

Emphasising the Importance and Evaluation of Contributions of Pre-Morbid Disorders to Death in Medicolegal Autopsies

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ABSTRACT

Background: The role of the anatomical pathologist is very crucial in the investigation of deaths in suspicious circumstances. It entails thorough dissection, scrutiny of organ changes and sound intellectual processes to guide legal authorities to take proper decisions based on medicolegal reports of autopsies.

Aims and Objectives: The aim of this study was to establish the presence of pre-morbid conditions in deceased persons during medicolegal autopsies and to ascertain the contributions of pre-morbid diseases to the process of death.

Materials and Methods: A retrospective analysis of medicolegal autopsy records over eleven years (2007-2017) was done and the data was analyzed by simple descriptive statistical methods. The inclusion criteria were disorders that predated the medicolegal event resulting in death. Conditions known to be pathophysiological components of the medicolegal event were excluded from the study.

Results: A total of 246 cases were considered but only 10 cases met the inclusion criteria. The manner of death in four of the cases within the inclusion criteria were accidental deaths, including three cases of road traffic accident and one case of aircraft crash. There were three cases of infective illness, one case of gunshot injury to the head, one case of death from occupational hazard and one case of death due to injuries from machete cuts. The pre-medical conditions in most of the cases on strict morphological assessment were incidental findings and were not deemed to be contributory in any way to the process of death.

Conclusion: It is very important for the anatomical pathologist to probe meticulously for the cause of death and explain the role of every lesion seen at autopsy in the process of death. This is necessary so as to avoid doubts, the insinuations of incomplete autopsies and unnecessary controversies in medicolegal cases.

Key words: Contributions, medicolegal autopsies, pre-morbid disorders

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INTRODUCTION

A pathologist has a crucial role in medicolegal death investigations through thorough post-mortem examination, writing a report that is concise, legally fool-proof and yet all-encompassing with little or no room for doubts. It is pertinent to know that pre-morbid disorders may in some instances contribute to death either by accelerating the process of death through aggravating the acute condition, or the pre-morbid conditions may severely deteriorate due to the acute challenge and hasten the death process.¹ Duty

behoves the pathologist to assign to all lesions encountered in an autopsy session their true values in the aetio-pathogenesis and pathophysiology of diseases and how death occurs in each case in order to avoid the miscarriage of justice.²

MATERIALS AND METHODS

The study is a retrospective review of autopsy reports in the practice jurisdiction of pathologists of the Department of Morbid Anatomy and Forensic Medicine, Obafemi Awolowo

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University Teaching Hospitals Complex, Ile-Ife, Osun State, Nigeria, over 11 years (2007–2017) for the following:

1. Analyse the medicolegal reports of coroner's autopsies for the presence of pre-morbid medical disorders as documented during the autopsy session with the following criteria: the medical problem condition must have preceded (predated) the event necessitating a coroner's autopsy, the condition must not be precipitated by the event, the condition may be worsened by the event, incident or assault, the condition may worsen the progression of the pathophysiological decelerations occasioned by the effects or consequence of the assault resulting in death, the medical problem may be the actual cause of death, the medical problem may be an incidental finding. However, for natural causes of death, the pre-morbid condition should not be part of the stages or known pathophysiological mechanisms that characterise the disease process
2. Define the contributions of pre-morbid disorders in morbidity and mortality in the medicolegal autopsies. The contributions were assessed based on the pathophysiological progression due to acute challenges and effects of the pre-existing medical disorder. When the pre-morbid condition does not contribute to the process of death, it is assessed as not contributory; if it minimally contributes, it is assessed as mildly contributory; when the contribution to the process is moderate, it is regarded as moderately contributory and when the contribution is strong, it is regarded as severely contributory
3. Define the classes of death with contributory pre-morbid disorders accelerating death such as homicides, suicides, natural, accidents and undetermined or indeterminate cases
4. State the immediate, intermediate and proximate causes of death in the medicolegal cases who have pre-morbid medical conditions.

Data obtained were analysed using simple descriptive statistical methods. However, cases with incomplete data were excluded from the study.

Ethical approval for this study (Ethical Committee ERC/2020/08/13) was provided by the OAUTHC Ethics and Research Committee.

RESULTS

A total of 246 autopsies, consisting of 204 males and 42 females, were considered during the 11-year study period

Manner of death	Number of males	Number of females
Accident	93	24
Homicide	86	6
Natural	23	11
Suicide	0	1
Undetermined	2	0

from 2007 to 2017. The male-to-female ratio was 4.9:1. In all the medicolegal cases, there were 10 cases which met the inclusion criteria. Only accidental, natural and homicidal cases showed the presence of pre-morbid medical disorders, while none were seen for suicides and indeterminate cases. The manners of death as revealed by the autopsy are stated in Table I, while Table II shows the manner of death, the events leading to death, pathologies seen, the pre-morbid condition and the degree of contribution to death, and Table III shows the events precipitating death and the proximate, intermediate and immediate causes of death.

DISCUSSION

The coroner's consult to the pathologist in the medicolegal investigation of death affirms a pivotal role of the pathologist in the investigation process of deaths in suspicious circumstances.^{3,4} Our study showed that only ten cases with pre-existing medical disorders were seen in all the cases reviewed during the study period. Few cases encountered in the study indicate that pre-morbid conditions may not be a common occurrence in medicolegal cases. These pre-morbid conditions on strict morphological consideration were more of incidental findings and were not deemed to be contributory. Only a case of occupation-related death in a quarry occurred as a result of ruptured abdominal vessels in a setting of prior raised intra-abdominal pressure from adult polycystic kidney disease, a condition with autosomal dominant form of inheritance associated with raised intra-abdominal pressure.⁵ Thus, in the setting of subsisting increased abdominal pressure, worsened by aggravating external pressure on the abdomen, there may be resultant ruptured abdominal vessels as in the quarry death case. Since the autopsies reviewed were carried out under the supervision of certified anatomical pathology specialists, we do not have any doubts about the documented findings of the eminent practitioners.⁶ Nonetheless, this research work underscores the ability to recognise subtle changes and so-called minute, evolving and early lesions as well as late stages of diseases, with faded diagnostic criteria as the hallmark of the anatomical pathologist who is well-trained, experienced and has come of age. This, no doubt, is a blend of experience, due diligence, systematic pursuit of excellence and meticulous approach to link observations and interpret findings in the most probable aetio-pathogenetic and pathophysiological sense. Replicable demonstration of altered anatomical structures and features is crucial to proper interpretation of an autopsy.⁷ Furthermore, lesions that are significant to alter the cause of events would also have been obvious grossly. Lesions that are likely to be missed are those evolving, burnt out lesions and deliberately imputed post-mortem and artefactual lesions with the intentions of misleading the pathologist, especially in criminal cases. The ultimate outcome of the autopsy session may also be due to the peculiarities of the pathologist due to his/her bias, inexperience, performance of an incomplete autopsy, wilful neglect of meticulous external examination applicable to all

Table II: The manner of death, the events leading to death, pathologies seen, the premorbid condition and the degree of contribution to death

Cases number	Manner of death	Event precipitating death	Pathologies caused by the event	Premorbid disease	Contribution of premorbid disease to death
1	Accident	Road traffic accident	Multiple severe injuries	Undercompensated hypertensive heart disease	Not contributory
2	Accident	Road traffic accident	Multiple severe injuries	Liver cirrhosis	Not contributory
3	Accident	Road traffic accident	Multiple severe injuries	Chronic pyelonephritis and undercompensated hypertensive heart disease	Not contributory
4	Natural disease	Infective illness	Septicaemic and haemorrhagic shock	Chronic pyelonephritis, hypertensive heart disease	Not contributory
5	Accident	Helicopter crash	Multiple severe injuries	Uterine leiomyomatosis	Not contributory
6	Accident	Buried under massive falling sand in a quarry accident	Ruptured abdominal vessels with severe haemorrhage	Adult polycystic kidney disease on and pre-existing raised intra-abdominal pressure	Severely contributory
7	Natural	Pyogenic meningitis	Severe raised intracranial pressure	Undercompensated Hypertensive heart disease	Not contributory
8	Homicide	Severe head injuries from gunshot	Severe cranio-cerebral injuries	Chronic pyelonephritis	Not contributory
9	Homicide	Severe head injuries from machete cut	Severe intracranial haemorrhage	Undercompensated hypertensive heart disease	Not contributory
10	Natural	Lobar pneumonia	Respiratory failure	Chronic kidney disease and undercompensated hypertensive heart disease	Not contributory

Table III: The events precipitating death and the causes of death

Cases number	Event precipitating death	Proximate cause of death	Intermediate cause of death	Immediate cause of death
1	Road traffic accident	Multiple severe injuries	Severe haemorrhage	Hypovolemic shock
2	Road traffic accident	Multiple severe injuries	Severe haemorrhage	Hypovolemic shock
3	Road traffic accident	Multiple severe injuries	Severe haemorrhage	Hypovolemic shock
4	Infective illness	Severe <i>Salmonella enterica</i> infection	Septicaemia	Septicaemic and hypovolemic shock
5	Helicopter crash	Multiple severe injuries	Severe haemorrhage	Hypovolemic shock
6	Buried under massive soil in quarry	Ruptured abdominal vessels	Massive intra-abdominal haemorrhage	Hypovolemic shock
7	Pyogenic meningitis	Pyogenic meningitis	Severe cerebral oedema	Severe raised intracranial pressure
8	Severe head injuries from gunshot	Severe firearms injuries to the head	Severe cranio-cerebral injuries	Severe brain damage
9	Severe head injuries from machete cut	Severe head injuries from machete cut	Severe intracranial haemorrhage	Severe raised intracranial pressure
10	Bronchopneumonia	Bronchopneumonia	Overwhelming confluent bronchopneumonia	Respiratory failure

cases of forensic autopsies and inexperience amongst human frailties, thus misleading the court and subsequently resulting to the miscarriage of justice as seen in *R v Sally Clark (2003) EWCA Crim 1020*.^{6,8-10} Systematic approach in dissection, examination, pathophysiological correlation and most appropriate interpretation based on the guidelines and laws of autopsy interpretation would enable right classification of the observed features and the contribution of the observed features.⁷ As laudable as it would be for the lesions to be searched out, exaggerating features would be better avoided so that they are not given undue inferences.^{2,11,12} The downside

of refusing to mention lesions encountered in an autopsy session may have a deleterious effect on the overall assessment of the case. This may happen due to preconceived notions of the pathologist about the case, such as believing the history given by the law enforcement agents and accepting the testimonies or sworn affidavits of eye witnesses who may have vested interests in a case or overconfidence on projections before dissection.¹³ Treating every case strictly on its merit would obviate wrong conclusions. The onus is on the pathologist to keep to the standard of practice expected for the case at hand, such as taking adequate and representative

sections for histology and ancillary investigations and appropriate samples for toxicology.¹⁴⁻¹⁶ A pathologist performs below par in his/her duty risks litigations and commensurate punitive sanctions.^{17,18} A risk that super-confident pathologists carelessly undertake is to prematurely suspend or end the dissection on the premise of finding out the cause of death, only to get to court and be informed about the results of investigations by other experts who had cared for the deceased over the years. Such pathologist may find it extremely difficult under oath to answer specific questions, with regard to organ findings at autopsy on organs known to be decompensated in the deceased ante-mortem. In deaths suspected to be due to deleterious effects of previously administered treatments, such as adverse drug reactions or complications of procedures, only a full autopsy will present facts as against conjecture.¹⁹ Autopsies in such circumstances have the following worthwhile benefits of stemming capricious and spurious legal liabilities; one a properly conducted autopsy reduces the risk of unnecessary financial losses from malpractice suits by eliminating doubts and suspicion and exculpates the health institution and management team from all suspicions of manipulation, concealment, and insinuations of unprofessional and unethical conducts by relations of the deceased.²⁰ Post-mortem examinations will enable the presentation of facts supported by medical science, rather than conjectures of assumptions of assumed fall-outs of diagnostic and therapeutic procedures, which was the basis for the Bolam legal tort's rule of evaluating physicians' culpability in medical negligence as seen in *Bolam v Friern Hospital Management Committee*^[1957] 1 WLR 582.²¹ Two, the report of the autopsy serves as an objective tool and basis to re-assure grieving families who may have misconstrued clinical events and decisions of the management team during the care of their deceased relative as it clarifies the true position of care given to their deceased loved one. This helps to disabuse their minds concerning clinical negligence and/or medical malpractice, thus preventing a plethora of unwarranted claims or otherwise create a more congenial forum for reasonable, favourable and equitable settlement of liability claims, should any develop. Post-mortem examinations also help in the identification or exclusion of medical conditions, which may have a familial mode of inheritance as well as help clarify the true nature of deaths when suspicions of demise due to occupational hazards and diseases are implied.²² Three, proper autopsy documentation enables the hospital management teams to prepare a much better defence premised on clinicopathological correlations without undue apologies, rather than relying solely on clinical information, which may be twisted by the plaintiffs legal team deliberately and unwittingly to the detriment of their clients, the deceased family members, more so the law tends to favourably defer to the vulnerable. Four, the anatomical pathologist by diligently interpreting the findings of the post-mortem examination may appropriately stage the disease process as at the time of death by alluding to the knowledge of aetiology, pathogenesis, pathophysiology and diligently correlate organ changes with the actual stage of disease at

death and prognosticate appropriately, so as to ascertain the possibility of contributory negligence on the part of deceased patient thereby creating the basis for reducing bogus claims and effacing spurious malpractice claims.^{20,23-25} Five, an attitude of following a case all through, being open-minded and not being tempted with pre-conceived ideas on any autopsy, would assist training of pathology trainees and continuing education of practicing pathologists.¹³ Six, the autopsy helps detect and clarify findings on emerging and re-emerging infectious diseases, such as tuberculosis, human immunodeficiency virus and acquired immune deficiency syndrome, legionnaire's disease, Middle East respiratory syndrome and severe acute respiratory syndrome (SARS) among others.³ Seven, the autopsy assists in developing standards for local quality assurance for all aspects of ante-mortem diagnoses, such as clinical evaluation, digital diagnostic and prognostic criteria, diagnostic radio-imaging, radiotherapy, laboratory techniques, pathological correlations of ante-mortem management decisions in terms of procedure performance and functionality-cum-effectiveness of inserted medical devices.²⁶ Eight, the post-mortem examination resolves the blame shifting dilemma encountered in the mismanagement of cases in cases involving multidisciplinary specialty care so that hospital managements can take due corrective and punitive measures against erring professionals.²⁷ Nine, the autopsy helps detect incidental, occult disease and asymptomatic medical conditions and thus enables more accurate vital statistics that could help budgeting and research.²⁸ Ten, post-mortem examinations enable the proper certification of death by clarifying the proximate, intermediate and immediate causes of death, thereby succinctly elucidating the stages and processes of death.²⁹ Eleven, autopsy sets the stage for the establishment of standards and criteria for improved standard of care, and enhanced post-production of, marketing, administration of adverse effects of drugs, vaccines, medical devices, procedures and techniques.

CONCLUSION

The pathologist plays a major role in the administration of justice. He/she needs to be quite conversant with the peculiarities of all cases so as to make right judgment and most appropriate deductions that would enable the most probable conclusions in every case and hence contribute meaningfully to the dispensation of justice. A case cannot be said to be completed until the actual contributions of pre-morbid conditions to death have been duly clarified. The anatomic pathologist should not insinuate but always seek to deploy medical science and collaborate with other experts relevant to his/her practice and case at hand to make the best input to the law, without compromising universal best practices.

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Conflicts of interest

There are no conflicts of interest.

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