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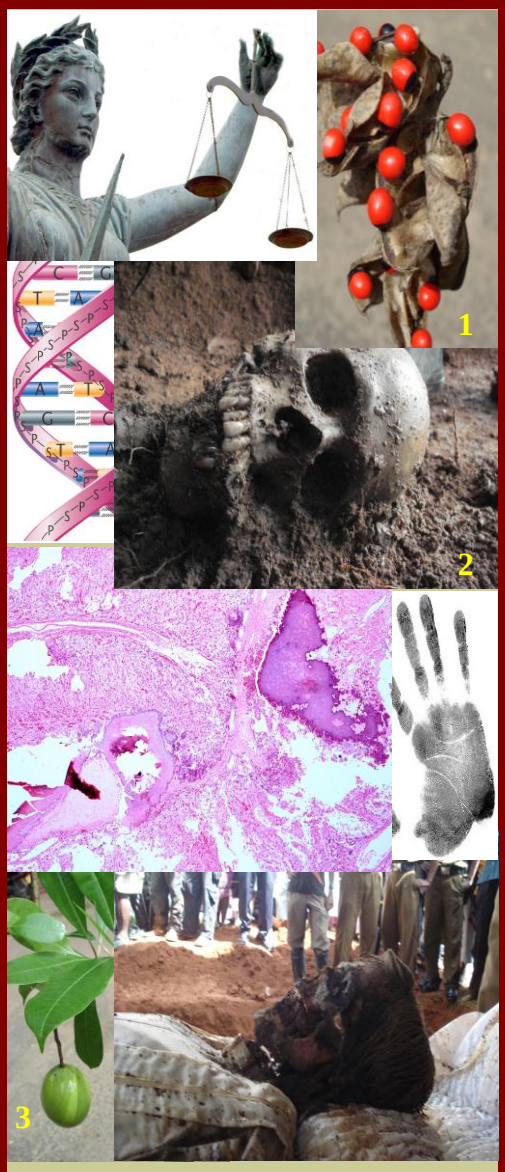

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EDITORIAL

FORENSIC ARCHEOLOGY - AN EMERGING FORENSIC SCIENCE : IS THERE AN OPPORTUNITY IN SRI LANKA?

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Not many people in Sri Lanka have heard about forensic archeology. I had the rare opportunity to undergo a training program and an internship in the US on Human Identification in which I came across the nature scope and application of forensic archeology, in addition to studying all other disciplines on forensic identification. Although, I have perused papers written on forensic archeology aspect at that time, I did not have much insight into it until 2007 (I was on post graduate studies in the US by then), where I had the opportunity to study this aspect as well and network with professionals involved in this discipline.

When I informed my supervisor that my academic interest is on human identification for forensic purposes, he provided me with a short synopsis about the contemporary approaches to current human identification before my training and internship under him. Forensic Anthropology, Odontology DNA and forensic archeology were key areas that were highlighted in the introduction.

Unarguably all these areas of study are essential parts in human identification. One aspect that I came across was forensic archeology, a term I have heard and read about but was unsure as to what it exactly deals with. My supervisors' suggestion was to learn the aspects for forensic archeology also to fulfill the total requirements of a unique expert in forensic human identification (in addition to forensic anthropology odontology and DNA). Then, I started to read and study about it and met experts who in fact engage in this discipline.

On my return to Sri Lanka, I met then professor of Archeology at University of Peradeniya at a private function and informed him about the opportunity I had in the US. I asked him about the situation of forensic archeology in Sri Lanka. He informed me that he has met several foreign experts who work in this important area and that this discipline is not developed "at all" in Sri Lanka. Then, at a later occasion I was invited by the department of archeology at university of

Peradeniya to teach osteology to archeology students which I undertook happily. Later, with my interactions with the Head/ Archeology at that time (towards teaching osteology for archeology students) and with the other academic staff in the department of archeology, I understood that there is a need and a scope to develop forensic archeology in Sri Lanka. I in my capacity as Head of Department of Forensic Medicine at university of Peradeniya, spoke to an academic member at the Post Graduate Institute of Archeology in Sri Lanka and explored the opportunity one may have in establishing this study area in Sri Lanka, having expressed my enthusiasm. I was informed that he would be happy to look in to the possibilities of having a course / unit offered on forensic archeology from their institute. According to him, there has been no one in Sri Lanka, who has officially enrolled and studied this area of study. Therefore, I attempting to fill this void, I officially enroll in a course in Forensic Archeology at a prestigious university in Australia as an internal student and successfully completed the course work and passed the examination conducted by the Australian university. This was in addition to my academic study and enrolments in forensic anthropology and forensic odontology training.

In general terms 'forensic archaeology' is simply the application of archaeological methods and theory to ancient forensic situations and into modern crime scenes. This

subspecialty of archeology/anthropology was first developed in the US and spread to Canada, Europe UK and to Australia. Several Universities in the US, UK and Australia conduct courses in this aspect. All forensic anthropologists in the northern America UK and Australia have undergone an archeology training: an essential part of exhumation excavation and recovery of bone and evidence.

According to the American school, archaeology is a subfield in anthropology. In contrast, in the British tradition archaeology was developed as a branch of history. In the British model, archaeology has two distinct divisions, the archaeology proper and anthropology. Anthropology is the study of humans. This diverse field is traditionally divided into three subfields: cultural (social) anthropology, archaeology, and physical (or biological) anthropology. Cultural anthropologists study the beliefs and customs of people in different (usually third world) societies. Archaeologists excavate and study the artefacts and architecture (i.e. the material culture) of ancient peoples. Physical anthropologists study the anatomy, growth, adaptation, and evolution of the human body (i.e. through the study of skeletal remains). All of anthropology is comparative in its approach, examining the difference and similarities between people across the globe and over time.

In essence, forensic archaeology is the application of archaeology methods and theory to crime scene investigations and recovery. On principle, this discipline attempts to study the past events using archaeological techniques, more specifically attempts to study past crimes using archaeological theory and methods by proper recovery of evidence and materials and then interpreting them. For example, ancient war crimes, genocides and ancient murders can be studied using these methods. Forensic archaeology can assist professionally to provide contextual information as to where, how and when evidence were recovered in the forensic site even in a contemporary forensic scene of crime.

Collecting and recovery of evidence is an essential part of any forensic excavation or exhumation. The need for controlled excavation by trained professionals becomes significant as there had been many instances where the total amount of bodies were not recovered or parts damaged due to unskilled personal involved in excavations. In many forensic instances the professional assistance of the forensic archaeologist is sought in the western world. For example in the 9/11 mass disaster, Rhode island nightclub disaster the contributions by forensic archaeologists / anthropologist significantly assisted to recover evidence and reconstruction of events which lead to administer justice. Increasingly, many international organizations employ forensic archaeologists to forensic teams especially those that deals with genocide investigations, war crimes, mass graves etc.

One of the most interesting instance of the use of forensic archeology was the recovery of the ice man and the reconstruction of the events proceeded with his life peri-mortem. In 1991 the world was alerted to a remarkable find in the Austro-Italian Alps of the mummified body of a 5300 year old local inhabitant. This find, trapped and preserved in glacier ice, was hailed by some as the most important archaeological find since the discovery of Tutankhamen's tomb in the Valley of the Kings in the 1920s.The 'Icemen' became known to the world as 'Ötzi" named after the Ötztal Alps where he was found.

It is in the context of the demands of a highly standardized but flexible approach to the crime scene that the trained archaeologist offers significant advantages. The application of a forensic archaeological approach involves systematic spatial and depositional documentation and data (evidence) collection through use of standard methodological principals of archaeological recovery Rather than one or several crime scene specialists, this expertise may even lend weight to an argument for forensic archaeological procedural oversight of crime scene recording and evidence collection. Yet, internationally, the acceptance of the forensic archaeologist as a key player in crime scene investigation is greatly influenced by country-specific

trajectories in disciplinary background and linkages.

In conclusion, forensic archeology is an emerging science. This approach can be applied to both current forensic contexts as well as ancient/older contexts. The aim of forensic archeology is the scientific/proper recovery, documentation preserve and transport of evidence from a suspected crime scene. Determining contexts of human skeletal remains, identify and contextualize equipment/artifacts recovered and more importantly distinguishing forensic contexts from an archeological site or a shell midden or from a cemetery or from a war trophies is an essential skill in forensic archeology.

In the Sri Lankan context, the unidentified skeletal remains are treated and managed in a substandard manner. The police have had no training in archeological methods of excavation. The police along with unskilled villages often collect bone samples from various places without any skilled personal in archeology/anthropology being involved. Such actions result in not only damaging the specimens (there by possible false interpretations), but also non recovery of essential evidence. It is apparent that similar substandard approaches are carried out in exhumations as well. The use of an expert trained in forensic anthropology and archeology will provide expertise in site identifications, site markings, opinion on the soil and the environment, approaches to excavation and detailed three dimensional recovery storage and transport of evidence. As all forensic anthropologists trained in the west, undergo a forensic archeology training invariably, a forensic anthropologist with a training in forensic archeology in the team can opine in regard to the archeological aspects. The application of archeological theory and practice was evident with the ideal site location and recovery of a skeleton of a suspected murder disposal in one of the excavations in Gampola area in Sri Lanka that I could assist with the forensic pathologist and the police. Therefore, as an area of study and practice forensic archeology has a scope and relevance in Sri Lanka.

MEDICO-LEGAL PRACTICE AND ITS INTERACTION WITH MULTITUDE OF SOCIO-RELIGIOUS RITES IN SRI LANKA

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Introduction

The Sri Lankan community consists of vastly diverse ethic and religious fractions, mainly Buddhists, Christians, Hindus and Mohammedans that ultimately influences over the medico-legal system of the country. In spite of that the medico-legal procedure is governed by provisions of legal enactments, historically, both the legal and medical communities faced many cross paths with religious rituals in determining time of death, conducting autopsy examinations, retention of tissues, organ transplantation, disposing death bodies, and even during clinical-forensic examinations. Though standards of science is not always compatible with the religious principals, the current judicial systems in many parts of the world, including Islamic jurisdictions demands undoubted medical proof of cause and manner of death in order to exploit wrongdoers. The author himself encountered many conflicting situations while performing medico-legal duties and forensic medical teaching in Sri Lanka and abroad. At times, medico-legal practitioner may have to withstand extreme religiously motivated demands by relatives to compromise standards of the practice, viz: conduct limited autopsy etc. The present paper intends to elaborate some aspects of social and religious influence on practice of forensic medicine in Sri Lanka.

Issues and Discussion

Brain death and transplantation

The determination of time of death is one of the fundamental medico-legal issues for any forensic practitioner. It was not a difficult task in the past and attributed to cessation of all vital functions of the body, until modern methods of life support and medical intervention were introduced, which made it possible to keep some bodily systems "functioning" long after others have ceased.

The concept of brain death has been accepted as a true death by majority legislators, where a brain stem death is in force in the United Kingdom while USA, Continental Europe and South Asian countries[1] adopted the whole brain concept. This scientific definition of brain death[2] replaced then prevailing sociobiological concept, based on cessation of all the functions of a human body, a somatic or biological death, as a legal death. In strict biological meaning, the body is constituted of cells, tissues, organs and eleven systems, including three key vital systems which work in close coordination under control of central nerves system in line with a genetic timer. However, the most sacred concepts assume that the soul makes this bio-system a person and a real death occurs when the soul leaves the body. Hence, the concept of brain death especially a brain stem death may not be acceptable to a common religious man who queries why do "brain dead" patients still have a beating heart and often receive ventilator support, intravenous fluids, antibiotics, and other life support measures and even deliver a baby. Consequently, relatives do not view him/her as dead and accept death as occurring when the heart and lungs stop functioning permanently[3].

On the other hand, the discovery of an ability of foetal brain tissue to stimulate neural cell growth and division, raises the possibility that patients with extensive brain damage, sufficient to certified death under current standards, may be able to regain some degree of functions. It may be further supported by the fact that histopathological examination of so called dead brains reveals minimal anatomical changes of the cerebral tissues in spite of the clinical certification of death.

The Buddhist concept on human existence consisting of cycle of life, suffering, and death according to law of cause and effect, also the way out of it. Furthermore, a physical death is in no sense, considered being terminating one of the endless cycles described as; the falling away, the passing away, the separation, the disappearance, the mortality of dying, the action of time, the breaking up of the aggregates, the laying down of the body[4]. This Buddhist view of death is congruent with the concept of whole brain death in the current context and therefore, remnants of biological functions including a beating heart have no meaning in a body without soul. This view creates an opportunity for the taking of organs for transplantation, while protecting premature removal of organs.

Hinduism also shares similar views and believes in the rebirth and reincarnation of souls. Death,

therefore, is not a great calamity, but a natural process in the existence of soul as a separate entity[5]. In fact, many concepts of Buddhism are believed to be derived from ancient Hindu theologies. Both Buddhist and Hindu concepts hail organ donation.

For Christians whose lives are guided by the Bible, the fact of death is acknowledged as part of the contemporary human condition, affected by sin[6]. In general Catholic and Protestant theologies do not object to brain death criteria under whole brain concept. According to catholic medical ethics, Pope Pius XII stated that death is determined by medical experts, and it does not fall within the competence of the Church[7]. In the western world, Christian church consistently supports and encourages organ donation. Except for a few extreme religious missions, we have not faced any serious conflicts about brain death and organ donation among Christian community in Sri Lanka.

The concept of brain death has also been recognized and implemented by the scholars of Islam at an international level in their resolution[8]: Resolution of the Council of Islamic Jurisprudence on Resuscitation Apparatus Decision No.(5), D3/07/ 1986. "Wherever you may be death will overtake you, though you remain even in lofty towers."(Quran 4:78)[9]

The Council of Islamic Jurisprudence in its third meeting held in Amman, capital of Jordan from 11 to 16 October 1986, after discussing all relevant aspects of resuscitation apparatus and after hearing detailed explanation from specialist doctors, declared the following:

A person is pronounced legally dead and consequently, all dispositions of the Islamic law in case of death apply, if one of the two following conditions has been established:

There is a total cessation of cardiac and respiratory functions, and doctors have judged that such cessation is irreversible.

There is a total cessation of all brain functions and experienced medical specialists doctors have judged that such cessation is irreversible and that brain cells have started to degrade. In this case, it is permissible to take the person off resuscitation apparatus, even if the heart is still beating.

However, most Islamic religious leaders do not recognize it and expect termination of all signs of life including heart beat as precondition for declaring death.

An organ donation is permitted in Islam, certainly with the juridical safeguards. "An whoever saves a soul it would be as if he had saved all mankind. It should be given as a gift. The sale of an organ is prohibited". [Quran 5:32][10]. It is necessary to have the permission from the donor or a relative to receive the organ. However, according to our observations, srilankan Islamic community is reluctant to donate organs, even for blood donation, probably due to long standing social stereotypes rather teachings of Holy Quran.

Euthanasia

The euthanasia has emerged on the rights of self determination about death and authority over in critically ill patients a though assisting such patient to kill himself is considered to be a crime in many jurisdictions. In Sri Lanka, killing himself is not a crime anymore, though all forms of euthanasia, active or passive, voluntary or involuntary and physician assisted suicide are not incorporated into our legal system.
Buddhist views are not unanimous about euthanasia but generally against involuntary euthanasia and assisted suicides for reasons related to espouse a "sanctity of life" position[11].

Christians are mostly against the euthanasia. According to Christianity a life is a gift of the God and therefore no human being has the authority to take the life of any innocent person[12], irrespective of person's wish to die.

The position of Islam is very clear in this context as the Al-Bakara Chapter of the Holy Quran, verse 159, which reads, "Don't throw yourself into death". According to Islamic philosopher Dr Hathout, in general the rules of Sharia are to accept the judgment of God. If a person is terminally ill and we all know that according to the best medical knowledge of the time that death is certain, we want to preserve the dignity of the person by not making him look like he is living when in reality he is not[13].

Autopsy and disposal of dead bodies

Distinguishing natural from unnatural causes may not always be easy, and what may appear as natural causes may not be so, or vice-versa. An undue errors in this respect have major impact on the deceased's family that results in re-autopsy, exhumation or insurance disputes. Most problems arise because of confusion The confusion usually arises at formulation of the cause of death and the death certificates and therefore, a standard autopsy examination is essential in most apparently natural deaths. Unlike in many western

countries where bodies are stored and autopsies are scheduled, in Sri Lanka, autopsy is performed on the same or very next day with exception of special cases.

Generally Buddhists, Hindus and majority Christians here do not object to autopsy but are always in hurry to take over the deceased's body to follow their well respected religious rituals. Hence, in the circumstances, forensic pathologist is under the social pressure to complete autopsy examination as soon as possible. In fact there is an unseen institutional benefit of early autopsy by reduction of time and cost of storage. Cremation is the most respectful way of disposal of a body for Buddhists and Hindus but criminal law of the country prohibits cremation of a body after coroner's inquest. However, many Coroners and Magistrates have ignored this provision and allowed cremations after obtaining additional certification from forensic pathologist confirming that no further investigations would be necessary in this case.

Many religions such as Judaism and Islam usually discourage the performing of autopsies on their adherents. The common trend among Muslim community in Sri Lanka is to by pass autopsy procedures whenever possible, because they do not appreciate any physical disturbance or disintergration of a corpse. As a result, it has been observed that many maternal and infant deaths are released on apparent causes of death without proper pathological investigations, confronting national interests of the country.

Islamic funeral rites are simple though they are subject to regional interpretation and variation in custom. In all cases, however, sharia calls for burial of the body, preceded by a simple ritual involving bathing and shrouding the body, followed by salah (prayer). Cremation of the body is forbidden. Islam instructs its followers to bury their dead as quickly as possible, preferably within the day of the death[14]. Their desire to burry the body within shorter period demands judiciary and pathology services to perform medico-legal functions in hurry or even during night shifts, at times compromising standards.

As Islamic community does not follow embalming practice which results in rapid decomposition of tissues, if subsequent exhumation is necessary in cases of probable criminal doubt, the autopsy would be generally limited to skeletal examinations.

Conclusions

The application of scientific standards of forensic medicine at times clashes with religious rites of the society. The whole brain concept is acceptable to most religions as a point of death where as brain stem death leads to conflict situations. Euthanasia is generally objected by all religions and very unlikely to be permitted in Sri Lanka. The procedures of autopsy and disposal of death body greatly varies according religious believes and case by case approach is within rationale. It is necessary to educate general public, especially their community and religious leaders about value of medico-legal practices in establishing justice, social harmony and health planning and economics.

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—A Point of View—
THE USE OF PSYCHOLOGY IN THE ADMINISTRATION OF JUSTICE IN SRI LANKA

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Psychology and its specialties

Psychology is a science concerned with the study of behavior, both human and animal, and is therefore interrelated with other disciplines including philosophy, biology and sociology (Myers, 1996). In the minds of most though, psychology is connected with mental disorders (clinical psychology) or with assisting the resolution of relationship problems (counseling psychology). Seemingly there is a lack of understanding that psychology – as the study of human and animal interactions – also encompasses how these organisms perceive the world around them and how they react to these perceptions. Interactions of this kind may be observed in all areas of human activity. The areas of investigation for psychologists are therefore vast and varied as illustrated by the many specialized fields of psychology open for study, such as; Organizational Psychology, Environmental Psychology, Educational Psychology, Forensic Psychology and Sports Psychology.

Central to the psychological inquiry are the answers to the question *why*. From this core question stems the development of psychological theories of human functioning, often expounding new approaches to current knowledge. It can thus clearly be seen that both 'normal' and 'abnormal' behaviour are within the domain of psychologists (Myers, 1996). Although psychology is a comparatively young science, it is very fluid, and hence may influence other disciplines, particularly those focused on elements of human interactions, such as: Engineering, Management and Law. However, the cornerstone of psychological practice still revolves around the investigation,

intervention and treatment of mental, behavioural and emotional problems, whatever its source; be it stress associated with ones' working environment, trauma or shock following a catastrophic life event or the development of a particular mental illness such as social phobia. From here either autonomously or within a multidisciplinary team, psychologists seek to offer up answers and formulate methods for intervention.

A professional may only be deemed a psychologist if she or he has a first degree in psychology and further postgraduate training in psychology to masters or doctoral level (Marzillier & Hall, 1999). In Sri Lanka, recognition as a psychologist requires training to masters level, however, in other countries training to doctoral level is the norm (e.g. United Kingdom and The United States of America). As highlighted above, Psychology is a vast discipline with numerous specialties and sub-specialties. For instance, clinical psychologists possess specialized training in working with people with mental illness. They either may work independently or in a team setting (with other mental health professionals such as psychiatrists and social workers) and subsequent to assessing and diagnosing patients, they may provide psychotherapy to their clientele (Marzillier & Hall, 1999). Organizational psychologists on the other hand are those with specialized knowledge on the human facets in an organizational or institutional setting. Typically, their work may involve, among others, trade union negotiations, psychological testing for employee recruitment and, executive coaching. Educational psychology, another specialty in psychology, links with education and hence these psychologists may be involved in work such as designing curriculum and pedagogy to ensure students are able to learn in the most effective way, including those with learning difficulties. Though these and other specialties of Psychology are distinct, due to the nature of their training in the human mind and behavior, there is considerable overlap between the work undertaken by these different types of psychologists. In Sri Lanka, the number of psychologists is small; figures indicate there are only about 20 psychologists (of varying specialties) working in the entire country (De Zoysa & Ismail, 2001). Hence, in many contexts where the services of a psychologist are required, there may not be a suitably qualified person to fulfill this need.

The speciality of Forensic Psychology

The specialty of forensic psychology is most closely linked with the administration of the justice system. Forensic psychology (sometimes also referred to as legal psychology or criminal psychology) is concerned with the psychological dimensions of legal processes. Key tasks undertaken by forensic psychologists include crime analysis and criminal profiling; presenting expert evidence in court, particularly in relation to the mental status of an alleged victim or perpetrator; providing research evidence to support the dispensation of criminal and civil justice; undertaking statistical analysis for prisoner profiling; piloting and implementing treatment programs for offenders; modifying offender behavior; advising parole boards and mental health tribunals; and responding to the changing needs of prison staff and prisoners. Forensic psychologists may be employed by the prison service, the police service, in the social service (including young offenders units and the probation service), in the health service (including rehabilitation units and secure hospitals), and in university departments or in private consultancy (British Psychological Society, 2010).

Within the criminal justice system, in addition to psychiatrists, forensic psychologists, may also work with persons of questionable mental status. These two disciplines are closely related, yet each has a distinct focus. Forensic psychology is involved with understanding a suspects', or an accused persons' or a prisoners' mental status. Forensic psychiatrists, on the other hand, are focused on diagnosis and management of a mental illness, identifying, and categorizing the specific symptoms of mental disorders etc. Forensic psychiatry therefore focuses on determining the type of mental disorder the person has and thereby assessing his or her criminal responsibility or liability. Forensic psychologists, due to the nature of their training and experience, approach legal issues differently to forensic psychiatrists. Whilst both forensic psychologists and forensic psychiatrists are called to work on behalf of either the prosecution or the defence, forensic psychologists are responsible for determining the mental capacities of the person concerned. This may, for example, involve measuring the victim's intelligence level (say, in the case of rape and assessing the ability to give consent in sexual activity) or evaluating reading ability. These mental capacities may be assessed by administering psychological tests and/or a through a clinical interview with the person concerned. In terms of the respective training that forensic psychologists and psychiatrists must undertake, there is a difference in focus and emphasis. Forensic psychiatrists start their careers by completing a five-year medical degree. They then complete post graduate training for several years in general psychiatry and further training in the track of forensic psychiatry. Forensic psychologists on the other hand, having obtained a degree in psychology, usually obtain either a masters or a doctorate in psychology, with a specialist track relating specifically to forensic psychology. Since a doctorate demands a greater component of research-based training, forensic psychologists have the exposure to, and understanding of a broad range of research materials and tools, which they can draw upon and utilize when working in the field.

Forensic psychology in Sri Lanka

As in other specialties of psychology, forensic psychologists need to have a first degree in psychology and postgraduate training in forensic psychology, at least up to the masters level. Since psychology is a young discipline in Sri Lanka (De Zoysa & Ismail, 2001) there are no known forensic psychologists in the country. However, there are a few other specialists such as clinical psychologists, educational psychologists and developmental psychologists (De Zoysa *et al*, 2010) who are called upon to provide forensic psychology services to the justice system of the country (De Zoysa, 2002). Clearly, these other specialists cannot offer the breadth of specific services that a specialized forensic psychologist could offer the administration of justice. The unique training of a forensic psychologist, in both psychology and the law, equips them to offer a unique suite of skills and knowledge. But, in the absence of these specialists, the justice system can still gain valuable input from already available clinical, educational and developmental psychologists, as well as other psychology specialists where appropriate, in the administration of justice. For example, as discussed above, clinical psychology is a speciality of psychology concerned with the assessment and psychological management of mental illness and abnormal behaviour preferably in a team set up. This field integrates the science of psychology with the management of complex human problems, including mental illnesses. Due to this expertise, a clinical psychologist might be called upon to provide mental health services such as assessment and provide clinical management assistance to individuals who have come into contact with the criminal justice system. They may also be asked to provide expert evidence on a range of conditions such as alleged child abuse (De Zoysa, 2002) and capacity to give consent to

sexual activity (say, in the event of suspected rape).

Providing psychological evidence in court: Possibilities and issues in the Sri Lankan context

Across the globe, it is now over a century since psychologists first furnished courts with psychological expert evidence (Gudjonsson, 2003). However, in Sri Lanka, it is the authors' observation that psychologists (typically clinical psychologists) have been called on to do such work only within the last decade. Be it globally or in Sri Lanka, the scope of forensic psychology has grown and there is an increased demand for psychological reports and other psychological services in the administration of justice. This growth is seen both in criminal (e.g., in the assessment of alleged child abuse) and civil proceedings (e.g., in child custody issues in divorce proceedings). In the absence of forensic psychologists in Sri Lanka and their specialized contribution to court work, other specialties of psychology in the country (such as clinical, educational and developmental psychologists) can be called upon to contribute in the following ways:

1. Expert opinion regarding psychological conditions – because of clinical psychologists' training, they may be called upon to evaluate the existence of a psychological condition in an alleged victim, suspect or even a witness. In the Sri Lankan context, this is particularly so in the case of alleged child abuse where based on the authors' experiences clinical psychologists are increasingly called upon to assess and establish such allegations.

2. Child custody evaluations – given clinical or developmental psychologists' training in mental health, family functioning, and psychological conditions, they could be called upon to offer opinion regarding the most suitable custody arrangements at the time of a parental separation or divorce. Although this role is mainly played by social workers in a team set up, in the absence of such an entity in Sri Lanka, a psychologist may assist in regard.

3. The revision of laws – recent advances in psychological research has revealed much about human psychological functioning. These advances have been applied practically, including in the revision of the laws of the country. For instance, since the 1970's, homosexuality ceased to be considered a mental illness and is now considered a matter of sexual orientation along with heterosexuality. However, these advances in research into sexuality are not reflected in Sri Lankan laws where homosexuality remains a criminal offence. Psychologists therefore could contribute to the work of committees that are involved in the revision of these out dated views to ensure such changed norms are incorporated into the laws of Sri Lanka.

Despite the potential contribution that psychology could make to the administration of justice in Sri Lanka, the authors believe that most psychologists, and indeed most other health professionals, are reluctant to become involved in court work. Arguably there are various reasons for this, key amongst them is that psychologists in Sri Lanka find it difficult to balance the massive demands made on their time. For instance, there are only a handful of clinical psychologists (and only five are in the government sector) for a population of more than 20 million people in the country (De Zoysa, 2002). As these psychologists are not specialist forensic psychologists, they also have other mandatory duties to attend to, such as attending to those with mental illnesses. It is difficult for this small group of professionals to juggle these other duties with court work, a fact further compounded when travel to other parts of the country is required in order to give expert evidence at the time of a hearing. There are also other reasons for psychologists to feel rather reluctant to become involved in forensic work: first by furnishing a written report to the court the psychologist is often subsequently summoned at trial as well. Secondly, a reluctance to undertake forensic work also stems from the protracted carriage of cases, which are often postponed several times, taking months or even years to reach a final verdict. The reality is that, having to attend court hearings many times over each time a case is postponed or adjourned deprives the psychologist from too much time from what is already a demanding work schedule. The following example from one of the author's clinical work typifies the problems identified above:

A paediatrician referred two children, aged 3yrs and 5yrs, to the author for a psychological assessment due to an alleged occurrence of sexual abuse by the children's father. The first contact between the author and children was in September 1999. The author was able to assess the children, confirm the alleged sexual abuse and present the assessment report within a few weeks. The author was then summoned to courts

seven times. Thus, the author had to present herself at courts in response to these summons, cancelling all her other professional commitments, only to be notified on the designated day that the case was once again postponed. Finally the author had the opportunity of presenting her evidence on August 2001.

Importantly, this example represents the rule rather than the exception in the Sri Lankan judicial system. In fact, most cases are delayed for more than the two years required for this particular case to be finalised. Needless to say, this situation is far from satisfactory and makes others shy away from appearing in cases of child abuse. One possible solution to this problem, other than speeding up court processes, might be to reduce court summons and rely solely on the psychologists' report. However, relying solely on the report has its own disadvantages too, including that such an approach may be seen to compromise the accused's right to a fair trial in the absence of an opportunity for cross-examination of the reporting psychologist. Appropriate safe-guards would have to be put into place to ensure the interests of the administration of justice are not traversed.

Concluding thoughts

It is clear that psychologists play a critical role in the administration of justice in Sri Lanka, however, given the small number of psychologists in the country and the current absence of specialist forensic psychologists, greater attention needs to be directed to how other specialist psychologists can best service the needs of the administration of justice with due regard for the competing and often unreasonable workload demands placed on this small but clearly indispensible group of professional psychologists.

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Special Note by the Editor

- *This article was originally published in The Sri Lanka Journal of Forensic Medicine Science and Law Vol. 2 No 1, May 2011 issue. Unfortunately, due to a printing mistake, the second author's name was not included in it. Therefore, this article is re-published in this issue "as it is" with the inclusion of the second author. The Editor apologizes for the inconvenience caused. Those who would like to cite this article are advised to consider this issue, as its original publication.*

CHALLENGES TOWARDS AN OPTIMUM IN SCIENTIFIC SCRUTINY OF FORENSIC INVESTIGATIONS IN SRI LANKA.

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When contemplating the nature and focus of forensic investigations, one would envision them to be a utopia. In empirical contexts unfortunately, it is unreasonable to envisage such forensic investigations to be a place for ideal perfections. The reasons for forensic investigations to be pragmatically imperfect are multifold. Logistics, financial constraints, lack of training, inadequate political and personal motivation, issues of infra structure, equipment, rampant nature of case load, unavailability of experts, issues related to crime investigations and officers, issue related to legal profession and courts, professional and personal biases, leadership issues, confounders, prejudices are only a few to enumerate in relation to our local situation.

The aim of this essay is to critically evaluate the forensic investigations in Sri Lanka with a view to identify challenges and pertinent issues that hinder and impede the quality and scientific optimism. The conceit behind the criticism and arguments postulated are not by any means to undermine the existing system based on a western training, idealism and hypocrisy but towards improving the system towards "near perfectionism" accepting the realities weaknesses and challenges. Therefore, the critiques expounded here needs articulation "as constructive" and with some degree of optimism.

The forensic investigations in view of this article include medico legal investigations and other capacious scientific investigations conducted for forensic purposes. Although Scientific optimism logically requires a premise of perfectionism, in reality, it is unfeasible, therefore envisaged a "near perfect" or rather acceptable scientific disposition in the conduct of forensic inquiry. The setting for the thesis developed here and for main arguments stem from prospective cross sectional observations made by the author in two different settings, one in Sri Lanka and the other from reputed western settings. Additionally, the personal experience and formal education and tutelage in forensics both in Sri Lanka and in reputed western schools are incorporated to reinforce the fabric and geography of the arguments and assertions. In essence this paper glances the local forensic set up from a comparative perspective in contrast to western models having regard to scientific optimism. Nonetheless there is no assertion made to the effect that the western practice is ideal, either.

The challenges identified in the context of reaching a scientific optimism in forensic investigations in Sri Lanka are categorized broadly in to four categories: structural issues, policy issues, issues related to main disciplines in forensic sciences, and personal or professional issues. It must be noted that one issue discussed here can overlap with another or with several others factors.

The scientific aspect of forensic investigation is structured in Sri Lanka in a special way. The most prominent science in the field of forensic science unarguably is the forensic pathology service. There are specialist forensic pathology units in most hospitals in Sri Lanka and in medical schools led by a specialist in forensic pathology commonly known as a Specialist JMO (judicial medical officer). These units compose of several other non specialist medical officers too who perform medico legal functions in addition to the specialist. Further, the District medical officer, Hospital Directors, Medical Officer Medico-Legal, Medical Officer In Charge of peripheral hospitals, who have neither specialist nor additional training in forensic pathology nor in handling medico- legal issues are compelled to perform medico-legal functions merely because of the structural legal and administrative reasons. The Sri Lankan law strongly asserts that any medical officer with no further training or specialty could handle a medico legal case of any degree of seriousness appropriately. This has become one major issue and raises concerns on justice, due process and quality issues. These non specialist positions that has responsibility to perform medico-legal duties can be the first appointment held by some medical officers. Some foreign qualified non specialist medical officers have had no subject of forensic medicine in their medical curriculum and enter local practice passed through qualifying examination for registration. There has been a significant cut down of forensic medicine teaching in the local medical curriculum as well, at present. The non specialist medical officers have to perform other clinical and administrative duties on top of their medico-legal duties. This situation makes the

quality and scientific standards of forensic inquiry questionable. The need for such a trend requiring non specialist medical officers to perform medico-legal functions arose when there was scarcity of specialists in forensic pathology. It is high time that measures be taken to increase the cardres of specialists' position depending on the national demand. Alternatively it may be pertinent to further train those non specialist medical officers who are required to perform medico-legal functions to an acceptable level so that quality and scientific optimism in forensic investigations can be guaranteed.

The other concern is the enormous workload of the JMO's office. It is difficult for any officer to maintain quality and standards when there is an over load of work. One aspect to this issue is that there is no screening process of the work load that the specialist JMO receives. If there was an established screening process, the specialist could utilize his time on specialized cases. The other aspect of this is the forensic pathologist is obliged and has to perform all most all aspects of forensic investigations most of the time due to unavailability of other "non-pathology" specialists. For example, a forensic pathologist is requested to perform broader areas of forensic anthropology, psychiatry, odontology, entomology (which are all separate disciplines on their own merit), scene visits, participate in exhumations etc on top of his main function as a forensic pathologist. It is timely that other specialties such as forensic anthropology forensic odontology forensic psychiatry forensic psychology, forensic archeology, forensic science are developed. Establishing the disciplines and recognition of specialists and appreciating their role in our country is important so that the work load of the forensic pathologist is reduced, quality of the investigation improved and there is invariably a team approach to the problem.

In contrast to the western model, a Judicial Medical officer in Sri Lanka manages both clinical forensic cases as well as post mortems. It is important to survey and review as to whether it is worth while to consider having a similar model in Sri Lanka as in other western states where forensic pathologist only sees post mortem cases and a separate specialty/subspecialty is developed for clinical cases. This may raise some tension among some practitioners with a conservative attitude and a traditional view, however it is important to study the feasibility of this model as to whether it will reduce workload of the practitioner, improve quality of the investigation and scientific scrutiny.

On the other hand there are cultural requirements to release bodies to relatives. In the name of justice, it has to be observed that "justice hurried – justice denied". However, there are unwarranted influence by local politicians and powerful personnel to release bodies in which the coroner and the JMO would be in a difficult position.

The position of the Inquirer into Sudden death, its recruitment, qualifications and training have been queried and critiqued in the past. There is no formal training, a continuous professional development nor a quality method of recruitment to this important position. It is important to review the entire medico-legal management structure if quality, truth and scientific optimism is an aim.

The other structural issue that exists is in relation to the forensic science service in Sri Lanka. By law, Government Analyst department is accepted as the sole authority on forensic science. For example, for forensic toxicology, even a university specialist unit in forensic toxicology is not recognized as having competence and authority similar to the government analyst department. This structural issue paved the way to the resignation of the only doctorate we had so far in forensic toxicology in Sri Lanka to move to UK and lead one of the top forensic toxicologist unit in the UK which was based in a University!. So was true for the forensic entomology specialist we had in the country. Both these structural and policy issues tend to inundate the government analyst department with toxicological samples from all over the country for many years. The court cases get postponed and the post mortem reports get delayed in the absence of toxicological report, specimens deteriorate and analysis fails. At times accused is acquitted in the absence of the report for a long time. It is high time to decentralize forensic science service in the country and make experts autonomous responsible and accountable following the western model. It is also important to develop private and/or university units with qualified staff to have a check and balance on the state institutes.

By law and policy the only finger print expert recognized for reporting in Sri Lanka is the police officer who is responsible for fingerprint analysis in the department of police. This undoubtedly retards the birth of parallel experts in other institutes and research in this important discipline.

Due to policy constraints explained above in the area of toxicology and fingerprints, it is highly unlikely that a defense teams in these areas be

created. The role of the prosecution is to present an honest case in fairness to the accused and the victims in order to elucidate the "truth". Neither the judge, nor the jury nor the lawyers nor the expert witnesses were present at the time of the event. The entire process of adjudication is evolved to estimate the "truth" using the evidence presented. It is clear with the policy constraints explained above, the fairness to the accused is obliterated. He cannot have a defense toxicologist, or any other defense scientist nor he has opportunity to let his expert, witness the entire process of forensic analysis. This raises a serious concern about access to justice and due process. The court on the other hand apparently builds an overly estimated "trust" on the expert witness and "mistrust" on the ordinary witness and the accused. There are some expert witnesses who make statements and assertions of evidence as if they were eye witnesses to the case!.

Issues related to forensic disciplines are multifold. Forensic investigation in any given state is a team approach. However, due to numerous reasons the situation in Sri Lanka does not seem to welcome a team approach. The responsibility of a crime investigation lies upon the police department. The officers in the police department require rigorous training in theory and practice of crime investigations. Unfortunately the police department in Sri Lanka lacks the required expertise skills and facilities to conduct a 'state of the art' crime investigation. The officers need further training and facilities in this regard. This issue is more deepened as it comes to rural/peripheral units. The trained officers in crime scene investigations are transferred to various 'other' non-crime units in the police department and the training obtained /provided appear useless. I have engaged in training police officers especially in the areas of DNA, human identifications and criminal justice, unfortunately most of them do not perform crime investigations any more. On the other hand, the police department appears to rely much on the judicial medical officer, misleadingly assuming either that the medical officer is part of the investigating team or that the medical officer has a training and expertise in crime investigations in addition to their specialized skills in forensic pathology and medicine. It is neither the responsibility of the medical officer concerned nor his expertise to conduct the crime investigation. The police department ought not to presume to delegate their own obligation in the absence of required knowledge and skills in criminal justice on their own part.

Similar to any other profession, the forensic practitioners in Sri Lanka too have demonstrated a dramatic decline in their ethical conduct, attitude and moral outrage. There have been instances of abuse of power, sexual allegations, assault incidents and alleged corruption charges against forensic practitioners. JMOs are affiliated to hospitals in Sri Lanka .With the close working relations with the other medical practitioners in the hospital, it is contended that the judicial medical officers have been reluctant to report on identified medical negligence issues , of course due to political social and other reasons.

There is an urgent need for supplying of required equipment and consumables that are essential for forensic investigations and their maintenance. The state has to have a political will to investigate crimes in the best possible way. There has to be a supply of an adequate annual budget for this purpose. For example In my own field of specialty, Sri Lanka still does not have a DNA sequencing machine for routine use, or there is no policy on paying the test costs for DNA tests. Further, we do not have a portable forensic odontology state of the art unit to be used for forensic identification purposes anywhere in the country. Also there are many lapses in terms of equipment, quality methods and consumables for forensic pathology service, toxicology and for police crime scene divisions.

One of the other important aspects that is missing in Sri Lanka in regard to forensic service is a research base. The forensic research conducted in our country is minimal and most publications are in form of case reports. Among the many Sri Lankan case reports published, it is impossible to find a new contribution other than the fact that the case was rare but found in Sri Lanka. Most of such cases have already been published by others in the international literature. Publishing a case which has already been published by another person with similar contexts, is not justified unless there is substantial new knowledge provided. The forensic domain in Sri Lanka need to have a quality research base and utilize the research findings in court room work as well as for teaching purses. On other hindrance of this is the inaccessibility to scientific literature from Sri Lanka. The state has to provide funding to practitioners to access literature to through more light to their analysis and opinion.

It is high time that Sri Lanka establishes other disciplines of forensic specially such as forensic anthropology, forensic odontology, DNA science, forensic archeology, forensic psychiatry ,forensic psychology, cyber crime management, lie

detections, entomology etc. With these new fields and expertise emerging can provide a state of the art forensic service to the country. There has to be a quality management of the experts, laboratories and services they provide. Those experts need to be trained, duly recognized and provide suitable facilities and a peaceful environment to provide their service functions.

One other important concern is the assertion of inadequate attention and regard by the courts on forensic evidence. The judges, and the lawyers tend to give less probative value to forensic evidence due to their inadequacy to comprehend the scientific explanation and position. Many a times either very trivial or no questions are asked from the expert witness in court. Further, lack of a strong defense forensic teams or defense teams in Sri Lanka tend to mask the opportunity an accused will have to defend himself against the entire state power utilized to prosecute him.

It will be a suitable idea to facilitate private institutes such as Gene tech to engage in forensic investigations. Such private institutions of forensic science, toxicology or pathology would be able to either provide a defense opinion or provide an independent opinion. However, there has to be an independent committee to supervise the quality of both government and private forensic service personnel and institutes.

It is apparent that many criminal charges fail and accused often get acquitted in Sri Lanka. The degree of quality of crime investigations and forensic investigations contribute significantly for the failure rates of convictions. Giving due emphasis to the voids identified above, I am sure we can also have an unbiased state of the art forensic service in Sri Lanka. What we need is commitment, dedication, 'will', team spirit mutual respect and favorable attitude. "We" include all of us: the courts, police, forensic experts, 'political will' and commitment of the government and public.

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SRI LANKAN CHILDREN: ARE WE PROVIDING A CHILD FRIENDLY FORENSIC SERVICE?

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Introduction

A healthy child with physical and mental well being is important for a bright future of an independent nation. This is achieved with the contribution of several professionals with special interest in child well being. In Sri Lanka the National Child Protection Authority (NCPA) provides a yeoman service with regard to child development and well being. The World Health Organization estimates that globally some 40 million children aged 0-14 years suffer some form of abuse and neglect requiring health and social care.[1] In Sri Lanka the statistics with regard to child abuse cases may not reflect the true number since many cases go unreported to a central information collecting centre.

The child abuse cases may involve a wide spectrum of cases including physical abuse, sexual abuse, emotional abuse and neglect. There may be cases which need mandatory institutional care.[2] Therefore establishing a system which is child friendly with minimal discomfort to the victim is important.

Objective

To do a descriptive study of the existing forensic service with literature review in relation to Sri Lankan children

Discussion

The basic underlying concept involved in this paper is to propose a system which is child friendly. The true meaning of child friendliness is where the best interest of the child is always maintained from the point of entry till the completion of medico legal examination. Therefore a system which is in operation at Dundee, United Kingdom is considered as a model structure based on which the child care facilities available in Sri Lanka are analyzed with a genuine interest of the upliftment of care to be provided to the Sri Lankan children. Further this paper will also strengthen the concept of multidisciplinary approach which is the main functioning pillar in the British system.

The literacy levels of the Sri Lankan and the British population is almost in par which is usually the main barrier when a country tries to introduce a new administrative system. Therefore Sri Lanka is better positioned and should be receptive of any reasonable changes with time to come. The first step where an abused child is taken into a system is the reporting. The British reporting standards and the Sri Lankan are almost similar but in Dundee the school teachers, staff attached to day care centres and the General Practioners are more involved in reporting cases of child abuse. The General Practioners are usually the first level of contact in the British system and the abused victims are reported promptly by them. Each family in Dundee is assigned a social care worker who is responsible of the well being of the family including the children. The social care worker is already in the system and he or she does not necessarily be appointed to look after an abused child.

When an abused child is detected or reported the next step involves the investigation and management of the child. There are detectable differences in the British and Sri Lankan approach towards an abused child. The concept of child friendly investigation and management is well established in the British system. Whenever information is received regarding an abused child the child is taken to a 'Child Protection Unit' which is a residence that cannot be differentiated from other neighbouring houses. The unit is manned by investigating police officers in plain cloths. The social worker assigned to the family is contacted immediately. If there is no social worker a social worker is assigned to the family. The social worker plays a key role in the management and decision making process of the child coordinating with other stake holders and enhancing the multidisciplinary approach in a child friendly environment. In complex cases a case conference is organized by the social worker with the participation of the key officials. The police officers, who are well trained, take the history from the child in a friendly environment. The child will not feel any difference that he or she is accommodated in a hostile environment. Further the examination of an abused child is done as a joint examination by the paediatrician

and the forensic physician at the Family Protection Units. If a child needs hospital care the joint examination will be done at the hospital. The paediatrician will act as the lead clinician directing referrals and playing a major role in the management.[3] The part of the forensic physician is limited to only give opinion regarding the injuries. In the British multi disciplinary approach the Forensic Physician has only a small role to play. The Forensic Physician may have to spend several hours at the Family Protection Units even with a child with minimal injuries just to make sure that the child friendly concept is adhered. In comparison the Sri Lankan system of dealing with victims of child abuse, where the child usually gets admitted to a Paediatric ward or a Gynaecology ward and he or she has to stay with other children of different ailments or with adults. The child would be taken to different specialists for various referrals. The existing system may prolong the stay in hospital and further traumatize the child since the confidentiality of the incident would be difficult to maintain as the child had to mix with others in a common ward. To minimize these issues we can improve on the child friendly concept and be a participant of the multidisciplinary team the concept of which is discussed below in detail.

The affected child in Britain is handed over to foster parents without delay if the perpetrators are family members. The decision is taken by the police and social worker within a short period of time. The procurator fiscal the equivalent of state counsel in Sri Lanka is involved with all cases of child abuse in Britain. He or she has first hand knowledge of all the cases from day one. He will be in a better position to provide guidance to the police and other stake holders with regard to legal issues.

The Sri Lanka as a nation with high literacy rate, to develop a child friendly system with multidisciplinary approach is not a dream. We can develop a better system than the British if we spend some time and pool our resources to adapt a socially and nationally acceptable system. The National Child Protection Authority has already done tremendous work with regard to reporting and awareness of child abuse cases. They can help in coordinating the new system of child friendly and multidisciplinary approach in a hospital environment. We propose to establish 'Child Protection Units' in teaching hospitals which will be managed by 'Child Protection Committees' (CPC) with multidisciplinary approach.[4] The child protection units will be located inside hospital premises with a homely environment with child play areas. This unit will not remind the child that he/she is inside a hospital. This unit will be placed under the supervision of a senior staff nurse who will be responsible for the child well being and will function as a coordinator between the police, child probation officer, Forensic physicians and Paediatrician. She will be also responsible for coordinating special referrals of the child. In this unit all the consulting staff will be visiting the child and the child would not be taken to different places. The CPU will have all the facilities needed for a proper examination and management. The composition of the child protection committee can involve the investigating police officers, child probation officers, Community Paediatrician, Forensic Physician, representative from Attorney Generals department, representative from Education department and social workers with special interest in child care. The child protection committees will see that a child friendly environment prevails all the time in the hospital premises. There will be absolute confidentiality of cases admitted to this unit. This unit can cater children up to 18 years. The CPC will be responsible in developing policies, procedures, protocols, management information, quality assurance, practice, training and staff development.[5, 6] There may be reservations among some academia with regard to utilizing hospital resources for the victims of child abuse. The authors feel this is a plausible alternative in comparison to a safe house like Dundee.

Later we can spread this system to the base hospitals as well as smaller hospitals. In other hospitals we have to identify the team members for CPC. The CPC should give the monthly returns to the health ministry for proper data collection. The Centre for Child Health and Care (CCHC) at the health ministry may coordinate the activities of CPC at the national level with an established advisory committee comprising members from the Police, Office of the JMO, Attorney General, Social Services Department, Non Governmental Organisations, and Specialists from Paediatrics, Obstetrics & Gynaecology and Psychiatry. Including all stake holders to this centre for child health and care will help in policy making and to provide expert advice if there is any problem while managing the case. The centre for CHC will maintain a child protection register with confidential list of names of children who are believed to be at risk of significant harm.[5] This may not reflect the true cases of child abuse. The statistics of child abuse cases would be gathered from the different child protection units distributed in the island with the central record centre located in the Child Heath and Care premises at the ministry of Health.

We would like to propose this system to be adapted for future Sri Lanka to provide a child friendly forensic and other related services. As Forensic Physicians we can play a pivotal role by acting as clinical audits to see whether the system is functioning smoothly without any hassle.

Conclusion

In conclusion a better system which is child friendly with multidisciplinary approach is the ultimate goal of this paper. In future Sri Lanka the children of this nation would be mentally and physically stable to lead this country towards prosperity.

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UNCOMPROMISED UNILATERAL ADRENAL CALCIFICATION FOLLOWING A COMPLICATED BIRTH EVENT IN AN ADULT DEATH DUE TO HANGING

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Introduction

Adrenal gland calcification often indicates a significant pathological process and warrants further investigation to determine the aetiology. This condition could be seen in all the age groups including the neonates, infants and in adults[1,2]. A variety of causes could cause this condition[2—10]. However, most of the published literature on this topic based upon radiological findings in clinical cases and autopsy based reports are rare. This communication highlights a rare case of uncompromised unilateral adrenal calcification in an adult with a history of complicated birth events. The study is based upon historical, autopsy and histopathological findings.

Case report

A 31-year-old man with previous suicide attempts and ideation was found hanging partially by an electrical cord in his room. The room was locked from within. The scene was undisturbed and a suicidal note was found.

At autopsy, the deceased was well built and nourished with a body weight of 74 Kg and a height of 173.0 cm. There were multiple bilateral conjunctival petechiae. External examination of the neck revealed a 41.0 cm abraded contusion which was seen right around. It started from the back of the neck. The starting point was 1.0 cm right and lateral to the posterior midline and on the posterior hairline. This went down towards the right side of the neck and became more or less transverse and started to rise from the left side of the neck anteriorly. It then rose on the left side of the neck and ended just above the posterior hairline on the left. The width of the ligature mark was 0.9 cm. The ligature mark was compatible with the electrical cord provided by the police. The dry neck dissection did not show any internal injuries. The lungs were congested and oedematous.

Both adrenal glands were normal in shape and size and no mass was found. However, the right adrenal gland showed a hard gritty nature upon cutting and revealed a 3.0 x 2.0 x 2.5 mm yellowish brown coloured area of calcification in the medulla. The adrenal cortex appeared normal. There were no hemorrhages, neoplasms, or cysts associated with the adrenal glands.

Histology revealed calcification in the adrenal gland mainly affecting the medulla (*Fig 1*). There were no haemosiderin laden macrophages in the adrenal gland. No other significant histopathological finding was noted in the adrenal gland or in other organs. The cause of death was concluded as hanging.

Supplementary information gained retrospective to the autopsy revealed that the deceased had a complicated birth history. The deceased was born to a diabetic mother with a birth weight of 4120 g. The delivery was complicated by meconium aspiration and managed by forceps extraction and subsequent intensive care unit admission as a newborn.

Discussion

A variety of conditions could cause adrenal gland calcification. They include adrenal haemorrhages[2], tuberculosis[2], Addison's disease[2], Wolman's disease[2], adrenal neoplasm such as adenocarcinoma[2], neuroblastoma[4,5], pheochromocytoma[6], ganglioneuroma[4], Cushing's syndrome[7], Niemann Pick's disease[8], adrenal cysts[9], and adenomas[10].

In the present case, the past medical history, family history or pathological evidence did not suggest tuberculosis, neoplasm, Cushing's syndrome or pheochromocytoma. Niemann-Pick disease is manifested by hepatosplenomegally and positive family history[11], and they were absent in this case. Wolman's disease is characterized by hepatosplenomegaly, lymphadenopathy, and abnormal neurological development with adrenal calcification in the first week of life and is nearly always fatal before the age of one year[3]. Presence of adrenal gland excludes Addisons's disease in this individual.

The deceased was born to a mother who suffered from gestational diabetes during the pregnancy.

As a result, the deceased was 4120 g in birth weight and had an obstructed delivery with meconium aspiration leading to a forceps delivery. Subsequently, he was in the intensive baby care unit for a period of eight days. These events would have caused peri and post natal stress, which could have led to adrenal haemorrhages, followed by subsequent calcification. Neonatal adrenal haemorrhage with subsequent calcification is often attributed to trauma or a stressful situation[12] such as vigorous uterine contractions, difficult labour, prolonged delivery, vigorous resuscitation of the newborn, and forceps delivery[2]. The relatively large size and hypervascular nature of the adrenal glands at birth render it more vulnerable to injury, haemorrhage and subsequent calcification[12]. When the adrenal gland is calcified but no mass is found, the calcification is usually assumed to be due to prior adrenal haemorrhage[13]. In the present case, the absence of haemosiderin laden macrophages excludes any recent adrenal haemorrhage as the aetiology for calcification.

This individual had an insignificant past medical history although he had a unilateral adrenal calcification. This could be explained by the compensatory function of the other adrenal gland and by the fact that even extensive adrenal calcification may be compatible with completely normal adrenal function[14].

Thus, this communication reports an autopsy case of uncompromised unilateral adrenal gland calcification due to adrenal haemorrhages following complicated birth events. Although rare, adrenal gland calcification often gives a clue to the aetiological pathological process which could be elicited by further detailed investigation.

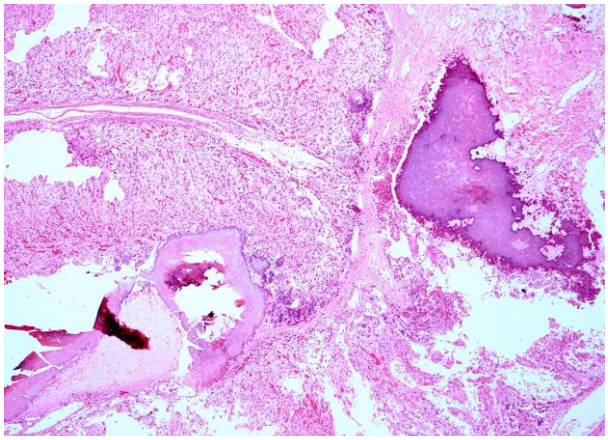

Figure 1: *Microscopic appearance of the right adrenal gland showing calcification in the medulla (Haematoxylin & Eosin X 40).*

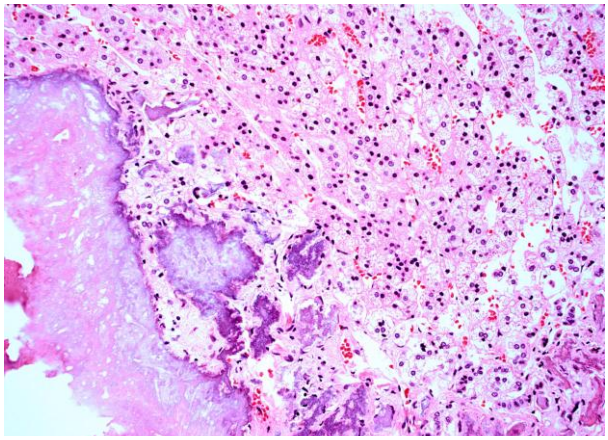

Figure 2: *The Microscopic appearance of the adrenal medulla, with a higher magnification (Haematoxylin & Eosin X 200).*

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POTENTIAL MEDICAL NEGLIGENCE
- A CASE REPORT -

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Introduction

Though cases of medical negligence are not common causes of litigation in our country, such incidents surface at autopsy investigations every now and then. Since the relatives are more focused on disposal of the body and religious activities following a death, such incidents of possible negligence seem to be ignored.

Case report

A four month old baby boy, weighing 4,400g, from a consanguineous marriage was admitted to a tertiary care hospital with fever and dyspnoea. He has had diffuse ichthyosis since one month of age. The problems identified by the clinicians were recurrent chest infection, failure to thrive and immunodeficiency. The child had been immunized with DPT and oral polio vaccines at the age of 2 months.

The haematological investigations showed a neutrophil leucocytosis compatible with a bacterial infection. The child was discharged after 1 week with a diagnosis card stating that he had been 'Investigated for immunodeficiency and ichthyosis. On the same evening, the condition of the child worsened and was re-admitted to another tertiary hospital with severe shortness of breath, cyanosis and gasping. In spite of ventilation child died few hours after admission.

At autopsy, external examination showed ichthyosis, cyanosis and purpuric patches.

Internal examination revealed lungs weighing 100g each with bilateral patchy consolidation. The heart, brain and liver were unremarkable. Toxicology was negative. Histopathology of lungs revealed diffuse interstitial inflammation with chronic inflammatory cells composed of lymphocytes, plasma cells, macrophages, and scattered neutrophils. (*Figures 1,2*). There was diffuse alveolar damage with fluid within the alveoli. A hyaline membrane was noted lining some alveoli. (*Figure3).* These findings were compatible with an acute lung injury.

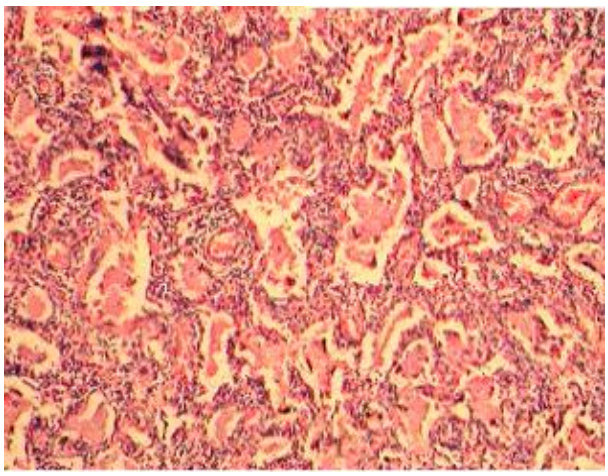

Figure 1: *Diffuse interstitial inflammation and fluid-filled alveoli (H and E stain x 4)*

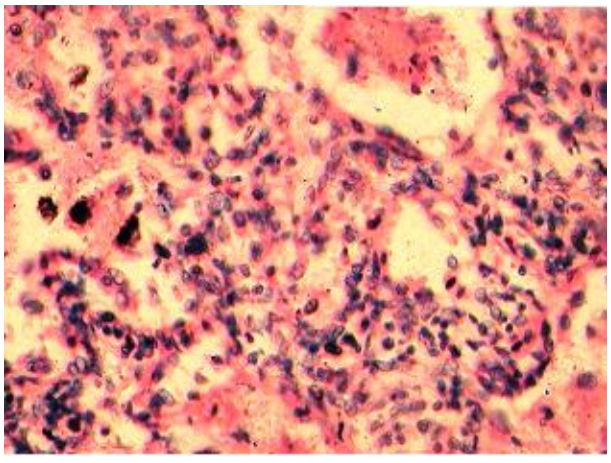

Figure 2: *Diffuse alveolar damage with loss of epithelium and interstitial inflammation (H and E stain x40)*

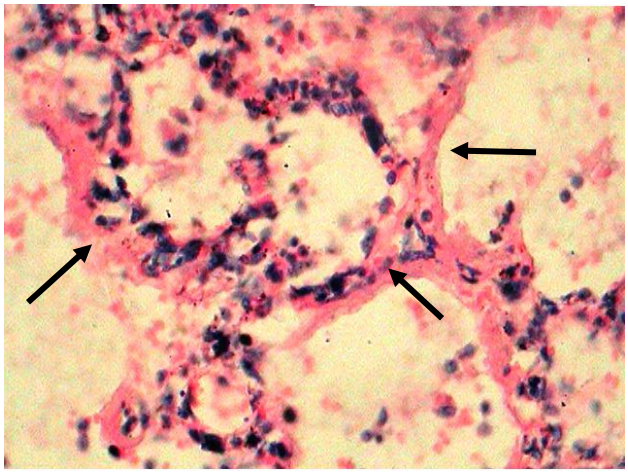

Figure 3: *Diffuse alveolar damage with loss of epithelium and a hyaline membrane (arrows) (H and E stain x40)*

Discussion

Ichthyosis is an inherited disorder characterized by excessive scaling of skin with distinct pattern[1]. Higher chance of such appearance is found in consanguineous marriages and in immunodeficiency states[1]. These patients are more prone to recurrent chest infections which can result in further immunosuppression due to defects in T-cells, B-cells, and granulocytes and complement leading to secondary bacterial infection[2]. These patients show failure to thrive with a reduction of the expected weight gain[3].

At autopsy, both lungs were congested with patchy areas of consolidation. Histopathology showed the presence of diffuse alveolar damage (DAD) with interstitial inflammation, vascular congestion and formation of hyaline membranes. The differential diagnoses considered for the acute lung injury (ALI) and DAD were dengue shock syndrome, interstitial pneumonia complicated by septicaemia following possible immunosuppression and a vaccine-induced lung injury. Features favouring dengue shock syndrome were presence of fever, purpuric rash and fluid within the alveoli. However, peripheral leucocytosis and the absence of hepatomegaly or a pleural effusion were more in favour of sepsis induced lung injury.

DAD is a descriptive term for the pathological findings following ALI of several causes which include infectious agents, inhalants, connective tissue disease, drugs, shock, sepsis and radiation[5]. The initial, exudative phase of DAD occurs in the first 6 days characterized by pulmonary oedema, hyaline membrane formation, alveolar wall oedema and microatelectasis. The second, reparative phase, which occurs later, is characterized by hyperplasia of epithelial type II cells, interstitial mononuclear inflammatory infiltration and organizing alveolar exudates[6].

Finally, the cause of death was given as diffuse alveolar damage caused by interstitial pneumonia probably of viral origin. Both respiratory syncytial and herpes simplex viral pneumonias are associated with giant cells on histopathological examination which was not present in this case. Coxsackie and enterovirus pneumonias are associated with myocarditis. Pneumonias due to echovirus can have hepatic and renal necrosis in infants[7].

Negligence can be defined as doing something which a prudent and reasonable man would not do or omission to do something which a prudent and reasonable man would do in a given situation[8]. Medical negligence is the breach of a duty of care towards a patient which results in by an act of commission or omission, damage to a patient[8].

In this case, the condition of the child on discharge was not documented by the clinicians and whether the child was safe to be discharged at the time is not known. The medical records show that the child was investigated for ichthyosis and immunosuppression but whether the child was diagnosed and treated for a potentially serious respiratory infection is in doubt. According to the mother, the child had been dyspnoeic at the time of discharge. This case exemplifies potential medical negligence as the child had been discharged in spite having diffusely damaged lungs and pulmonary oedema. This death may have been prevented if a proper medical examination had been done before being discharged.

Conclusion

The case is an example of potential medical negligence and it highlights the importance of documentation of history and clinical examination on admission, daily assessment of vital parameters especially in a child who cannot express discomfort, or dyspnoea, and proper examination and assessment of patients to confirm that they have returned to safe levels before being discharged. The inquirer in to sudden deaths was made aware regarding the potential negligence.

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USE OF SEAT BELTS: PRIOR TO THE LEGAL REQUIREMENT

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Introduction

Today, seat belts are an accepted part of routine vehicle operation for millions of drivers and passengers. But the modern three-point automotive seat belt has only been around since 1959; and it saved thousands of lives since its introduction[1]. Fatalities and serious injuries from road traffic accidents are increasing in Sri Lanka. In 2008, 2009 & 2010 the number of fatalities was 2176, 2263 & 2579 and grievous injuries were 4941, 5379 & 6124 respectively[2].

One of the reasons for the rise in fatalities and serious injuries is non usage of safety measures in vehicles such as seat belts. Car seat belts did not serve the designed purpose in U.S.A. till the time most of the states made it mandatory to fasten seat belts under threat of penalties under law. Even though the usage of seat belts in Sri Lanka was made mandatory in October 2011, many Sri Lankans are unaware of the importance of the safety measures in vehicles. The usage and reasons for not wanting to use seat belts in vehicles prior to it being a legal requirement was studied.

Objectives

1. To ascertain the frequency of usage of seat belts by drivers and passengers of motor vehicles in the Central Province of Sri Lanka.

2. To ascertain the reasons when seat belts are not used.

Methodology

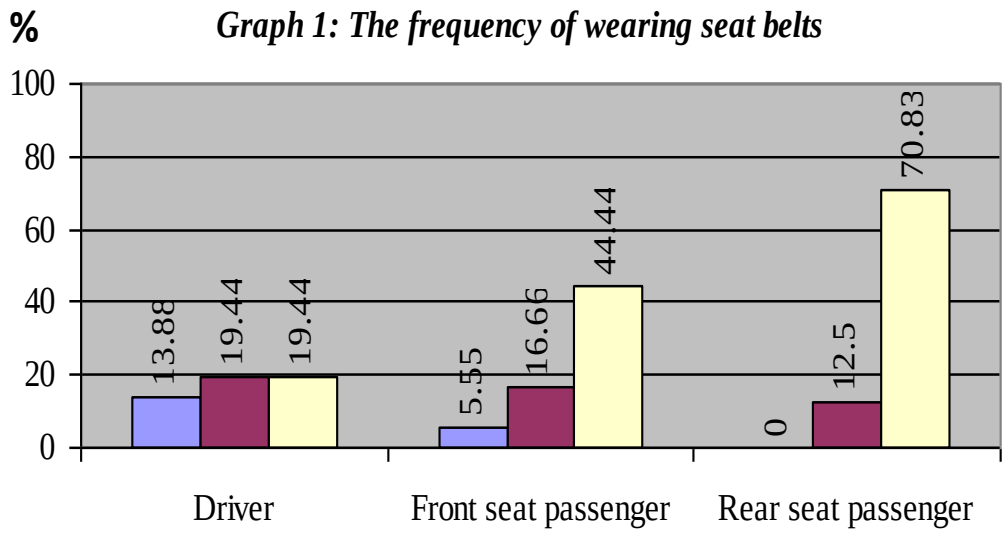
Data was collected by administering questionnaires to 100 randomly selected drivers and passengers in the Central Province after a brief introduction about the study. They were asked to fill the questionnaires within 10-20 minutes. Data were analyzed using MS-Excel XP.

Results

Out of the total sample only 6% of vehicles did not have seat belts. Those that did not have seat belts were excluded. Each person was asked to indicate their frequency of wearing seat belts as a driver, front seat passenger and rear seat passenger. As a driver, front seat and rear seat passenger, 39%, 61%, and 83% respectively, rarely or never wore seat belts. Only 14% always wear seat belts as a driver and 6% as a front seat passenger, compared to 64% who never wear seat belts as a driver or front seat passenger. As a rear seat passenger, no one always wore and 71% never wear seat belts in the rear seat.

Table 1: The frequency of wearing seat belts

	Driver	Passenger in front seat	Rear seat passenger
Always wear	13.88 %	5.55 %	0 %
Rarely	19.44 %	16.66 %	12.5 %
Never	19.44 %	44.44 %	70.83 %

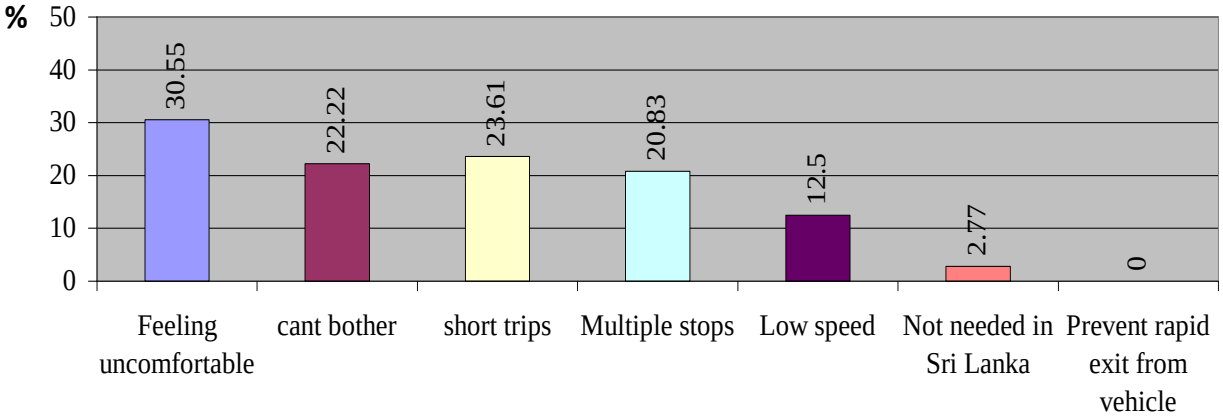


The reasons for not wearing seat belts are feeling uncomfortable (31%), can't be bothered or a nuisance (22%), short trips (24%), multiple stops (21%), low speed (12.5%), and not needed in Sri Lanka (3%). No one stated the reason that it prevents rapid exit from the vehicle

Table 2: Reasons for not wearing seat belts

Feeling uncomfortable	30.55 %
Can't bother / Nuisance	22.22 %
Short trips	23.61 %
Multiple stops	20.83 %
Low speed	12.5 %
Not needed in Sri Lanka	2.77 %
Prevent rapid exit from vehicle	0 %

Graph 2: Reasons for not wearing seat belts



Discussion

Failure to wear a seat belt contributes to more fatalities than any other single traffic safety-related behavior. Seat belts are the most effective safety devices in vehicles today, estimated to save 9,500 lives each year in USA. In 1996, more than 60 percent of the occupants killed in fatal crashes were unrestrained.[3]

In a serious collision, severe forces are transmitted. This is clear when we see the resulting damage to the vehicles involved. In order to minimize the effects of collision forces on vehicle occupants, automotive engineers design seat belts to hold individuals securely in their seats, allowing them to "ride down" the crash, and preventing major impact with the vehicle interior[4].

Seat belts are designed to fit across strong portions of the human anatomy that can withstand the forces of a collision. The lap belt goes across the bony pelvic girdle, while the shoulder belt goes over the rib cage. When lap

and shoulder belts are used properly, they spread the collision forces over these strong areas of the body's skeleton. Seat belts, then, offer excellent protection in motor vehicle crashes, especially in high-speed frontal impacts, which are some of the most severe collisions.[1]

According to our study conducted when the wearing of seat belts was optional, 19% of drivers, 44% of front seat passengers and 71% of rear seat passengers never wear seat belts. This is an unacceptably high figure. When the reasons for rarely or never wearing seat belts were elicited, more than half (53%) said they did not wear due to it being uncomfortable or a nuisance. However, modern safety belts can be made so comfortable that you may wonder if they really work. Most of them give when you move - a device locks them in place only when the car stops suddenly. You can put a little bit of slack in most belts simply by pulling on the shoulder strap. 44% said that it was due to short trips and multiple stops. However, this is the best time to wear a safety belt, as a study done in Oklahoma State University showed 80% of traffic fatalities occur within 25 miles of home and under 40 miles an hour[5]. Furthermore, even though you are only going a short distance another car may still hit you.

12.5% felt that it was not needed due to slow speed. However, even if you are driving slowly and carefully that will not prevent a fast moving or heavy vehicle from crashing into you. It is interesting that even though 97% felt seat belts were needed in Sri Lanka (a mere 3% said that it was not needed in Sri Lanka), the non usage is very high.

No one felt that it prevented a rapid exit from the vehicle in case of an emergency. This is good since the best place to be during an accident is in your car. If you're thrown out of the car, you're 25 times more likely to die. And if you need to get out of the car in a hurry - as in the extremely tiny percent of accidents involving fire or submergence - you can get out a lot faster if you haven't been knocked unconscious inside your car.

In Sri Lanka, the cost for an unbelted crash victim results from the loss of working hours and from the cost to the health care system as health care is provided free of charge. Therefore if serious injuries and fatalities can be reduced by seat belt usage, it will be indirectly very cost effective in a developing country like ours.

An air bag increases the effectiveness of a safety belt by 40 percent. But air bags were never meant to be used in place of safety belts. In fact, they are called a Supplementary Restraint System (SRS) as they are supplementary to seats belts, without which, the deployment of the air bag together with the forward movement of the driver/ passenger, can cause injuries, which may be severe.

Conclusion

Even though 97% are aware of the value of using seat belts in vehicles, they do not use them for multiple reasons, which are not justified. With the introduction of the seat belt law more drivers and front seat passengers may wear seat belts out of fear of being fined. However we believe that compliance of the law, augmented by awareness campaigns on safety measures of vehicles, are required. Then, and only then, will occupants of motor vehicles understand the necessity of being properly restrained at all the times.

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DEATH PENALTY versus LIFE IMPRISONMENT
—A POINT OF VIEW—

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Death penalty and life imprisonment are closely related to one another. Life imprisonment is an alternative punishment given by a court of Law for offences which otherwise are punishable by death. Further the executive can commute a death sentence to one of life imprisonment. Cicero[1] in the Roman Senate stated that Caesar advocated 'life imprisonment' because death has been appointed by the Gods not as a punishment but as an inevitable natural happening or a relief from toil and trouble whereas imprisonment and imprisonment for life was devised (by man) as a special penalty for atrocious crimes.

Codes of Hammurabi of Babylonia (c-2125 to 2085 BC) is one of the earliest legal codes that prescribed the death penalty[2]. Over the years almost all countries of the world have included the 'death penalty' in their legal statutes for specified types of offences. Some of them are listed below.

1. Murder and conspiracy to murder
2. Abetment of suicide[3]
3. Treason – Espionage – Conspiracy against the state [4]
4. Drug offences (anti-narcotic legislation) – These are punishable with death in Sri Lanka today [5]
5. Sex offences such as rape, extra-marital sex, prostitution, homosexual offences etc. These are practiced mainly in the Islamic states in the Middle-east and Northern Africa
6. Robbery, bribery, financial frauds involving public money, counterfeiting in currency, other frauds etc. There are practiced mainly in 'communist' countries and countries ruled by dictators, military juntas and other anarchic states.
7. Highjacking of aircrafts.
8. Possession of firearms and explosives under special Laws (Emergency regulations).
9. Genocide – Mass murder of innocent civilians (ethnic / religious cleansing etc.)
10. Killing of political dissidents referred to as "counter-revolutionaries" by Anarchist regimes. In China, Jiang Qing the 69 year old widow of Chinese Strongman Mao Tse Tung was executed in 1981.

Death penalty has been carried out by several methods over the years.

1. Hanging

This is referred to as "Gallows" or Judicial hanging practiced in most countries including Sri Lanka. Pakistan is said to have the highest rate of death by hanging in the world followed by Malaysia, Singapore, South Africa, Italy etc. A death by hanging refers to being hanged by your neck until you are dead.

2. Electric Chair

It is a death by electrocution. The initial 'Jolt' is 2250 volts followed by a second and third 'Jolts'. It is carried out in 24 states of the USA (AI report 1980).

3. Guillotine

It is a form of beheading using a 'Guillotine' practiced mainly in France in the 18th Century. It was first used in 1791 to kill King Louis XVI and Queen Marie Antoinette. The last to be guillotined was a Tunisian man in 1977 for killing a woman. This practice was abolished in 1981 by the French president Francois Mitterrand. In ancient Lanka (Ceylon) such beheadings were carried out at the 'dangediya' where the condemned person's head was severed at the level of the neck by the royal executioner and using a 'lethal sword' who did the honours for the king. In the Middle East and other Islamic sates, beheading is a common form of death sentence under the 'Sharia Law', often carried out in public.

4. Lethal injection

Refers to intravenous injection of sodium pentothal (first carried out in 1978) or a combination of barbiturates and paralytic drugs to bring about a 'quick' death. It is practiced in about four (04) states of the USA. The World Medical Association (WMA) prohibited medical officers in giving such injections as it violates the Hippocratic Oath which states 'Physicians are

dedicated to preserving life' and therefore a Physician can never be an "executioner".

5. Gas chambers

These chambers contain "cyanide pellets". It is a form of capital punishment in eleven (11) states in the USA. Hitler, the worlds most cruel 'mass murderer' killed nearly a million Jews in his cyanide gas chambers.

6. Firing Squad

A person is shot dead by a volley of gunfire from several gunmen. Practiced in countries where there are military juntas, dictatorships, anarchy and in states where there is absolute disrespect for human rights. Such states included Mauritius, Vietnam, Angola, Central African Republic, Liberia and many countries in the middle-east. Sadly it was practiced by the British during their rule in Ceylon (now Sri Lanka) on those 'convicted' of treason. The British executed young William Henry Pedris by a firing squad when in Ceylon at that time 'hanging' was the only form of death penalty

7. Garrotte

It was a method of strangulation by constricting the neck using a wire, cord or sticks (tied at the distal end). This method is not practiced in the civilized world today.

8. Stoning to death

A person is buried in a pit up to his neck and stones thrown at the head causing gross injuries to the head (brain) sufficient to cause death. This was practiced in ancient times in Ceylon (now Sri Lanka) and even today in the Arab world. Such stoning to death is also mentioned in the holy Bible as a form of punishment for women caught in adultery.

In ancient times such most inhuman methods of killing persons were carried out in public with much pomp and pageantry by rulers of states who can be best described as mentally deranged tyrants who carry out such acts to satisfy their egos reminiscent of the Greeco-Roman times when innocent men, women and even children were thrown into the dens of hungry lions and tigers to be attacked, killed, torn apart and devoured by such animals to the pleasure and delight of such 'human tyrants'.

In Lanka (ancient Ceylon / now Sri Lanka), the Kandyan kings carried out several methods of death sentences which were most barbaric and inhuman. These included beheading (dangediya), trampelled to death by an elephant, pierced to death by the tusks of an elephant, body torn apart by tying each side to two tall trees and the trees felled outwards, stabbed to death using a spear (Hella)[6] with the victim stretched on the ground face downwards, impalement on a stake (ula thiyanawa), burnt alive, thrown into a cauldron of burning oil, hurling down mountains, pounding the head in a motar using a pestle, whipped to death (practiced in Islamic states even today) etc. In 1977 Tutsi's killed Hutu children by banging their heads against walls; such practice was also used by Nazis to kill Jewish children. (The Times August 2 - 1977).

The last Kandyan king of Ceylon was noted for such cruel forms of death. It is stated that from barbarism to civilization requires a century: from civilization to barbarism needs but a day.[7]

After the British established full control of the Kandyan Kingdom of Ceylon in 1815, all these barbaric forms of death penalties practiced by the Kandyan kings came to an end. The British introduced death by hanging as the form of death penalty referred to as 'Gallows' during the term of first Governor Sir Fredrick North. A man called 'Saradiel' the 19th century Robinhood of Ceylon of 'Utuwankande' fame was hanged by the British in 1863 for the murder of a police officer in the 'Gallows Hill' in Kandy watched by a large crowd which included mainly European men and women[8]. However the British sadly used other methods of death penalty as well. British military personnel who were court martialled to death were shot on the Galle face green. Young William Henry Pedris was killed by a firing squad for 'treason'. In 1818 Madugalle was beheaded for treason. This was British justice in ancient Ceylon.

In 1928, a woman and another were sentenced to death for the killing of the woman's husband by poisoning (introducing cyanide to his bottle of Gin). This is referred to as the 'Talpe poisoning case'. Sir William Manning the Governor, commuted the death sentence on the woman to one of 'life imprisonment'.

Since independence in 1948, Ceylon (now Sri Lanka), the only form of death sentence has been by 'hanging' within the walls of a prison referred to as 'Gallows' usually at 8.00 am by the 'hangman' and his assistant. Such death sentences pronounced by a judge reads 'you will

be hanged by, your neck until you are dead'. The first execution to take place inside a prison in Ceylon (Sri Lanka) was at Welikada (Colombo) in February 1884. Up to 1976 execution by hanging took place in Sri Lanka only at Welikada (Colombo) and Bogambara (Kandy). Public hangings took place in Ceylon under British rule in Kandy, Kegalle, Ratnapura, Badulla, Colombo (at Sirimalwatte and Kayman's gate) and Moratuwa watched mostly by Europeans. (Public hangings were carried out where the murder had taken place).

Until 1939 if a sentence of death was passed on a pregnant woman, its execution was merely postponed until the delivery of the child. There has been no hangings of women in Ceylon (Sri Lanka). In the 1950's, a Pasyala cadju woman was convicted of double murder (killing her husband and his paramour) and sentenced to death. She escaped death by hanging as she was pardoned by the Governor General. In 1964, Kohilakambal, the young attractive wife of the ageing chief priest of the Uruthirapuram Hindu Kovil in Kilinochchi (Northern Province) was sentenced to death along with her lover a temple labourer for killing the chief priest by slashing the neck. She, too, was given a pardon by the Governor General and escaped death. In 1968, a 21 year old unmarried woman (Pauline de Croos) was sentenced to death for the murder of a 10 year old boy, who was the only son of her paramour. She, too, escaped death by hanging as she was pardoned by the Governor General.

Now, in Sri Lanka (Ceylon) death sentence is not pronounced on pregnant females (Section 305 B of Code of Criminal porcedure and Section 54 of the Penal Code of Ceylon (Sri Lanka)[9]. Likewise a person below 16 year of age is also not sentenced to death[10]. In such instances the punishment is 'life imprisonment'.

Under 'Kandyan' Kings of Lanka, women were sentenced to death only for multiple murders, and that too was, by 'drowning' them. In 1826 drowning was replaced by hanging. In the same year a woman Dingiri Menike was sentenced to death, but Governor Sir Edward Barnes, commuted the death sentence to life imprisonment[11].

Perhaps the earliest recorded cases of hanging of women was the hanging of twelve (12) slave girls in the carnage that followed the return of Odysseus.[12] It was a Roman tradition that virgin girls could not be executed. In the reign of Tiberius when some virgin girls were condemned to death, the executioner first 'sexually abused' (raped) them and thereafter carried out the executions. This is reminiscent of that in times of Kandyan Kings of Lanka, virgin girls were 'offered to a devil' called the Bahiravaya by tying them on to a tree in a lonely hill in the jungle which is called 'Bahirava Kanda' even today. Up to this day no one knows as to how they died or as to whether they were 'raped' by the men who took these girls to be 'sacrificed to this so called devil Bahiravaya'. Today in Ceylon and modern Sri Lanka no such 'devil' exists giving much food for thought for the 'sacrifice' of virgin girls in the times of Kandyan kings in Sri Lanka. Were they raped and killed? Your guess is as good as mine.

In capital punishment, the state takes upon itself the right to the most terrible and irreversible act of deprivation of life. [13]
The earliest acts for the abolition of capital punishment owed their inspiration to the work of Cesare Beccaria (1738-1794) who urged the abolition of capital punishment in a treatise on crime.[14]

In Sri Lanka, the first attempt to abolish the death penalty was made by Hon. D.S. Senananyake in 1928[14] (later the first Prime Minister of Independent Ceylon in 1947). Again in 1936, Mr. Susantha Fonseka suggested to the state council that the death penalty should be abolished as a punishment for murder but sentenced to life imprisonment[14]. In 1942, a motion by Dr. A.P. de Zoysa in the state council suggested that the death sentenced should be imposed only in cases of murder when a person is found guilty of murder by an unanimous verdict of the Jury. The Morris commission appointed to study the 'death penalty' strongly argued for the abolition of the capital punishment in accordance with the Buddhist tradition of tolerance and compassion[14].

Due to calls from the Amnesty International and other organizations, most of the western countries abolished the death penalty for all offences. Some countries retained the death penalty for a limited number of offences. Sri Lanka (Ceylon) retained the death penalty in its statutes but did not carry out as a government policy. Sadly nearly two thirds of the countries of the world including those in the middle east, Latin America, China, Russia, almost all countries in the far east, South-east, Southern Asia (except Sri Lanka) and very many states of the USA still carry out the death penalty. Amnesty International in a report published in 1979 stated that 134 countries was yet carrying out the death penalty.

In Sri Lanka (then Ceylon), capital punishment by hanging was suspended for 3 years by the newly

elected Prime-Minister in 1956. But after his assassination (shot by a Buddhist monk) in 1959, the government led by his widow as prime minister re-introduced the death penalty in 1960 to punish the assassins of the late Prime-Minister. As a result of this, between 1961 and 1976 eighty nine (89) men died at the Gallows (hanged) including the assassin of the late Prime-Minister. Similarly in Nepal which had abolished the death penalty in 1945, two men were executed for an alleged attempt on the life of King Birendra in 1979. This is the danger of 'having' the death penalty in the statutes.

Since 23rd June 1976 no death sentence by hanging has been carried out in Sri Lanka. 25 year old J.M. Chandradasa convicted of murder was the last to be hanged. Since then all death sentences have been commuted to life imprisonment. This is however limited to 20 years. However the executive (President) has the power to 'pardon' and release them after a "few years" of imprisonment.

To find a person guilty of committing murder by a criminal court, the prosecution must prove such charges beyond reasonable doubt. In jury trials in the years gone by, verdicts were unanimous or divided 6 to 1 or 5 to 2 as to the guilt of the accused. Yet jury verdicts of 5 to 2 as to the guilt of an accused was sufficient to sentence a man to death. In my opinion 5 to 2 guilty verdicts means that the charge of murder has not been proved beyond reasonable doubt and a death sentence should never be carried out. They should instead be sentenced to 'life imprisonment'. In fact in 1942 a motion by senator A.P. de Zoysa in the State Council suggested that death sentence should be imposed only in cases where a man (person) is found guilty of murder by a unanimous verdict of the Jury.[14]

History records several instances where 'innocent persons' have been convicted of the capital offence, affirmed by a court of appeal, sentenced to death, and later executed.

In the past the death penalty has been carried out even on murder convicts who cannot be held fully responsible for their actions: the concept of 'diminished responsibility' due to abnormal states of mind at the time of committing the office.

Dutch Governor Ryckloff Van Goens (1660-1675) deplored the fact that death sentences were imposed without sufficient precautions against miscarriages of justice.

The British Governor Sir Joseph West Ridgeway commuting the death sentence to life imprisonment stated 'it compels me to remit the extreme death penalty which would close the door to further inquiry and to reparation should the doubt be confirmed by future revelations. In fact the British sent those who were sentenced to life imprisonment to 'Andaman Island's.

Therefore, there must necessarily be an alternative to the death penalty. This alternative must be 'life imprisonment'. In my opinion such 'life imprisonment' must be 'imprisonment for life' and not for 20 years or a lesser number of years, as determined by the Executive. Imprisonment for life must be, mandatory for 'premeditated murders, rape and murder, 'lust murders', murder in the course of robbery / extortion etc. Further such convicts must be deprived of all 'civic rights'. Pardoning such convicts in a few years and releasing them from the prison amounts to condoning such dastardly acts by the chief executive who is infact the 'head' of the political party in power.

Such 'imprisonment for life' or 'life imprisonment' will help those wrongfully convicted for murder and other capital offences to be set free later when they are found to be innocent and return to their families with compensation for wrongful arrest, detention, conviction and imprisonment to start a 'new life' in a dignified manner. Furthermore, during the period of 'life imprisonment', the convicts can undergo 'counselling' (psychiatric treatment) if necessary, given a suitable education, placed in a religious background of his choice, vocational training and thereafter 'rehabilitated' in an open prison environment beneficial to the convict, his family and the society.

One argument repeated 'ad nauseum' by these who advocate the death penalty is that it is a deterrent to crime. In states of Northern America where the death penalty is carried out shows a much higher murder rate than states where the death penalty has been abolished.[15] Albert Pierrepoint, the official hangman in the UK (1931-1956) in his autobiography stated 'I do not believe that any of the hundreds of executions I carried out in any way acted as a deterent against murder'. Capital punishment in my view achieved nothing except revenge.[16]

The British Commission on capital punishment noted that capital punishment obviously failed as a deterent for grave crimes such as murder.[17]

In my opinion it is not the 'Non-implementation' of the death penalty that has contributed to the rise of grave crime, especially murder, in Sri Lanka, but the release of murderers, rapists, drug barons, extortionists, highway robbers etc sentenced to death or to long term rigorous imprisonment by the Judiciary, but later released by the executive in the shortest possible time for petty political advantage. There are several examples of such unfortunate happenings in Sri Lanka in the recent past. The latest of such acts by the Executive which will lead to a further escalation of grave crime is the arbitrary withdrawal of indictments by the Attorney General, the chief 'State Prosecutor' against those undergoing trials for murder, rape, kidnapping etc, half-way during the trial in a High Court 'forgetting/ignoring' the fact that such accused were indicted by "Him" on these charges a few months back as there was 'sufficient' evidence to indict them and convict them.

Crime is as old as man. The Holy Bible[18] records that Adam and Eve's elder son Cain was a tiller of the earth, who offered to God rotten vegetables which displeased God, while the younger son Abel who was a keeper of sheep, offered the best sheep he possessed which pleased God[18]. Such Bibilical practices of offering produce of the soil and animals to God are practiced in Sri Lanka even to date. The 'aluth sahal mangallya' (offering of the first 'harvest' of paddy to 'Sun-God' is practiced every year and killing of animals by the "Halal' method by Muslims and sacrificing of animals (Goats/fowls) in some Hindhu Kovils are such offerings to God/Gods.

Cain became very jealous of Abel (as God accepted the sacrifice of Abel) and one day while walking in the field, picked up an ox-bone (first murder weapon) and killed Abel. Cain thus became the first murderer on earth. Yet, God who questioned Cain about the murder of his brother Abel, never punished him with death. As a punishment God told Cain "you are cursed from the earth, when thou tilleth the earth it shall not yield into thee her strength; a fugitive and a vagabond shall thou be on the earth". In today's legal contexts this punishment of God is 'imprisonment for life' with hard labor and not "life imprisonment" for 20 years or a "few" years, at times with 'prison comforts' depending on the political background of the person convicted.

The Bible story further states, whoever who kills (slayeth) Cain the murderer; vengeance shall be taken seven fold on such persons killing the murderer.

This Bible story of vengeance against the murder of a murderer is applicable today in the following situations.

a). Death penalty imposed on murderers by legal statute.
b). Extra-Judicial killing of 'suspected' murderers in cold blood by investigating police officers in the name of 'self defence'.
c). Retaliatory killing of suspected murderers by the next of kin of the victims (dead) exercising the laws of the Jungle.

Socrates regarded as the 'greatest' human ever born, when most unjustly sentenced to death stated "I tell my executioners that as soon as I am dead, vengeance shall fall upon you with a punishment far more painful than your killing of me". Socrates died following ingestion of a fatal drink of 'Hemlock' forced on him by a prison official.[19]

I will conclude this article with the Declaration of Stockholm on the abolition of the death penalty.[20]

a). Death penalty is the ultimate, cruel, inhuman and degrading punishment as it violates the right to life.
b). The Stockholm conference declares its total and unconditional opposition to the death penalty.
c). Stockholm declaration calls upon all Governments to bring about immediate and total abolition of the death penalty.

Note

All historical references mentioned in this article has been obtained from the book titled "Hangman – spare that Noose" authored by Donovan Moldrich. [14]

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AN UNCOMMON CAUSE FOR A SUDDEN POSTOPERATIVE DEATH —A CASE REPORT—

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Introduction

When a sudden death occurs postoperatively after a routine surgical procedure for a non fatal condition, meticulous investigation is necessary to ascertain the cause of death as well as to support or refute medical negligence charges. This is more difficult in cases involving otherwise healthy young persons. In local set up, all concerned have to appreciate current practices in Sri Lankan hospitals and limitations in investigations. In such cases the Forensic Pathologist has to go into all the details in the history, investigations, the surgical procedure, possible complications, autopsy findings and especially histopathology. Sometimes it is necessary to review medical literature to address medico- legal issues credibly. This case report illustrates the importance of performing histological assessment of all organs including right ventricle and review of medical literature to educate ourselves of uncommon pathological entities and their effects.

History

Anotherwise healthy, 24- year- old unmarried female had a thyroid nodule. Fine Needle Aspiration Cytology revealed atypical cells and excision was recommended.

After getting informed written consent, investigations including routine blood tests, electrocardiogram (ECG) and Chest X-ray have been performed. They have not shown any abnormality.

After examining the patient and reviewing the results of routine investigations, the Consultant Anaesthetist decided that the patient was fit for general anaesthesia and surgery.

A near total thyroidectomy was performed and recovery from anaesthesia had been uneventful. As there were no Intensive Care Units beds available, she was sent to the ward.

Several minutes after being sent to the ward, she had vomited once. Immediately after that, she was found to be pulseless with unrecordable blood pressure. Her breathing had become laboured and she developed sudden respiratory arrest.

She was rushed to the theater again with cardiac massage and ambu bag ventilation. ECG monitoring had showed a straight line. Intubation and vigorous resuscitative efforts has been performed by the anaesthetist in the theater without success.

Postmortem Examination

The body was average built without pallor, cyanosis, oedema or icterus. There was no bleeding from the ear, nose, throat, injection sites or operation site.

The endotrachial tube was in situ with inflated cuff. The operation site had two corrugated red rubber drains and was free from haematoma or surgical emphysema. The pleural cavity was free of haemopneumothorax or adhesions. There were no signs of aspiration into airways. Lungs were congested and oedematous but free of features of thromboembolisation.

The heart weighed 244g and valves, myocardial thickness and coronaries were unremarkable. But there was an osteum secondum atrial septal defect. (1cmx1cm)

Other organs were unremarkable to the naked eye.

All the organs were subjected to histological evaluation.

The right ventricular myocardium showed areas of severe fatty infiltration extending from pericardium to endocardium without inflammatory reaction or fibrosis. In some areas myocardial fibers were limited only to the periphery. The appearance was consistent with a cardiomyopathy called" Arrhythmogenic Right Ventricular Dysplasia (ARVD)" (***Fig 1***)

No evidence of aspiration, pulmonary thromboembolisation and pulmonary hypertension were noted in lung tissues.

The histology of other organs was unremarkable.

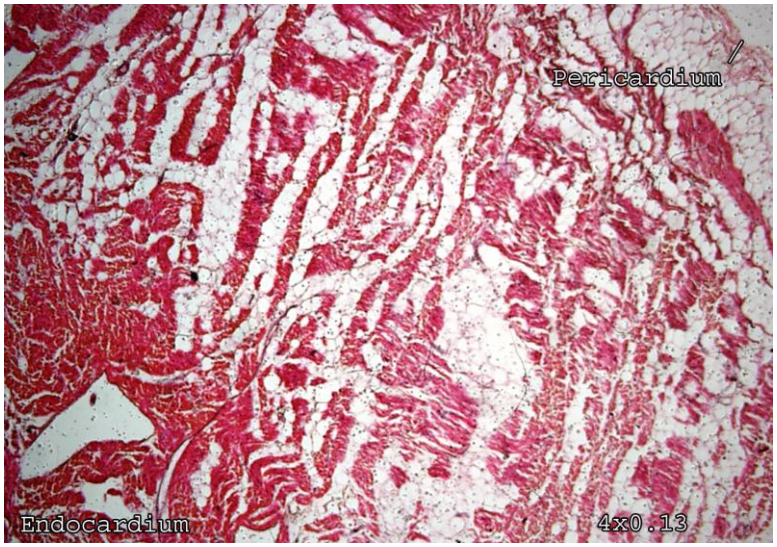

Figure 1: *Microphotograph of the full thickness of right ventricular myocardium neck magnification*

Discussion

Sudden deaths caused by both Arrhythmogenic Right Ventricular Dysplasia (ARVD) and persistent Atrial Septal Defects (ASD) have been reported in the medical literature.[1,2] In the absence of other demostratable pathology and after reviewing the circumstances leading to the death, it is prudent to come to the conclusion that this death can be attributed to ARVD. It can be considered as a Class II Cause of Death where there is a potentially fatal pathology with suggestive circumstances.[3] It can also be considered as a decision which can withstand to the criticism of those looking for an anatomic cause of death as well as the standard required in legal procedure if necesarry.[3,4]

ARVD causes arrhythmias in children and young adults. Only 30-50% has a familial distribution.[2] It is mainly inherited in an autosomal dominant mannner, with variable expression. The penetrance is 20-35% in general.[5] Its clinical presentation has four stages and initial asymtomatic stage is called the concealed phase.[2]

The concealed phase is characterized by subtle right ventricular changes with or without minor ventricular arrhythmias.Detection of ARVD especially in this phase is difficult even with sophisticated investigations such as myocardial biopsy.[5] Unfortunately the first manifestation of this phase may be sudden death. [5,6,7]

Other advanced phases are usually having signs and symptoms.[5,6] Undiagnosed ARVD has been reported to have caused sudden post operative deaths.[1]

Histologically ARVD has two distinct patterns, namely fatty infiltration and fibro-fatty infiltration.[5,6]

Fatty infiltration is first confined to the right ventricle. There is partial or near-complete substitution of myocardium with fatty tissue without obvious thinning of the myocarium. It involves predominantly the apical and infundibular regions of the right ventricle. The left ventricle and septum are usually spared. But in later stages it can extend to the left ventricle too. No inflammatory infiltrate is seen.[5,6] This is the histological variety found in this case.

In fibro-fatty infiltration, myocytes are replaced with fibrofatty tissue with inflammatory infiltrate. There can be thinning of the right ventricular free wall (< 3 mm thickness).

90% of individuals with ARVD have ECG abnormalities and the most common ECG abnormality is non specific T inversion in leads V_1 to V_3.The epsilon wave (a terminal notch in the QRS complex of ECG) is found only in 50%.[5]

Echocardiogram may show hypokinesia in affected walls and Magnetic Resonance Imaging (MRI) may show changes in density in myocardium.[7]

Biopsy will give histological diagnosis provided it has taken exactly from affected site.[5,6,7] It should also be appriciated that ARVD has very variable presentation.[6]

Atrial septal defect is also known to cause atrial arrhythmias especially during hypoxic conditions. Usually ASD >2cm causes reversal of shunt and

pulmonary hypertension. ASDs can be free of murmurs and may be detected only in very late life.[2]

Usually only ECG, Chest X ray and relevant blood tests are done preoperatively on cardiologically asymptomatic young patients in government hospitals in this country. As far as surgery, anaesthesia and postoperative management are concerned, it seems that the clinicians have followed the accepted practice of our public health care system. Therefore success of any medical negligence allegation can be considered very remote.[4]

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INSTITUTIONAL ELECTRONIC DATA BASE OF AUTOPSY REPORTS. CAN WE DO IT IN SRI LANKA?

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Medical records in a hospital are considered an institutional property containing private or individual information. Special record rooms are maintained in hospitals for storage of such records as well as for necessary retrievals. The guidelines on how to keep the medical records including the accessibility and confidentiality of the documents as well as disposal of the documents are practiced according to rules and regulations of a country and they differ from country to country and state to state.[1, 2, 3]

Unlike records of routine medical cases where examinations are conducted for treatment purposes, records of medico-legal examinations conducted are managed differently since a medico-legal report is a structured formal vehicle for communication between the medical officers and the legal system. Although it is prepared for a specific person by a specific expert, it becomes a document to be used by a diverse non-medical audience where the expert is accountable for the opinion that was expressed in the report[4]. Hence, the expert who gave the opinion receive summons to appear in a court of law to give evidence at the trial stage. However, due to a prolonged lagging time of court procedures (in Sri Lanka) of expert oral evidence, the individual pathologist who conducted the examination or the authorized person appointed or the institution which the expert was employed has to keep the records in a retrievable manner to use it at a latter date. With the development of computers, forensic report writings has revolutionized all over the world and many experts use computer formats to draft reports though it is the hard copy duly signed by the expert is sent to the courts ultimately. Therefore, many institutions have developed electronic data bases of autopsy reports for easy storage, easy retrieval as well as for statistics and epidemiological research.[5,6,7]

In Sri Lanka, medico-legal work in a hospital is carried out by designated medical officers i.e. Consultant Judicial Medical Officer (specialized qualifications), Registrars in Forensic Medicine (specialized training), Medical Officer-Medico-Legal (MBBS qualifications with training) or District Medical Officer (MBBS qualification) or academic staff of Departments of Forensic Medicine of National Universities. According to the Ministry of Health and University administration procedures if the doctor leaves the country or not in a position to attend to the Courts he or she has to officially handover the documents to a suitable person to appear on behalf of him. Therefore, a forensic doctor carrying medico-legal documentations from one institution to other leading to few cupboards of documentation to take home at the time of retirement is the practice in Sri Lanka. Although this practice has many advantages to the system it is not without any faults.

Maintaining institutional autopsy data bases either in written format or electronic format are practiced all over the world. The main purpose of them is to facilitate report retrieval for official purpose and for institutional statistics. In Sri Lanka too institutional statistics are obtainable, but maintaining them as a data base is not happening methodically. Autopsy report in Sri Lanka is a formatted health form called H42 in three languages where details are written according to the body cavities. When a postmortem report is sent to the courts H 42 is filled by the doctor in writing or in a typed form if facilities are available. With the availability of computers, forensic doctors in Sri Lanka have developed an electronic version of H 42 where filling of autopsy data is done electronically and printouts are taken as the original and send to the courts after placing the signature and the frank. A photocopy of the original is kept in case file for individual reference and electronic storage is not considered. However, new versions of electronic autopsy report formats based on systemic examination in a free style manner are appearing among newly qualified specialists which are user friendly.[8]

The development of an institutional data bases will not be a difficult task for most of the forensic unites in Sri Lanka because what we are lacking is an organized system and dedication. A methodical storage of electronic reports of all the individual experts stored in a data base with added spread sheets and an easily retrievable data system will be enough to start the system. The most important conceptual change that has to be done is developing the concept of institutional accountability and the belief that computers can

help us in producing a quality report which maximize the efficiency. A user friendly autopsy report format which will not take that much space in the computer coupled with facilities of storage of digital autopsy photographs can be used as reviewable material as well as enhancement of the report will solve the issue. What we need is the regular updating of the system with the data and occasional audit of the system.

A laptop or a desktop with an external memory devise, a printer, a digital camera and development of expertise of how to operate the system are the need equipments and skills for an electronic data base. These equipments are within an annual budget of a medico-legal institution in Sri Lanka. However, the development of the system where confidentiality is maintained to the highest standards with limited access to the system with security features and passwords have to be done since the medico-legal investigations may go on for years in some cases.

A quality autopsy report cannot be done if there is no quality autopsy. Institutional autopsy guidelines depending on the available facilities with standard operative procedures have to be developed first if we are to have a good autopsy report data base. All the doctors in the institution who conduct postmortems should ensure that minimum standards are met at the autopsy as well as the report. The autopsy report format should be a user friendly electronic document where a novice with little computer literacy can fill without wasting much valuable time. The data retrieval process should also be and equally easy system.

Maintaining electronic autopsy reports in a data base has many advantages than disadvantages to the system. The main advantage is the availability of retrievable data at any time for perusal compared to the hand written illegible case notes and tracing case files. The time to trace a case record is within seconds to minutes. It also help the pathologists to have a track of the progress of the autopsy reports especially when samples have been sent for further investigations and the report is yet to be completed. The other advantage of the electronic autopsy report system is uniformity of the autopsy standards. One of the major achievements in having electronic autopsy system is the improvement of the personal computer skills of the experts and the members of the team due to regular usage. It also reduced the dependability on computer operators/ secretaries and the delays attached to the issues of depending on another person for the product. Having a data base maintained by the department/unit also increased institutional accountability of medico-legal report especially in a situation where the pathologist who did the autopsy will not be able to attend to the courts. If the report is completed the head of the institution will be in a position to send the report or attend to the case, if the court wishes.

The most important advantage of having an electronic autopsy report data base is the feasibility of having an organized regular peer review process. The availability of the retrievable data in a user friendly manner is the key factor for a successful review process. For this electronic report system backed up with digital photographs is very useful. The other important advantage is the possibility of conducting forensic epidemiology research based on the data base. Since the autopsy report may become a public document after sending the report to the requesting authority, using them for research will not become a problem if the anonymity of the data could be preserved, adhering to research ethics.

Compared to the number of advantages of an electronic autopsy data base the disadvantages are less. The main disadvantage is need of a capital investment; i.e a separate computer/ or an external device to store the reports in a designated place. However, we have to be aware of technical failures that can occur at any point. The other disadvantage one may think is the need of being with computer all the time. To overcome this problem regular maintenance of the computer and backup system where a hard copy is mandatory in the case file has to be implemented. Although confidentiality issues though can be considered as negative aspects it can be easily solved with modern techniques such as system accessibility being limited to the relevant personnel. The external device where data storage is done should be kept under lock and key where unauthorized persons will not have access to use them.

In conclusion we would like to state that though dreams of improving existing systems are born as a brain child of an individual, making the dream come true is a team effort. Constant dialog with the team, attending to problems then and there, reviews and audits of the system are more important to sustain the dream and take the dream to a fully fledged realization.

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