of their *Bloodstain Pattern Analysis* (2008), define bloodstain pattern analysis (BPA) as “the analysis and interpretation of the dispersion, shape characteristics, volume, pattern, number, and relationship of bloodstains at a crime scene to reconstruct a process of events” (Bevel and Gardner 2008). Because of the amalgamation of expertise in this kind of bloodstain pattern analysis, the expert analyst will require an extensive training and academic certification in varied branched of knowledge such as geometry, physics, physiology and pathology (Bevel and Gardner 2008).

Max M. Houck and Jay A. Seigal in their book titled as *Fundamentals of Forensic Science* (2010), have categorized the blood stains in to three categories; passive, transfer, projected or impact blood stains (Hauck and Seigal 2010). According to them the Passive blood stains include the clots, drops, stream and pooling together of blood however, the transfer blood stains includes blood on wipes, swipes, it patterns the transfer and contact of blood on some other medium such as floor etc (Hauck and Seigal 2010). The showers, splashes and gushes, aerial spurts are examples of projected or impact blood stains. When blood spatters away from the item creating the overall impact such as hammer or axe it is called the forward spatter. Whereas when blood droplets projects towards the item which is creating the impact is backward spatter (Hauck and Seigal 2010). Their analysis illustrates that the forward spatter shows that the weapon used has created a larger impact than in backward spatter. Such as use of hammer as contrast with stick (Hauck and Seigal 2010). This helps the judges to quantify the intention and *mens rea* of the perpetrator while committing the crime. Whether the intention was to kill the victim or cause simple hurt and then other factors such as pooling of blood are taken into consideration.

Cast off stains helps in identifying the motion with which the weapon has been used by the assailant. The cast-off blood stains are projected from the item/weapon used by the attacker and linear and reflecting the position with which the object/item has been used. For instance, after first blow the blood gets on to the item and while giving the next hit the blood often cast off to nearest floor or even on the clothes of the assailant or the nearby walls and furniture.

When the blood dries up the border and edges of the blood stain dries first and even if the surface is wiped the dried areas remain on the surface thereby leaving skeletonized stains (Hauck and Seigal 2010). These stains retain the original shape and size of the actual blood stain and tell the age of the blood.

Hair examination helps in forensic analysis because DNA can also be extracted from the hair. The hairs are often collected as trace evidence from the crime scenes. The microscopical comparison of the hair provide detailed information by including or excluding the suspects from the suspicion of crime. Hair are also piece of evidence used to establish the hereditary and parentage link therefore can be helpful in cases of identification of victim where body has been decomposed, in the cases where parentage has to be established and in cases of rape where the assailant may leave his hair at the crime scene (Houck and Seigel, 2010).

DNA Analysis

According to USA National Library of Medicine, the DNA is the genetic material which is heritable and transmits over to generations and it is found in almost every cell of the living organisms. The DNA components such as deoxyribonucleic acid, is present in every cell of the body and these are same and can replicate. The forensic scientists evaluate blood, semen, saliva, urine, feces, hair, teeth, bone, tissue and cells to determine the DNA profile (USA National Library of Medicine, NIH).

The scientist or forensic experts can analyze even the smallest biological component to determine the person's DNA. If the person comes into physical contact with any object or item, he leaves behind some of the cells on that object. This type of DNA found on object being touched is known as touch DNA. This low level of DNA helps in investigation where the fingerprints of an individual cannot be retrieved from the crime scene. This type of processing of DNA is found in jurisdictions where the forensic science has become advanced and is properly funded (National Forensic Science Technology Center, 2013).

During investigation of the place of occurrence of the crime, the investigators often recover DNA from the masks, clothing, tools, weapons, underclothes, cigarettes, cups, fingernail scraping, hairbrush, glasses, toothbrush, toothpicks, bed sheets and covers, dirty laundry, condoms and other items which may have been readily touched by the victim or the assailant. To compare the victims or suspects profile the samples are collected for reference sampling. A reference sample cannot be collected from any person forcibly; different jurisdictions have different legal requirements for collection of samples from the suspects and arrested persons (National Forensic Science Technology Center, 2013).

Fingerprints Examination

No two human individuals can have same fingerprints. The concept of uniqueness of the fingerprints is noted by Galton and afterwards numerous scientists have tried to calculate the likelihood of finding two similar friction ridge patterns for the process of fingerprint examination. All these scientists and philosophers have calculated the probability up to 0.000000954 and 1.2×10^{-80} . The fingerprints help in obtaining identification of victim and other individual present at the crime scene. It also helps in identifying the person who has been

in possession of any document or instrument as while signing the same, the individual has left some of his finger prints on the paper (Houck and Seigel, 2010).

Different Issues as to Admissibility of Forensic Report

Recovery made at the pointing of the accused

In most cases it has been observed that the recovery of the weapon is made on the pointing of the accused person, moreover the empties and bullets recovered from the crime scene are often not sent for the report of the ballistic expert till the recovery of weapons which creates serious doubt as to the veracity of the report. For the reason there is presumption that after the discovery of the weapon the bullets are fired in order to get the positive forensic report. In such scenario the courts have disregarded the forensic report despite being positive. The courts have not considered such report valuable for the doubt of manoeuvring the evidence is present in the situations of delay (Nauman Ullah vs. State 2019). In another case titled Nazim Ali versus the State the court held that the forensic report cannot be taken into consideration when police failed to send empties of weapon for forensic analysis before the arrest and discovery of weapon from the accused (Nazim Ali vs. the State 2019).

Delay in sending samples to forensic agency casts doubt in the prosecution case

For instance, in the cases of contrabands and drugs the sample must be transmitted to the forensic laboratory after lapse of 72 hours as mentioned under Control of Narcotics Substance Rule, 2001. Whereas in a case where the discovery of the drug was made on 01.01.2016 and the samples were sent after delay of twenty-five days i.e. 26.01.2016 the court gave the benefit of doubt to the accused. The safe custody and passage of narcotics drugs was not established which damaged the prosecution case. The delay was not explained by the police department (Ghulam Hassan vs. State 2019).

In a case where the empties recovered from the site were transmitted to ballistic expert at forensic agency after a delay of one month and seven days, the courts disregarded the positive report of the forensic expert. The weapon was recovered from the accused after his arrest on 17.08.2012 and the empties were sent on 15.08.2012 and the accused was under arrest since 08.08.2012. The Court held that lying of empties for more than one month in mall khana shows that prosecution and police have intentionally delayed transmission of the evidence in order to cook a story. The court held that it seems that empties were maneuverer by firing after discovery of weapon at the instance of the accused. The post-mortem in this case was also been delayed and conducted after 18-36 hours of death the F.I.R was also registered with delay which has not been explained by the prosecution. The Honourable Lahore High Court acquitted the accused in such scenario (Sarfraz vs. State 2019).

The significance of chain of custody of the objects

The Court has held in the cases titled as Shaukat Ali versus the State that the safe chain of custody of transfer of the case property from the point/date of recovery to its receipt in forensic agency and then the production of same case property before the court is mandatory. In a case where the police on receiving the information apprehended the accused and recovered 1130 grams of heroin from him. The Moharir deposed that he received two packets of heroin from the

complainant on 20.05.2016 and on 30.05.2016 he sent one sample to the police officer for transmission to the forensic agency. The said police officer deposed that Moharir handed over to him one parcel on 30.05.2016 and he transferred it to forensic agency on 30.06.2016. Whereas forensic agency revealed that it received two samples of heroin one weighing 1129 grams and other about 01 gram, after analysis the remaining portion of heroin was delivered back to the person submitting it. The Court held that the police officer submitting the parcel with the forensic agency have not deposed that he has taken back the parcel and to whom he has handed over the remaining heroin hence facts as how case property reached the court remained undisclosed. This casted serious doubt as whether it is the same drug recovered and sent for forensic analysis or not therefore, the case was dismissed (Shaukat Ali vs the State 2019).

Conclusion

In this article various forms of expert evidence are considered necessary for determining the criminal responsibility upon the suspect. The reason of discussing various forensic methods and types of evidence in this article is to underscore the value and importance of accurate investigation and its impact on fair trial and justice. Improper forensic reports would easily give the benefit of doubt to the accused person and the culprit may go escort free. The improper, incomplete and delayed forensic investigation makes the judges disregard it as the inadmissible evidence and same is excluded from the trial proceedings. This will not only waste the cost incurred on preparation of such reports and investigation but also render it futile for the legal purposes. The technology has advanced and new modes and methods of identifying the criminal has been established whereas if the police, forensic analysts, medical officers, crime scene investigators and judges would not play their role accurately, then there would be continuous apprehension of miscarriage of justice and frequent acquittal of guilty persons. In the countries like Pakistan, where the prosecution has to prove his case beyond reasonable doubt, a heavy responsibility is casted upon the state to modernize its techniques of unleashing evidence at the crime scene and in the forensic laboratories.

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