

SOME COMMON PIT-FALLS IN THE PRACTICE OF FORENSIC MEDICINE
IN SRI LANKA.
A REVIEW OF INTERNATIONAL LITERATURE

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Introduction

Forensic Medicine can be defined as the branch of medicine where medical knowledge, attitudes and skills are applied for the execution of justice. This essentially includes Clinical Forensic Medicine and Forensic Pathology, in addition to several allied fields. Forensic Pathology deals with autopsies while examination of patients for medico-legal purposes (including complainants and suspects of assaults, sexual offenses, child abuse, victims of accidents, examination for drunkenness, misuse of drugs, torture and human rights violations, refugees, international war crimes, care for detainees, impaired motorists etc) comprise the bulk of the work load in Clinical Forensic Medicine.

Sri Lanka is one of the few countries in the world, where the same medical practitioner plays a dual role as a Forensic Pathologist as well as a Forensic Physician. The author wishes to critically evaluate some established practices in Forensic Medicine (clinical and pathology) in Sri Lanka in the light of international literature and practice.

Detention and confidentiality

Forensic physician should exercise great care over confidentiality when examining persons who are detained/ in custody. The detainee must understand and agree to the

nature of activities that would be performed by the examiner before any medical information is gathered (in the form of history, examination and investigations). It is essential to take the medical history in strict confidence, and insist on a neutral chaperon during physical examination which is considered the internationally accepted practice.(1) Not obtaining the consent from the examinee, non-provision of adequate information to constitute the informed nature of the consent (introducing yourself as the judicial medical officer, explaining the pure legal nature of the relationship with the patient, the possibility that the information thus gathered be sent to the courts of law, the possibility that the same information given by the examinee be used against himself, the right of the detainee to remain silent and disallow physical examination and if so the presumptions driven by the courts etc), obtaining history before obtaining the consent, obtaining unnecessary details during history whose confidentiality cannot be assured due to the legal obligations, documentation of unnecessary information on the Medico-legal Examination Form (which is sent to the Police-but not to the courts), conducting the examination in the presence of the police officer producing the detainee are some of the deviations from the ideal, encountered not uncommonly in Sri Lanka.

Injury assessment, documentation and interpretation

Allotting a specific time frame to the infliction of an injury is one of the most frequently requested and most contentious issues in forensic medicine. Bruises often become more prominent sometime after infliction-few hours or even days. On occasion, a recent deep bruise may be mistaken for an older, more superficial lesion. The larger the bruise, the longer it will take to disappear. Many bruises exhibit multiple colours. The only substantial study correlating the bruise evolution and its colour change showed that a bruise with a yellow colour was more than 18 hours old and that red, blue and purplish black colours could occur anytime within one hour of bruising to resolution (up to 21 days in the study) (2) (3). Thus, there is common consensus among the forensic community in the UK, Australia, Canada and the USA that the colouration of bruises and the progress and change of colour patterns cannot be used with sufficient accuracy to time the injury. It is equally accepted that estimation of bruise age from colour photographs is also grossly imprecise.

In contrary to this, it has been noted that too much reliance is paid in Sri Lanka on the colour and appearance of bruises in the estimation of time of infliction of injuries.

Concussion

This is an extensively studied topic in neurophysiology due to its direct relevance in sports medicine and legal medicine. Concussion is a state of transient paralysis of cerebral functions and it is further subdivided in to different stages by three world authorities on this topic : American Academy of Neurologists(AAN), Cantu, and Colorado. According to Colorado and AAN classifications, milder forms of concussion (Grade I and II) can well occur without the person loosing his consciousness. In this case, though he has not lost his consciousness, and though he

behaves apparently normally, his neurological status is not normal and thus he is not in a fit state to participate in sports events or even his occupation for varying periods of time, until recommended by a neurologist. (4) (5).

This concept does not seem to have been properly understood by those who practice Forensic Medicine in the South East Asian region as they tend to stick themselves to a very crude and rather dangerous generalization as the definition of "concussion" which reads as follows: "transient loss of consciousness, immediately following blunt trauma to head, with spontaneous recovery and without any demonstrable macroscopic brain lesions, usually followed by retrograde amnesia." This definition only represents the most severe form of concussion and acts as a source of miscarriage of justice. It is both unfair and unsafe by those who have been really concussed following a head injury without loosing consciousness.

Care for the detainees

This is a highly developed branch in clinical forensic medicine in countries like the UK, USA and Australia. Forensic physicians show high level of professional priority in the care of the detainees. The health and welfare of the detainee is paramount while any forensic considerations are of secondary importance. The physician should be independent, professional, courteous and non-judgmental. Advise on administration of medication, conditions of detention(food, ventilation, adequate rest, toilet facilities, temperature, illumination, humidity), medical problems(epilepsy, asthma, heart diseases, diabetes, head injuries, general injuries, infectious diseases etc), mental health issues(general psychiatric illnesses, substance misuse, deliberate self harm, claustrophobia etc), personal safety issues, intimate body searches/drug searches, forensic sample collection, fitness to be interviewed, fitness to be detained, charged,

discharged, released or transferred, etc are some of the main considerations of a forensic physician in the care of detainees.(6)(7)(8).

It is highly questionable whether the majority of medical practitioners practicing medico-legal work in Sri Lanka understand that they too owe the same obligations towards detainees, when they are examined for fitness for detention.

Fitness for interview / risk of false confessions

Guy Norfolk has first proposed a definition for *fitness for interview* which was approved by the UK parliament and included in the 2003 Police and Criminal Evidence Act (PACE) codes of practice. In short it states that:

A detainee may be at risk in an interview if it is considered that:

- (a). Interview can significantly harm the mental and physical state of the detainee***
- (b). Anything the detainee says in the interview might be considered unreliable in subsequent court proceedings due to his physical or mental state. (9)***

Part (b) of this definition has the intention of preventing false confessions during police interrogation which will be triggered as a combined effect of the conditions of detention, characteristics of the interrogation and the vulnerability of the accused. (10) (11).

In the UK it is the statutory duty of the forensic physician to consider various vulnerability factors of the detainee associated with false confessions during examination of fitness for detention. These include alcohol, drug abuse, mental illnesses, intellectual impairment, physical illnesses (diabetes, epilepsy, head injury, migraine, dementia, hypothyroidism etc),

extreme age, suggestibility and excessive compliance. (12)

In Sri Lanka we hardly ever attempt to access the vulnerability of the victim to produce a self-incriminating statement during police interrogation, while we assess the fitness for detention.

Traffic medicine

Driving a motor vehicle is a complex task requiring a fair level of physical fitness, accurate perception and correct judgment. All of these factors may be affected by a variety of conditions such as alcohol (acute intoxication, chronic abuse, simple withdrawal and complicated withdrawal) drugs (such as cannabis, opiates, sedative hypnotics, cocaine, amphetamines, antidepressants, over the counter preparations, poly drug use) medical conditions and their treatment. Cardinal medical conditions include Cardiovascular diseases (acute myocardial infarction, ischaemia, hypertension, dysrhythmias) Epilepsy, Diabetes (due to hypoglycaemia, retinopathy, insulin dependency, peripheral vascular disease etc) and Vision and eye disorders (absence of one eye, visual field, colour vision, and acuity).

In the UK, Driver and Vehicle Licensing Agency(DVLA) has made an at-a-glance guide to current medical standards of fitness to drive (13). Similar documents are found in other countries including Australia. (14)

In Sri Lanka when an impaired motorist is brought before a medico-legal doctor, little attention is paid on most of the above conditions other than alcohol.

Alcohol

In Sri Lanka, the police may produce a person before a government medical officer to be examined for drunkenness, mainly under the Motor Traffic Act and Offences Committed Under Liquor (special

provisions) Act. Patients will also be examined for drunkenness when they are subjected to a medico-legal examination following assaults, accidents etc. The same will be done when they are suspected to have been reported to work/duty while under the influence of liquor. In these circumstances, the medical officer resorts only to a pure clinical examination (without testing blood or other body fluids for alcohol) and documents his findings either as 'breath smelling of liquor' or 'under influence of liquor' on the Medico Legal Examination Form (MLEF) issued by the police.

In the post-mortem examinations, blood is collected and sent usually to the Govt. Analyst for estimation of alcohol levels.

There are a number of issues which we should properly understand when dealing with matters related to alcohol, if our aim is to prevent injustice, both in clinical forensic medicine as well as in forensic pathology.

Firstly, the smell of liquor is not due to ethyl alcohol but due to other additives present in the drink, which are known as congeners. Their metabolism is different from that of alcohol and ***the smell can be present long after the entire amount of alcohol ingested had been eliminated from the body.*** Vice versa, certain beverages will not give a smell at all. Thus, there is very poor co-relation between smell in breath and alcohol in blood. (15) It is unfortunate to say that we still rely too much on the smell of liquor for medico-legal purposes.

Secondly, when we attempt to diagnose 'under influence of liquor', Diagnostic Criteria for Alcohol Intoxication-DSM-IV should be adhered to. (16) Accordingly, the following four criteria should be fulfilled.

1. Recent ingestion of alcohol
2. Clinically significant behavioral or psychological changes.
3. One or more of the following features-slurred speech, in-coordination,

unsteady gait, nystagmus, impaired attention and memory, stupor or coma.

4. Exclusion of other medical or mental disorders.

It is again highly debatable whether this is done in actual practice.

Thirdly, although there is general agreement on the sequence of clinical effects caused by ingestion of alcohol, the blood alcohol concentrations at which these effects occur vary enormously in different subjects-the variation being most marked between habituated and non-habituated drinkers. (17) One may be 'perfectly normal' with a blood alcohol level of 250mg/dl while another would be 'quite drunk' with only 60mg of alcohol in one dl of blood. Thus it is clearly non-scientific if a doctor predicts before a legal forum, the possible degree of impairment of an individual known to have a particular blood level of alcohol. The author would like to designate this as a classical example of 'forensic witchcraft' practiced by some doctors as well as clinical toxicologists. The same is true for post-mortem blood samples-one should not attempt to deduce the level of impairment the deceased possibly had before death by looking at the post-mortem blood alcohol figure.

Fourthly, back calculations of blood alcohol levels at the time of a particular event, using the Widmark Formula are only crude generalizations and should not be considered as proof beyond reasonable doubt. (18)

Fifthly, nystagmus should not be considered as an absolute proof of alcohol intoxication. Positional Alcohol Nystagmus I (PAN I) occurs during acute elevation of blood alcohol, usually within the 1st thirty minutes of ingestion. PAN II occurs within 5-6 hours of drinking. Medical officer should be able to differentiate PAN I from PAN II depending upon the direction of the fast phase of nystagmus. Horizontal gaze nystagmus (HGN) may be detected in several pathological conditions including

ingestion of drugs such as ketamine, ecstasy, phencyclidine, barbiturates and volatile substances. (19) (20) Thus, the reliability of nystagmus evidence is not currently a settled proposition in the scientific community. (21)

Sixthly, we should be conscious of the two major differences of alcohol measurements made in the hospitals (clinical samples) and in forensic laboratories. Results are expressed as grams/dl in forensic labs while the same is given in mmol/l in hospitals. The more important difference is that serum is taken for clinical samples while whole blood is used for forensic samples. Serum contains 92% of water while plasma water content is 80%. As alcohol is only contained in the water compartment, the alcohol concentrations measured in serum/plasma will be approximately 14% higher than that measured in whole blood. (22)

Sexual assault examinations

Few important points are only briefly outlined as follows:

a). In the UK and Australia, the forensic physician is discouraged to obtain too detailed a history from the complainant, as it will jeopardize the case at the trial. No history about the alleged incident is obtained from the suspect. (23) In Sri Lanka it is encouraged to obtain an extensive and exhaustive history from both the suspect and the complainant in the language they understand best. Theoretically this can add bias to the examination findings of the physician, cause problems in the processing of evidence at the trial and also raise issues regarding the confidentiality of the intimate information.

b). 360nm wave length ultra violet light source (Wood's lamp) is no more considered as of any use in detecting seminal stains on skin or clothing. (24). Instead, a high-intensity light source of variable wave lengths used with goggles to

block the excitation light (Polylight) is useful in the detection of seminal stains.

c). It is never necessary to pluck pubic hair. (23).

d). In an alleged case of fellatio, petechial haemorrhages and confluent bruising may be seen on the hard and soft palates. The forensic physician should be able to exclude alternative explanations such as infectious mononucleosis, local trauma, paroxysms of vomiting, coughing, sneezing, playing wind instruments, tumors and bleeding diathesis before confidently attributing them to the alleged sexual act. (25)

e). Currently accepted method of examining/sampling of female genitalia in alleged rape, formulated by experienced forensic physicians in the UK in 2003, does not include insertion of examiner's fingers into the woman's vagina to access the hymenal orifice diameter. (23) This rather unrewarding and embarrassing practice should be strongly discouraged though it is still in use among a fair number of doctors engaged in medico-legal work in Sri Lanka. It is common sense that any attempt to measure a stretchable body part by insertion of fingers is non-scientific.

f). On the basis of current literature, **only** the complete transections in the lower margin of the hymen are considered to provide confirmatory evidence of penetration of the hymen-by penis, finger or other object. (23). Do we readily appreciate this concept in Sri Lanka?

g). It is generally accepted that due to hymenal elasticity, post-pubertal females can experience penile vaginal penetration without sustaining any hymenal deficits. (26)

This makes the mythical concept of *virgo intacta* null and void. Again, do we readily acknowledge this?

h). Pre-pubertal, non-oestrogenized hymen appears thin and translucent. This should not be misinterpreted as attenuation due to chronic abuse in a female child of suspected sexual abuse. (27)

i). It is imperative to sample the vagina, vulva and perineum separately, even when only anal intercourse is alleged, to exclude the possibility of gravitational leakage from the vagina to account for semen in the anal canal. (23). How frequently do we do this?

j). Great caution must be paid in the interpretation of blood in the female genital tract. It is a known obstetric fact that traces of uterine blood can be present at anytime of the menstrual cycle. (28) Further more, currently there is no accepted method of differentiating between traumatic and uterine blood. (29)

k). Linear vestibularis, a congenital white line present in the fossa navicularis, should not be mistaken for a scar-specially in the small children. (30)

l). It is commonly accepted in the developed world that it is impossible to reach a conclusion regarding the erectile efficiency of a male, based on the age alone. The expert opinion of a urologist must be sought. The forensic physician should not trespass the premises of the urologist by attempting to answer this question. (31)

m). Penile erections may result from tactile stimulation of the penis, scrotum and rectum-this should explain why a male can experience involuntary penile erections while non-consensual anal intercourse. (31)

n). It should be emphasized that nonconsensual anal penetration can occur both in children and adults without producing acute or chronic injury. (32)

o). Reflex anal dilatation in an examinee or a dilated anal opening in a

dead body has no forensic significance. (23)

Conclusions and Recommendations

The ultimate goal in Forensic Medicine is to lay a solid, evidence-based, scientific background to help the judicature to meet the justice. The concepts and practices are ever changing with the advancement of science and invention of new knowledge. Forensic practitioners in this region of the world should take extra pain to keep abreast with the new knowledge and international practices and standards. This is doubly true for Sri Lanka where the bulk of the medico-legal work is carried out by ordinary medical officers with no special training or post-graduate qualifications in Forensic Medicine.

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