Editorial

'Living in the clouds of a vain illusion': The decline and fall of clinical autopsies

Autos is Greek for *oneself* and *opsis* refers to the act of viewing; combined into *autopsy*, the word refers to the act of seeing for oneself.[1,2]

Historically, autopsies have been crucial to our understanding of the natural history of disease and the efficacy of our attempts to treat them. They have also humbled us by showing our shortcomings and errors. Campos and Rocha have reviewed autopsies over the past 4000 years and have highlighted their pedagogical value.[3]

In the era preceding Roentgen, autopsies were an unparalleled means for learning pathology. Works of great masters such as Giovanni Battista Morgagni (1682–1771) and Rudolph Virchow (1821–1902) were based on meticulous autopsies; Virchow added the use of the microscope. Carl Rokitansky (1804–78), working at the Allgemeine Krankenhaus in Vienna, performed 30 000 autopsies personally and supervised many more, making his institute one of the most respected training centres in pathology in Europe.[1,2]

The names of two early clinicians, who used autopsies to understand disease, come to mind. Pierre Charles Alexandre Louis (1787–1872) studied enteric fevers and distinguished typhoid from other causes of fevers. He correlated the intestinal lesions termed Peyer's patches (after Johann Conrad Peyer [1653–1712] who had described them in the 1670s) with typhoid and used medical statistics to lay the foundation of what we now term evidence-based medicine.[4]

The surviving volumes of autopsy notes by William Osler at McGill University, the Montreal General Hospital and Philadelphia General Hospital, stand witness to his enthusiasm and competence in extracting the last bit of information from his subjects. His genius lay in correlating autopsy findings with clinical features to build unforgettable descriptions of several diseases. The lessons learnt in the autopsy room were disseminated to his students at dissections, through papers, books and at meetings.[5]

Autopsies in India: A vital source of knowledge on local diseases

One of the great names in this field is Dr Charles Morehead, first Principal of the Grant Medical College and Sir Jamsetjee Jejeebhoy Group of Hospitals in Bombay (GMC/JJ) in 1845. His classic work, *Clinical researches on disease in India,* is full of descriptions of the natural history of disease learnt at autopsy.[6]

Autopsies in medical colleges have resulted in a body of useful knowledge on diseases peculiar to India—information that would otherwise have been impossible to obtain. Prominent among the institutions are the Post Graduate Institute of Medical Education and Research (Chandigarh), Seth Gordhandas Sunderdas Medical College and King Edward Memorial Hospital (KEM), Mumbai and GMC/JJ. The group at KEM (Drs Homi Dastur, Anil D. Desai and E.P. Bharucha, Dr D.H. Deshpande), their residents, and staff members of the department of radiology benefited immensely from the brain-cutting sessions held weekly in the neuropathology department. The autopsy rate in these departments was close to 90%. Dr Suman Kinare, the cardiovascular pathologist, also published the monograph entitled *Non-specific aorto-arteritis (Takayasu disease): Pathology and radiology*.[7] The group at GMC/JJ also performed autopsies and published on a variety of regionally important diseases such as tuberculomas of the central nervous system, and craniovertebral anomalies and the changes in the medullospinal region from chronic compression and sudden decompression.[8,9]

More recently, we have two neuropathologists—the late Dr Darab Dastur of GMC/JJ in Bombay (now Mumbai) and Dr S.K. Shankar of the National Institute of Mental Health

TABLE I. The number of clinical autopsies performed in some Indian institutions in three selected years

Institution	1990	2000	2014
Grant Medical College/J.J. Hospital, Mumbai	900	267	83
Armed Forces Medical College, Pune	23	38	10
National Institute of Mental Health and Neuro Sciences, Bengaluru	91	89	26
All India Institute of Medical Sciences, New Delhi*	82	31	6
King Edward Memorial Hospital, Mumbai	2039	1026	294

* Data from Annual Reports

and Neuro Sciences (NIMHANS), Bengaluru—who published important papers based on autopsy findings.[8–10] Dr Shankar has the distinction of setting up the first brain bank in India, which has been possible only because of his recognition of the immense value of autopsies, the cooperation of his clinical colleagues and the kindness of the relatives of deceased patients.[11]

The decline in autopsies and fallacies in the oft-repeated reasons for this decline

Over the past few decades we have witnessed a progressive fall in autopsies done in teaching hospitals in the public sector. The statistics for five Indian institutions in four different cities illustrate this decline (Table I).

The principal explanation offered is that the advent of still and video photography in colour through endoscopes, increasingly high resolution and progressively vivid imaging techniques in the form of computerized tomography and magnetic resonance imaging and the use of 'virtual autopsy' have rendered conventional autopsies redundant. No imaging technique can ever afford the information obtained by gross and microscopic examination of the tissue. There have been errors since scans, even those of the highest resolution, remain a study of shadows and reconstructions. Over-reliance on some of the new diagnostic procedures has missed major diagnoses.[12] This should not surprise us: if imaging, endoscopy and superior technology were foolproof, histopathology would have been relegated to the history books by now. Given that histopathology regularly turns up surprise diagnoses, why should we expect anything different in autopsy pathology?

Campos and Rocha's statement rings true today as it did in the days of Morgagni: 'Today, when autopsies have been inappropriately relegated to a secondary role in medical practice, Morgagni's comment is even more valid: "Physicians who have done or seen many autopsies have learned at least to mistrust their diagnosis; the others who don't confront themselves with the often discouraging findings of autopsies, live in the clouds of a vain illusion".'[3]

The fear of litigation has also been offered as a reason for this decline. The court of last appeal has always been the study of morbid anatomy at autopsy. This is true when we, as physicians, attempt to learn and when the judge in the court of law considers the pros and cons of an accusation against the treating physician. There is evidence that defendant physicians have usually been exonerated by autopsy findings.[13]

Another reason offered is that the modern pathologist is hard pressed for time. This is an insult to their forebears. Lacking the many facilities that exist today, they faced much greater demands on their time. Their dedication and hard work have provided us the pathological legacies we take for granted.

It is not correct to assume that the families of deceased patients are unwilling for autopsies. Those who have witnessed dedicated care of their loved ones throughout their final illnesses and have been made to understand the rationale for the final investigation of the corpse by the treating physician are usually sympathetic. It is only when the request for autopsy is made by unskilled junior residents without emotion or feeling, and in a cursory manner, that rejections are likely. Dr Shankar's experience in collecting brains for his bank is proof positive of the goodwill that families have and their interest in furthering science, 'as long as it is being done with the sole purpose of alleviating human suffering'.[11]

Unwelcome consequences in the decline in autopsies

The decline in autopsies is depriving us of an important corrective. Studies have shown that over the decades, the rate of missed diagnosis remains significantly high, at about 20%. This striking figure underscores the need for autopsies.[12,14]

As Geller highlights, 'gross pathology' and autopsies are dying arts. Skills in obtaining crucial data at autopsy are atrophying. Worse, those training in pathology increasingly

consider that 'autopsies are not that important'. Geller also describes the apathy that has set in where pathologists perform selective or incomplete organ dissection and have a lackadaisical approach to the field.[15] These experiences are typical of most pathology departments in India.

Besides contributing to our understanding of disease processes, autopsies have also helped in the evaluation of diagnostic, imaging and surgical procedures as well as in genetic counselling.[1] The decline in the autopsy rate also means lesser amount of tissue available for research in cardiac disease and in brain pathology, as these tissues can only be available at autopsy. Similarly, the opportunity to investigate an emerging infectious disease of zoonotic origin, such as a Nipah virus disease outbreak in Siliguri, has been squandered in the recent past.[16]

In India, declining autopsies mean missing out on a chance to benefit from 'warm' autopsies or rapid autopsies. Warm autopsies are autopsies performed within three hours of death, usually in patients with cancer, so as to procure abundant fresh tissue in order to advance our knowledge of the history, biology and morphology of treatment-resistant cancers. Carcinomas of the breast, prostate, kidney and pancreas are some of the cancers studied.[17] This process will certainly be applied in the future for non-neoplastic diseases. Will India be a part of this initiative?

What should be done?

The steady decline and consequent death of the autopsy has been predicted over the past four decades and there have been many passionate pleas for its revival but, as is obvious, with little success.[18,19] Why should there be a decline, despite so many physicians and pathologists agreeing, on paper, at least, about the importance of the autopsy?

It is important for clinicians and pathologists to reawaken interest in the study of disease in the autopsy room. The model followed in brain-cutting sessions described above needs to be revived and implemented with enthusiasm, not as a chore but as a crucial means to learning. Hospital administrators must be sensitized and educated about the long-term benefits to society. It is unlikely, for multiple reasons, economics being prime among them, that private hospitals will push for autopsies. This drive to revive the autopsy needs to come from teaching institutions, and include curricular modifications. The professional associations such as the Indian Association of Pathologists and Microbiologists and the Indian College of Pathologists as well as the regulatory bodies such as the National Accreditation Board for Laboratories and the National Accreditation Board for Hospitals, as well as the Medical Council of India must consider making autopsy an important or even a compulsory quality indicator or benchmark in their assessment of hospitals.

Pathologists are equally responsible for the current state of affairs. Their lack of interest in autopsies coupled with the delayed final autopsy reports result in physician disinterest in requesting for an autopsy. It has been shown that specific interventions such as rapid communication of autopsy findings to clinicians, better communication with relatives and effective organization of autopsy services lead to an increase in the autopsy rate and a consequent decrease after the intervention was discontinued.[20] Physicians and hospital administrators must show empathy with the relatives of recently deceased. Often, it is our insensitivity towards relatives and various bureaucratic procedures, including inordinate delay in returning the body, which deter relatives from agreeing to an autopsy. Sadly, it is also true that family members of the deceased are harassed by autopsy room attendants for bribes to speed up procedures. Not only is this unethical and illegal but it exposes the brutal and callous nature of these dehumanized people dealing with vulnerable individuals. No wonder, few have kind words for events surrounding autopsies.

Zampieri *et al*. have advocated the revival of the clinicopathological conference (CPC), where autopsy findings feature prominently, to refocus attention.[21] One major reason for eagerly awaiting each new issue of the *New England Journal of Medicine* has been the CPC from which the neophyte and veteran physician alike learn a lot.

It is not yet too late provided we act with alacrity.

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