

CONTRIBUTION OF AUTOPSY TO MEDICAL PRACTICE IN CAMEROON: A 10 year review.

ENOW-OROCK G.¹; ASSOBN GU C.J.¹; PISOH T.²; MASUMBE P.S.³; SANDO Z.⁴; NKEGOUM B.¹; ATANGANA P.⁴; MOAMPEA-MBIO M.C.⁴; ESSAME-OYONO J.L.⁴

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ABSTRACT:

Of 12.000 bodies received at the mortuary of the Yaounde General Hospital, 126 were autopsied in this 10-year retrospective study from 1997 to 2007, giving a rate of 1 autopsy in 100 deaths. 72.2% of cases were males against 27.8% females. The predominant age group was 20-69 years (57.1%). The main causes of death include natural disease (32.5%), physical aggression (20.6%), road traffic accident (19.8%), poisoning (9.5%), asphyxia (7.1%) and firearm injury (6.4%). The indication for autopsy was mainly medico-legal (91.7%). The circumstances of death showed a predominance of natural causes (34.1%), murder (32.6%), and homicide (28.6%). Though the benefits of an autopsy to the family, medical practice and entire community are enormous, the rate of this procedure in our community is low. We recommend public education and advocate for a legislative framework that regulates autopsy practice, at least, in teaching hospitals in our country.

KEY WORDS: Autopsy - Medical practice - Cameroon.

APPORT DE L'AUTOPSIE DANS LA PRATIQUE MEDICALE AU CAMEROUN: Une revue de 10 ans.

RESUME:

Dans cette étude rétrospective de 10 ans allant de 1997 à 2007, 126 autopsies ont été réalisées parmi 12000 corps reçus à la morgue de l'Hôpital Général de Yaoundé, soit un taux d'une autopsie pour 100 décès. 72,2% ont été réalisées sur des corps de sexe masculin et 27,8% sur des corps de sexe féminin. La tranche d'âge de 20-69 ans était prédominante. Les causes principales de décès étaient : maladie naturelle (32,5%), agression physique (20,6%), accident de la voie publique (19,8%), intoxication (9,5%), asphyxie (7,1%), et arme à feu (6,4%). L'indication de l'autopsie était principalement médico-légal (91,7%). Les circonstances du décès étaient de cause naturelle (34,1%), meurtre (32,6%), et homicide (28,6%). Bien qu'une autopsie présente d'énormes intérêts pour la famille, la science médicale, et les populations, sa pratique est encore peu fréquente dans notre société. Nous recommandons une éducation de masse et un plaidoyer pour une législation qui régitte la pratique de l'autopsie au moins dans les hôpitaux de formations de notre pays.

MOTS CLES: Autopsie - Pratique médicale - Cameroun.

I- INTRODUCTION

Autopsy is a medical procedure with lots of social, economic, religious, cultural, and scientific ramifications. Autopsy rates all over the world continue to fall in spite of the benefits to family,

and medical science [1]. In Cameroon, the people know the importance of finding out the cause of death. For example, in the 'Bamilike land' in the West province, there is routine 'traditional autopsy' by divinations, rituals and/or mutilations with risks of infections, epidemics and stigmatization of the innocent in the community.

The autopsy procedure is completely elective without medical benefit or risk to the deceased on whom the procedure is performed. However, it is the family; medical profession, other patients, and society as a whole that stand to benefit [2]. The benefits of the procedure to the family include knowledge of inherited or communicable diseases, reassurance that treatment decisions were well founded, and emotional solace in advancing medical science for the benefit of others. The autopsy provides benefit to the medical profession by serving as a teaching tool and as a source for expanding

¹Department of Pathology, Faculty of Health Sciences, University of Buea / Pathology Service, General Hospital Yaounde, Cameroon.

²Department of Surgery, Faculty of Medicine and Biomedical Sciences, University of Yaounde I, Cameroon.

³Department of Political Sciences and Public Administration, University of Buea, Cameroon.

⁴Department of Pathology, Faculty of Medicine and Biomedical Sciences, University of Yaounde I, Cameroon.

Correspondences: Dr. Enow-Orock G., Pathology Service, General Hospital Yaoundé, BP 5408, Cameroon; Email: enowrock24@yahoo.com

our understanding of disease. These in turn are beneficial to other patients and society [3].

The potential risk from an autopsy procedure is that the family will experience emotional and/or spiritual distress if the body of their loved one is treated in a manner that violates their values or the values of the deceased [4]. The lack of knowledge about the basic elements of the autopsy procedure, even by medical personnel raises the concern that families are not being well informed of the benefits of the autopsy procedure.

Given the ample evidence of declining autopsy rates despite the continued benefit of the procedure to families and medical science, we sought to explore the procedure in our setting. At hospitals engaged in training and research, and caring for a high concentration of relatively rare disorders, like the Yaounde General Hospital, the obligation to advance knowledge about disease, clinical management and toxic effects of therapy on patients through the frequent use of autopsy examination is imperative.

II- MATERIALS AND METHODS

Files of the mortuary unit of the pathology service in the General Hospital Yaounde were retrieved and data on all autopsies performed from 1997 to 2007 was noted in this retrospective study. The total number of bodies received during this period was noted and data on cases where autopsy was done was assembled and analysed. All autopsies done out of the study period were rejected.

III- RESULTS

Table I- Age distribution of autopsy cases.

Age range	Male	Female	TOTAL
0-9	4	1	5
10-19	2	3	5
20-29	8	2	10
30-39	11	5	16
40-49	11	6	17
50-59	12	5	17
60-69	10	2	12
70-79	3	2	5
Unknown	30	9	39
TOTAL	91	35	126

The predominant age is 30-59 years and the procedure is rare in childhood and elderly in both sexes.



Figure 1- Infanticide with ritual mutilation on a one month old. Autopsy identified sex of victim as male.

Table II- Autopsy-certified cause of death.

Cause of death	Male	Female	Total
Physical aggression	20	6	26
Firearm	7	1	8
Road traffic accident	17	8	25
Electrocution	2	0	2
Burns	0	2	2
Asphyxia	4	5	9
Natural disease	36	5	41
Poisoning	4	8	12
Unknown	1	0	1
TOTAL	91	35	126

More males die from physical aggression (three times), firearm (seven times), road traffic accidents (two times), natural disease (seven times), and electrocution (two times) than females. While poisoning and burns (two times respectively) are commoner in females. Death by asphyxia has no sex predilection.



Figure II- A body in advanced putrefaction autopsied ten days after death.

Table III- Deaths caused by poisons.

Poison	Male	Female	Total
Alcohol	1	1	2
Barbiturates	1	0	1
Carbon monoxide	0	5	5
Organophosphates	1	0	1
Unknown	1	2	3
TOTAL	4	8	12

Death by poisoning is more common (two times) in females. Carbon monoxide poisoning is cause of death mainly in females in our environment. The circumstances being through homicide (by inhalation of emissions from charcoal fire, electric generator and bush lamps respectively).

**Figure III-** Congenital renal polycystic disease in an infant found at autopsy.**Table IV-** Circumstances of death.

Circumstance	Male	Female	Total	%
Murder	31	10	41	32.6
Homicide	22	14	36	28.6
Suicide	4	1	5	3.9
Natural	33	10	43	34.1
Unknown	1	0	1	0.8
TOTAL	91	35	126	100

Homicide is the commonest circumstance in female deaths, while murder and suicide predominate in males. Natural causes predominate amongst deaths that undergo autopsy and majority of cases are males.

**Figure IV-** Unidentified assassinated rape victim discovered in thickets in the outskirts of Yaounde about 3 weeks after death. Autopsy helped in identification of victim.**Figure V-** Severe anthracosis- a common incidental finding at autopsy.

IV- DISCUSSION

Autopsy is taboo in most countries all over the world, and more so in developing countries, in spite of the role this procedure plays in clinical medical practice and research. At a rate of 1 in 100 deaths, (1 autopsy per month), this practice is insignificant in our community. The situation varies in different facilities depending on the referral level and location of the health facility. In the Yaounde Central Hospital [5], there were 310 medico-legal autopsies reported between 1987 and 1989. In the peripheral/rural hospitals in Cameroon, no formal study has been carried out on this subject, but reports indicate a similar trend of few, sporadic, and predominantly medico-legal autopsies.

Our rate is lower than reports in many regions of the world, as many people consider autopsy to be a waste of time [6, 7]. GELLER and GLEN et al, reported an autopsy rate of less than 1 in 10 deaths in most teaching hospitals of the United States of America [1,8]. This low rate of autopsy is the trend all over the world, including developing and developed countries. Some causes of the low rate in Cameroon include cultural, social and economic factors. The solution to this problem can be reinforced through legislation. In Cameroon, the law requires that autopsy may be carried out at the request of a judicial police officer through the state counsel acting as coroner in case of a suspicious death [9]. However, there is no legislation that enforces autopsy in hospitalized patients or those under treatment before death. Furthermore, no legislation enforces death certification before burial. These lapses contribute to the low autopsy rate in our country. This is unlike other countries where the procedure is regulated by legislation.

Though the autopsy rate is in decline world wide, the situation is much better in other countries, in the developing and developed world. In Nigeria, for example, an autopsy of deaths occurring within 24 hours

of hospital admission is mandatory. This is strictly enforced in teaching hospitals reporting higher autopsy rates but not in private health facilities [10]. In Cameroon, autopsy is strictly restricted to public hospitals, but without distinction between teaching hospitals and peripheral primary and secondary facilities. Abusive death certification is illegal and punishable by Nigerian law, and to inter a body not accompanied by a death certificate is criminal. This certificate can only be issued if a physician is satisfied that there is no need for an autopsy in such cases. To further enforce this legislation, interment of bodies within private premises (where monitoring may be lax) is banned and illegal in urban centres. In essence, while the Nigerian population is not remarkably different from that in Cameroon in terms of traditional attitudes to autopsies; the population is constrained to allow a good number of autopsies because of tight regulations regarding certification before burial. Such regulations, including mandatory autopsies, are easier to enforce in public health facilities and account for observed discrepancies in autopsy rates between private and public institutions.

A Nigerian state has recently passed legislation – ‘Lagos State Coroner’s law’-geared at ensuring that more bodies go through autopsy [10]. Section 14 of the law makes autopsies compulsory for deaths, whose causes were unknown; sudden and unexpected; violent, unnatural or suspicious; as a result of a misadventure and an industrial disease or accident at work or industrial poisoning. A similar situation prevails in Ghana where the Coroner’s Act demands that all dead human bodies be sent to the mortuary and investigation carried out to find the cause of death before being released for burial [11]. Enforcement of similar regulations in Cameroon; including stricter death certification procedures, banning of interment in private environments and signing of pre-consent for autopsy on admission into a teaching hospital will help increase the number of autopsy-certified deaths in the country.

In this study, 126 autopsies (0.01%) were performed on 91 males (72.2%) and 35 females (27.8%) in 10 years. This is similar to previous studies by DIFFANG et al. [5] who reported a male predominance of 70% in the same population. As can be seen in table I, the predominant age group involved in both sexes is 20-69 years (57.1%), while in 31% of the cases, the age is unknown. 5 cases involved two fetuses and three infants. Two of these showed congenital malformations (infantile polycystic renal disease and anencephaly in a fetus respectively) (Figure 3). Infanticide was established in one case with mutilation, involving amputation of limbs

and excision of sex organs as shown in Figure 1. These findings have been documented in previous studies [12].

The main indication for autopsy in Cameroon is medico-legal. In this series, 90.5% of the autopsies performed were in this category against 9.5% scientific indication. This finding is consistent with studies elsewhere that report medico-legal autopsies to be more common than scientific [13, 5]. In our study, the main causes of death include natural disease (34.1%), road traffic accident (15.9%), poisoning (9.5%), physical aggression (21.4%), and firearm injury (6.4%). Natural deaths that are autopsied are commoner in males by 76.7% (Table IV) as earlier reported by DIFFANG et al [14] who found a rate of 78%. These findings are paradoxical as one would expect to find more scientific autopsy requests in natural deaths, while medico-legal autopsies are common in ‘forensic’ deaths (road traffic accidents, poisoning, physical aggression) [13]. This controversy is explained by the fact that most deaths in our community, even in hospitalized patients are termed ‘suspicious’, with medico-legal rather than a scientific approach for autopsy.

Electrocution and burns are rare causes of death in both sexes in our study (1.6% respectively) while death by poisoning is more common in females (66.7%) (Table II). In the latter, the toxic substances identified were carbon monoxide (33.3%), barbiturates (25%), organophosphates (25%) and alcohol (16.7%) (Table III). Alcohol (100%) and carbon monoxide (80%) poisonings were both of homicidal circumstances, while barbiturate and organophosphate poisoning were all suicide. All these substances have been reported to be poisonous, though death by carbon monoxide poisoning in other studies is reported to be mostly suicidal [15].

Asphyxia deaths were by manual strangulation (5/9 cases), hanging (2/9 cases) and drowning (2/9 cases). 80% of victims of manual strangulation were females, while all (100%) cases of hanging were males (Table III). This is consistent with numerous studies that find hanging to be common in males, while females are main victims of manual strangulation [16].

In this study, the average time between death and the autopsy was 50 hours and the procedure lasted averagely 2 hours 45 minutes, similar to 3 hours reported by CHARLTON [17]. 12% of the bodies in our study were judged to be in advance putrefaction at time of autopsy as illustrated in Figures 2 and 4. Specimens and biopsies were collected from 35 % of cases that required further investigation for confirmation of cause

of death. These included biopsies and/or specimen collections for histological and/or toxicological analysis. Unlike reports by previous authors [17], the autopsies in our series with inconclusive or 'unknown' cause of death were low (0.8%). There were no Muslims amongst all cases autopsied, in consistency with their religious beliefs [18].

Incidental findings at autopsy that were unrelated to the cause of death were moderate to severe anthracosis (38%- more common in males - Figure V), infra-clinical cardiomegaly (11.5%), hepatic steatosis (14%), uterine fibroids (29.6%), benign prostatic hypertrophy (63% of males above 45 years), supernumerary spleens (1.6%), abnormal lung lobes (2.4%) and clinically-undetected organ-restricted prostate cancer (10% of males above 45 years). Most of the deaths involved blacks (92.9%), while 7.1% of the autopsies were on whites. In the latter, all the indications (100%) were medico-legal. We could not find any explanation for absence of scientific autopsies among whites in our community.

An alternative to the standard autopsy is an autopsy procedure that is limited in some way. This may include limiting which organs are dissected, needle or wedge biopsies of the organs of interest, thoracoscopic or laparoscopic examination of the organs, or a limitation on the use of the organs [19, 20]. In our series, 6 autopsies (4.8%) were in this category. The indication for limited autopsies was mostly scientific (83.3%). The major benefit of a limited autopsy is that its availability may reduce the stress by the family contemplating a standard autopsy and in fact may enable families to consent to autopsy that might otherwise refuse on the basis of religious and/or cultural beliefs [21, 22]. The major risk of a limited autopsy is that the information obtained will be incomplete or inaccurate, because a thorough examination is not performed. Available data from the medical literature shows that most pathologists believe that the complete autopsy remains the criterion standard and that limitations on the autopsy procedure greatly increase the risk of incomplete or inaccurate results. Another important risk of conducting limited autopsies is that the societal goals of research and teaching will be compromised [23].

We recommend first that doctors, and others who may be involved in obtaining consent for autopsy, receive education on (a) the autopsy procedure; (b) advantages and limitations to the procedure; and (c) the storage, use, and disposition of organs; and (d) communication skills on when and how to approach bereaved families

for autopsy consent [24]. To obtain consent, which requires informing the family of the nature of the autopsy procedure, its risks and benefits, and its alternatives, the physician must first be knowledgeable about the procedure. Not only are physicians who are poorly educated about autopsies likely to misinform families, and potentially generate subsequent medico-legal issues, but they are also more likely not to request autopsy [25, 26]. For more efficiency, pathology services should be provided with well-adapted equipment for autopsy. The lack of a legal framework that regulates this practice contributes to numerous loss opportunities to advance medical knowledge [17, 27].

V- CONCLUSION

The autopsy procedure at teaching hospitals continues to offer the last chance to gain important and frequently unexpected information that is of great potential value to the living. At a rate of 1 in 100 deaths, autopsy practice is negligible in the Yaounde General Hospital, a tertiary referral institution in our country. Despite the low rate, its value is recognized by our society. Teaching on autopsy should be intensified in student curricula and regular retraining of medical personnel. Public education on the procedure, its benefits and limitations should be instituted. This study recommends a legal framework that regulates the practice of autopsies, at least in the teaching hospitals in our country. Every time a body is interred without an autopsy, an enormous opportunity to save several lives may just have slipped away. ■

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