Autopsy and medical education

Necrópsia e educação médica

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ABSTRACT

In recent decades, there has been a increasingly worldwide fall in non-forensic autopsy rates. This is due, among other factors, to the overconfidence of modern physicians. In fact, having access to cutting-edge diagnostic technologies, they are inclined to consider themselves immune to error. Nevertheless, contrary to expectations, the incidence of diagnostic errors uncovered by autopsy remains quite significant, particularly regarding the elderly and critically ill patients. As a consequence of the dramatic fall in autopsy rates, Clinicopathological Conferences, a seminal tool for medical education, face extinction. Taking into account the extraordinary heuristic value of autopsy-based anatomoclinical exercises, the author advocates the revitalization of this traditional practice in medical schools.

Key words: Autopsy; Cadaver; Medical Education; Evaluation Studies as Topic.

RESUMO

Desde os anos 1970, assiste-se, em todo o mundo, a uma progressiva queda no número de necrópsias em casos de morte decorrente de causas naturais. Atribui-se esse fato, entre outras razões, ao excesso de confiança por parte de muitos dos médicos contemporâneos que, por disporem de refinados métodos de diagnóstico, julgam-se imunes ao erro. No entanto, contrariando as expectativas, a incidência de erros detectados pelas necrópsias permanece elevada, particularmente em se tratando de pacientes idosos e/ou daqueles atendidos em estado crítico. Como consequência da queda do número de necrópsias, os tradicionais exercícios de correlação anatomoclínica desenvolvidos a partir do exame do cadáver estão ameaçados de extinção, com indiscutível prejuízo para a formação das novas gerações de médicos. Na condição de coordenador, desde 1995, das Sessões Anatomoclínicas do Hospital das Clínicas da UFMG, o autor advoga a reincorporação dessa atividade ao currículo das escolas médicas, sob pena de se perder um até hoje insuperável recurso pedagógico.

Palavras-chave: *Autopsia; Cadáver; Educação Médica; Estudos de Avaliação como Assunto.*

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"Education is a matter of lighting fires, not filling buckets."
William Butler Yeats (1865-1939).

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The detailed corpse examination performed to clarify death causes can be designated in Portuguese in nine different words: necrópsia, necropsia, necropse, autópsia, autopsia, autopse, autoscópia, autoscopia e necroscopia. The most usual words are autópsia, autopsia, necrópsia, necropsia -, which are still the source of controversies

about their prosody according to Professor Joffre Marcondes de Rezende in his book "Medical Language".[1]

> *The divergence of the prosody is in the "ia" suffix, coming from Greek or maybe Latin. In the first hypothesis, the vowel "i" is tonic and in the second one, is atonic. Many Portuguese words follow the Greek prosody while others follow the Latin prosody. […] Thus, it is clear that if we choose "autópsia" as the correct prosody variable, coherently we should choose "necrópsia" instead of necropsia (ía).*

In the present essay, I chose the variant "necrópsia", in its proparoxytone form, because of personal reasons and taking into consideration how the word is, usually, pronounced in the colloquial language.

There are two different modalities for "necrópsia" which sometimes are inseparable and complementary: "necrópsia" in a medical-legal approach and "necrópsia" performed in cases of natural deaths.

Medical-legal "necrópsia" – that is, the medical-scientific word about the legal facts – is used to evaluate cases of proven or supposedly violent deaths – resulting from accidental trauma, homicide, or suicide -, cases of proven deaths or supposedly from exogenous intoxication, and cases of death caused by a supposedly medical mistake, especially if resulting from negligence or bad-faith. In response to the formal request of the competent authority, autopsy is performed by an official expert (coroner) or by a medical expert designated by the judge, constituting a legal imperative. Regarding this very important modality for the society – since practiced with the necessary rigor, not always happening in Brazil – it is worth to transcribe the touching testimony of Dr. João Henriques de Freitas Filho, Legal Medicine Professor at the Medical School from the Federal University of Minas Gerais (UFMG) in his booklet of limited circulation – Medical Legal Service Model –, published in 1967, by the UFMG press. To write it, the late professor was inspired by his visit to the respected Institute Medical-Legal in the circumscription of Cuyahoga (Cuyahoga County Coroner's Office), headquartered in Cleveland (Ohio) and captained by Dr. S.R. Gerber, a coroner elected by the community, a Doctor and Lawyer:

> *It is a mistake to think that Legal Medicine is easy because it deals with people who no longer complain: the corpse. […] However, we know that in reality the body has its language, although cold and stiff, immobile and insensible, indifferent from everything, as a person out and away from itself. The hardest promises, the most serious decisions, the deepest conscious examinations, are held after listening to the voice coming from the funerary. We are right, the corpse asks for, recommends, explains, accuses, and pleads.*

The "necrópsia" in natural death cases, generally restricted to academic institutions, aims at not only the identification of the cause of death but also the correlation with clinical data, observed *intra vitam*, with anatomopathological findings, macro and microscopic, observed *post mortem*. Therefore, in addition to be the quality control of the care provided to the patient, the autopsy is the basis of Anatomical and Clinical Sessions (Pathological-clinical Sessions), which were originated by Giovanni Battista Morgagni (1682-1771), "Father of Anatomical Pathology", author of the masterpiece **De sedibus et causis morborum per anatomen indagatis**, published in five volumes in 1761.[2] In North America, throughout the history of Medicine, two figures emerged with their own lights: Sir William Osler (1849-1919), a remarkable clinician, that before becoming a professor at the Johns Hopkins Medical School, accumulated an extraordinary experience based on meticulous analysis of 1,000 autopsies in Montreal and Philadelphia, and Richard Clarke Cabot (1868-1939), a doctor and humanist, founder of the Clinical-pathological Conferences (Case Records of the Massachusetts General Hospital), published since 1924 in the Boston Medical and Surgical Journal, which four years later, would be called The New England Journal of Medicine.[3]

It is worth noting that, before the autopsy in cases of death by natural causes, verbal acquiescence from the family or person responsible is not enough. Thus, after the detail and careful reading of the text explaining how the procedure is performed, it is essential to formalize acquiescence through the signing of an informed consent term. Before that, however, it is important to ensure that the person signing the document understood its contents. This care is of great importance in our environment due to the existence of a large number of "functional illiterates". In fact, according to a recent study – a quantitative cross-sectional study – this is how 46.6% of patients using the General Hospital out-patient clinic from the Medical School from the São Paulo University (USP) were classified.[4]

In recent years, with an unassailable technological advancement and refinement of diagnostic meth-

ods, a phenomenon that has been observed since 1970 was highlighted: caused by overconfidence, as if they were immune to mistakes, doctors began to relegate to a secondary plan, judging unnecessary the anatomoclinical correlation attempts based on the examination of corpses, which explains in part, the huge decline in the number of autopsies performed in cases of natural death.[5] Nevertheless, contrary to the expectations, the incidence of mistakes detected by this procedure remains high, in different contexts, even in first world countries.[6] By the way, in a thought provoking editorial, Dr. George D. Lundberg proposes a lucid explanation for the fact:[7]

> *In fact, there is still a giant gap between what high-tech diagnostic medicine can do in theory in ideal circumstances (very much, very well) and what high-tech diagnostic medicine does do in practice in real-life circumstances (not nearly so well), when human beings have to decide what, where, when, how, and why to use it. The gap becomes especially obvious when one looks at patients sick unto death.*

To explain what is stated in the previous statement – regardless of its limitations admitted by the authors – a study conducted at the InCor-USP, the reference hospital in Cardiology, deserves to be registered due to the analysis of 406 consecutive autopsies: the correlation between the clinical diagnostics and autopsy was positive in 71.1% of cases of acute myocardial infarction, 75% of cases of aortic dissection, 73.1% of cases of infective endocarditis, and in only 35.2% of cases of pulmonary thromboembolism.[8]

It is important to note that the impressive decrease in the number of autopsies observed in the recent decades in cases of natural death is not due to the overconfidence of clinicians but to a set of factors such as:

- the lack of adequate infrastructure, and in a time marked by sub-specialization, of qualified pathologists, able to think, before the corpse, in a global or clinic integrated way;
- the poor availability, motivated by the excess of tasks including administrative duties, of many of best-qualified pathologists;
- the lack of fair remuneration, since this represents working in hard and unhealthy procedures;
- the family refusal to authorize the procedure, based on the argument that the patient "has already suffered enough" and/or based on the fear of corpse mutilation. This refusal could be managed with adequate information such as proposal of partial autopsy, proposal of "virtual autopsy", (based on imaging methods such as computerized tomography and magnetic resonance),[9-12] proposal of "minimally invasive" autopsy (based on different association of imaging methods with punched-needle biopsies, and *post mortem* endoscopies, laparoscopies, and thoracoscopies)[13,14] and even in the conventional autopsy, by the proposal of incisions that better preserve the corpse's appearance after the procedure;[15]
- the pressure of unscrupulous funeral agents;
- the delay on the release of the final report, available only after the histopathological study;
- the clinicians' fear about their reputation and/or risks of being prosecuted in court when detecting some significant mistake that could be both a wrong diagnosis or omission of an important diagnosis.

Regarding the last topic, I think, based on an old Latin maxim – *Errando corrigitur error* – , that the detection of possible mistaken diagnosis during autopsy – fact observed, especially on fetuses, neonates, elderly, and immune-deficient and patients in critical condition – should not be discouraging to its practice, but just the opposite. Such mistakes come from several factors – some manageable, others not –, deserving to be analyzed case-by-case. Among such factors there is rush, fatigue, lack of restful sleep, hurry, inattention, negligence, malpractice, recklessness, bad-faith, lack of logistical support, precarious infrastructure, and last but not least called "cognitive shortcuts", represented by the availability of heuristic by the anchoring heuristic, by the framing effect, by a blind obedience, and premature closure.[16] In addition of being doctors, we are also human beings at the mercy of the deceitful character of appearances, according to the instigating formulation from the Greek stoic philosopher Epictetus (55 A.C.-135 A.C.) that although he did not leave in writing, his teachings were noted by his disciple Arrian:[17]

> *Appearances to the mind are of four kinds. Things either are what they appear to be; or they neither are nor appear to be; or they are and do not appear to be; or they are not, and yet appear to be. Rightly to aim, in all these cases, is the wise's man task.*

Traditionally, as big mistakes were brought into light, the exercises of anatomo-clinical correlation

based on autopsies used to represent, in the memoirist words of Pedro Nava, the "failure" of the clinic and the "triumph" of the pathologist.[18] I think, this should not be the state of mind of those, like me, who defend the primacy and extraordinary pedagogical value of such exercises, even because the pathologist is not immune to mistakes, for the simple reason of not dealing with pure facts of nature, concrete and objective "facts", but with findings that require interpretation that depends on the look of the examiner, contrary to what we can assume. Therefore, I think, without losing sight of the importance of the product – that is, the final anatomopathological report – the process has to be prioritized, represented by the refinement of the clinical reasoning, through the exchange of experiences, and matured reflection, with a critically sharp state of mind and cultivation of systematic doubt, ensuring that Nature does not give up its secrets easily, subtly, and capriciously. As Guimarães Rosa, in Grande Sertão: Veredas, I think that it is better to focus on the "crossing", rather than being "entertained with the idea of the places of departure and arrival."[19] By the way, it is worth reproducing here the words of the pathologist Nancy Lee Harris, editor since 2/14/2002 of the Clinical-pathological Conferences (Case Records of the Massachusetts General Hospital).[20]

> *In the traditional CPC format, the pathologist was all too often seen as an adversary to the clinical discussant, pulling a diagnostic rabbit (or zebra) out of a hat at the end of the conference. In the new format, the pathologists will appear in what is actually their more typical role: that of helping clinicians with diagnosis and management of disorders.*

An important aspect, especially during the autopsy in cases of natural death, concerns the filling of the Death Declaration by the responsible pathologist at the end of the procedure, reason for the following comments.

In 2006, the Death Declaration booklet was published: a necessary and important document under the responsibility of the Ministry of Health (MH), Federal Council of Medicine (FCM), and the Brazilian Center of Diseases Classification (BCDC). In 2007, the second edition was published, with the printing of 400 thousand copies. In the presentation of the booklet, there are two compelling statements: "The declaration of death is a voice that transcends the finitude of the human being and allows life, retracted in its last moments, to continuing to serve life". […] "Its correct filling by doctors, is, therefore, an ethical imperative".

I underwrite, *ipsis litteris*, these statements, even because, aware of my limitations, I always searched, with the highest level of responsibility, to fill out the Death Declaration correctly, respecting, as far as possible, the physico-pathological sequence proposed: immediate cause - intermediate causes - basic cause of death (part I); other significant pathological conditions that contributed to the death, however, not being related to the pathological state that produced it (part II). However, I do have restrictions on the booklet – particularly with regard to cases of death by natural causes –, based on the experience of over 40 years dedicated to anatomoclinical correlation exercises, when I increasingly learned to feed my doubts. This is because the booklet edited by MH, FCM, and BCDC only admits the "not known" – and therefore, the use of the term "unknown cause of death" – in locations without Verification Service of Deaths (VSD) and, also, in very specific circumstances such as: when death occurred in an ambulance without a doctor; when cardiac arrest occurred shortly after the arrival at the emergency room; when the doctor, as the only professional in the city, did not provide assistance to the patient; and, finally, in the event of death on the way, during hospital, clinic, or outpatient clinic transfers. In places with VSD, it is assumed that all doubts would dissipate after the examination of the corpse.

Therefore, it is clear that the "not known" is not admitted in cases when even after assisting the patient the doctor did not conclude about the cause of death, either by completely ignoring it or by having doubts about his judgments – a common situation in the everyday practice, even in the self-labeled "reference centers". Furthermore, the "not known" is not admitted after performing the autopsy on the VSD, as if the simple macroscopic assessment – based on which the Death Declaration is filled in most of the cases – was enough to close the case.

As already mentioned, in cases of supposedly natural death, with or without medical assistance, an autopsy can be performed only upon written authorization – signature of a free informed consent term – of the person in charge or family member. Ideally, the procedure should be performed in universities, by notorious professionals. But, even in authorized autopsies, there are usually serious doubts – especially in the absence of reliable clinical reports – when the Death Declaration is based on the macroscopic exam, when doubts in most cases – but not always! – are resolved through a histopathological study,

whose results only become available a few weeks after the corpse's examination. To show the importance of microscopy in the reformulation of macroscopic diagnoses, it is important to mention a study conducted at the Department of Pathology at the Medical School from USP based on 371 autopsies. Despite the limitations of this study recognized by the authors, discrepancies between macroscopic and microscopic evaluations were identified in the order of 38.7%, 35.1%, and 30.3% in lungs, liver, and kidneys, respectively.[21] It is clear, when possible, that microscopic exams by freezing during the unfolding of the autopsy could at least, in certain cases, provide precious elements to improve the quality of the Death Declaration.

I support the point of view that, the doctor, even in cases where an autopsy was performed, should be given the opportunity to express that he does not know, referring to the unknown cause of death or, preferably, undetermined when he is not sure of the diagnosis or has doubts about his diagnosis. The fact of allowing the expression of not knowing only under the circumstances specified in the official document, once again evokes the words of Guimarães Rosa in Grande Sertão: Veredas: "In real life, things end up with less format, not ending";[22] or those words from William James (1842-1910) inserted, by an epigraph, in the book How doctors think, by Prof. Jerome Groopman, from the Medical School at Harvard University: "we got the order leaving out the disordered part",[23] or, finally, those from Dr. Danielle Ofri, in the section On being a doctor, at the Annals of Internal Medicine journal, when referring to the "illusion of omniscience": "The illusion of omniscience we blithely promised by my residency training is easily deflated by the unadorned actualities of life".[24]

Regarding the filling of the Death Declaration – the most difficult tasks, except cases of "book figure" referred in the official document –, it should be noted that there are cases where, even during the autopsy, no microscopic changes that allow the identification of the cause of death are detected to the point of configuring a "white autopsy". This is the case, for example, of the sudden death of apparently healthy young people, without any morbid antecedents, affected by the Brugada syndrome, a heterogeneous genetic disturbance included among the channelopathies (diseases of ion channels), characterized, from the electrocardiographic point of view, as the finding of a right branch blocked morphology in the His bundle associated with supraunevenness of the ST in the right precordial derivations (V1 to V3). In the absence of prior electrocardiographic records, the diagnosis of this disease, of great importance even *post mortem* because of its familial character, would only be possible through the called "molecular autopsy" based on the identification of genetic mutations that characterize the disease – such as mutations in the SCN5A gene, which encodes a sodium channel subunit – whose presence promotes the emergence of fatal arrhythmias, often during sleep.[25]

At the UFMG Medical School, autopsies have been performed in a more or less systematic way for over 90 years, however, in the recent years and following a global trend, the number of autopsies has fallen dramatically, despite the efforts of a few professors committed to reverse this alarming situation. Nevertheless, it is important to highlight two notable pathologists who, throughout the history of the institution, have passionately dedicated themselves to promote the anatomoclinical correlation exercise from corpse's examination: Professor Carlos Pinheiro Chagas and in particular, Professor Luigi Bogliolo.

Carlos Pinheiro Chagas (1887-1932), second grade cousin of Carlos Ribeiro Justiniano das Chagas - the discoverer of the human trypanosomiasis cruzi -, assumed the Chair of Pathological Anatomy at the Medical School from UFMG (then UMG) in the early 1920, shortly after his return from a two-year internship at the Johns Hopkins University under the supervision of Florence Sabin (Histology) and the famous pathologist William Mac Callum (Anatomical Pathology) who created the description of alterations of the atrial endocardium in rheumatic heart disease – the "endocardial mural plaques of Mac Callum". Because he died young, at the age of 45 years old from an acute appendicitis, and the fact that he has been dedicated in the last years of his short life to a political career and administrative activities, the "Carleto", as he was intimately known, deprived his disciples of his memorable lessons about the dead body, marked not only by a robust understanding of the matter, but also by proverbial oratory.

Disciple of the Giovanni Battista Morgagni School and professor at the Universities of Sassari (his homeland), Bari, and Pisa, the Italian pathologist Luigi Bogliolo (1908-1981) was forced at 31 years old to immigrate to Brazil because of his antifascist position and for having married a medical student of Jewish origin, landing in Rio de Janeiro on January 5, 1940. In the capital of the Republic, after facing serious difficulties, he led the Pathological Anatomy Service of the 5th Chair of Clinical Medicine from the National Medical School (current

Medical School from the Federal University of Rio de Janeiro) from January 1941, directed by the notorious clinician Hector Annes Dias known as, "Jiménez Díaz brasileiro". There, together with Professor Annes D*ías*, Bogliolo gave great impetus to the Anatomical and Clinical Sessions. The autopsies of the cases presented in these sessions were conducted by him, inspired by the memorable lessons of his master Enrico Emilio Franco (1881-1950), an Italian Jewish descent graduated from the University of Padua. Once the clinical presentation was explored, diagnostic hypotheses formulated, and the possible reasons of death discussed, it was up to him, at the end of the sessions, to present the anatomopathological report and, more than that, operate the great synthesis – the epicrisis – by correlating the *post mortem* findings with those observed *intra vitam*. With the early death of Annes Dias in November 1943, Bogliolo was invited by his compatriot Alfredo Balena, Director of the Medical School from the University of Minas Gerais (today Medical School from UFMG), to occupy the Chair of Pathological Anatomy in the institution that Balena had helped founding in 1911. In his new home, from 1944, he continued to favor the anatomical and clinical Sessions until his mandatory retirement in 1978; to reach his goal, he counted with the effective collaboration of his assistants, particularly Edmund Chapadeiro, Iracema Baccarini, Washington Luiz Tafuri, Pedro Raso, Pérsio Godoy, Alberto Nicolau Raick, Romeu Cardoso Guimarães, José Eymard Man Pittella, and Alfredo José Afonso Barbosa. In the autopsy room – considered by him as a sort of "sacred temple," – Bogliolo demanded absolute respect to the corpse, as if he incorporated the message contained in the famous Latin maximum – *Taceant colloquia. Effugiat risus. Hic locus est ubi mors gaudet succurrĕre vitae* – according to which, in an environment where death rejoices in helping life, the end of every conversation and the waiving of laughter is imposed. To portray the austere stance of Bogliolo during corpse examinations, it is worth reproducing the statement from the late psychiatrist Joaquim Affonso Moretzsohn, contained in his book **Mineiros medical writers**.[26]

> *I met Professor Bogliolo. He debuted with my class in the 4th medical grade, in 1944. "What? Do you want to smell roses?" – he exclaimed, with a heavy peninsular accent, realizing that I had a handkerchief in my nose in the autopsy room.*

During the medical school years, invited by Professor Bogliolo, I was an assistant trainee in the Department of Pathology and Anatomy and Legal Medicine at the Medical School from UFMG, headed by the unforgettable master, and, after graduating, as a teaching assistant for four years in this department. I had the opportunity to perform many autopsies during this period consolidating my belief in the priceless value of the pedagogical exercises of anatomo-clinical correlation. Since May of 1995, as Professor of Clinical Medicine, I assumed the coordination of the Anatomical and Clinical Sessions of the General Hospital from UFMG, attended by undergraduate students, medical residents, teachers of the institution, and other interested people. Between May of 1995 and November of 2013, I coordinated in person 226 Anatomical and Clinical Sessions (190 based on autopsy and 36 based on biopsy/surgical parts). We discussed a case of mucopolissacaridose type II (Hunter syndrome) on the 116th session, marked by respiratory failure and significant cardiac involvement, with the finding of a left ventricular apical aneurysm very similar to the vorticilar lesion in chronic chagasic cardiopathy considered pathognomonic of this condition by many; with the invitation of the editor of the Anatomical Clinical Correlation Section of the Brazilian Cardiology Archives, Dr. Alfredo José Mansur, this case was published in the July of 2006 in that said journal.[27] In the 215th session, we discussed a case of shock resulting from bulky pheochromocytoma necro-hemorrhagic clinically unsuspected; this case was published online in 2012, in the Autopsy and Case Reports journal.[28] The Brazilian Cardiology Archives journal, founded in 1948, maintains the Anatomo-clinical Correlation section for many years based on the meticulous analysis of autopsy cases. The Autopsy and Reports Case journal is an electronic journal, with open access, published quarterly, since March of 2011, by the University Hospital from USP with the intent to focus on case reports, with an emphasis on autopsies. As a member of the Publication Committee of this electronic magazine, I wrote in 2013, a statement in the form of an editorial, about my visceral connection with the Anatomical and Clinical Sessions.[29]

In 1992, I published the book "Life and work of Luigi Bogliolo",[30] dedicated to the memory of the late master and, in 2010, the book Anatomical and Clinical Sessions: pedagogical value *lato sensu*.[31] In this work, prefaced by Dr. Alfredo José Mansur, Director of outpatient General Clinic Unit of the InCor-USP, I sought to stimulate the dialogue with other subjects - such as Biology, Medical Education, Public Health, Legal Medicine, Psychology, Medical History, and

even Literature –, reason of the *lato sensu* expression included in the title.

Since April of 2007, along with Professor Geraldo Brasileiro Filho, current editor of the book Bogliolo: Pathology, I have actively participated in interactive sessions of Telepathology – 42 sessions until October of 2013 – characterized by real time videoconferences of autopsies performed in the Verification Service of Deaths from the USP Medical School. These sessions were introduced in our environment thanks to the foresight of people like professors György Miklós Böhm and Chao Lung Wen, and are an important modality of e-learning distance education providing, not only to undergraduate students, but also to doctors, an excellent opportunity for refinement in clinical reasoning from the confrontation of the findings observed *intra vitam* with those identified *post mortem*.[32] Recently, since September of 2012, invited by Dr. Fernando Peixoto Ferraz de Campos and Professor Maria Cláudia Nogueira Zerbini, editors of the **Autopsy and Case Reports** journal, I have actively participated with UFMG professors – including Professor Geraldo Brasileiro Filho - and USP, in interactive meetings, also transmitted by videoconference to discuss cases of autopsies performed at the University Hospital from USP (11 meetings until November 2013).

In conclusion, I think that in a time when the number of autopsies, for several reasons, decreased dramatically throughout the world, including in Brazil; in a time when, in many universities in Brazil, the Anatomical Pathology discipline has been relegated to a secondary plan, even in the understanding of some experts in medical education, this discipline should only be of interest to future pathologists; and, as a consequence of the first two premises, in a time when anatomo-clinical correlation exercises based on autopsies are on extinction, it is important to those who firmly believe, like me, in the priceless value of this academic activity, to create the conditions for not letting it die of inanition, with unquestionable harm to the training of new generations of doctors, deprived of living with the uncertainties involved in the profession they elected.[33] In addition, under certain circumstances - and as paradoxical as this may sound–, this harm may extend to the bereaved families, to the extent that the ignorance about the reasons for the death of their loved ones can hinder the acceptance of their loss and the assimilation of their absence, while the knowledge of those reasons could exert opposite effects. By the way, it was not without reasons that, in an article about the reaction from bereaved families to the autopsy report, the authors, led by Professor Stephen J. McPhee, one of the editors of the Current Medical Diagnosis &Treatment – currently in its 53rd edition –shortly included in the epigraph an evocative fragment of the Old Testament extracted from the Book of Hosea (13:14): "[…] ransom them from the power of the grave; […] redeem them from death […] ".[34]

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