

REVIEW ARTICLE

TRAINING IN FORENSIC HISTOPATHOLOGY-SIGNIFICANCE IN POSTGRADUATE CURRICULUM OF FORENSIC MEDICINE

Padmini Hannah Noone¹

HOW TO CITE THIS ARTICLE:

Padmini Hannah Noone. "Training in Forensic Histopathology-Significance in Postgraduate Curriculum of Forensic Medicine". Journal of Evidence Based Medicine and Health Care; Volume 1, Issue 7, September 2014; Page: 595-598.

ABSTRACT: Forensic medicine is a vast subject. Forensic histopathology is a part of it which lies between pathology and forensic medicine. There is a disparity in the training of forensic histopathology provided globally in the postgraduate curricula. While some countries provide years of training some give a few months to train the same. Adequate training would be beneficial to medico legal practitioners and it helps to use histopathology wisely. My perspective in developing histopathology in the department of forensic medicine in the backdrop of experience of previous researchers is being discussed.

KEYWORDS: Forensic histopathology, Curriculum, Post graduation, Medico legal Practitioner, Autopsy, Forensic medicine.

INTRODUCTION: Forensic histopathology is the application of histological techniques and examination of forensic pathology practice.¹ In some countries, it is a part of forensic medicine, which is taken as a post-graduation directly after the bachelor degree and internship.

Based on their practical experiences, different autopsy practitioners have a different perspective as to the significance of histopathology. According to studies by Molina A et al,² Pathaket al,³ routine histopathology is not necessary in medico legal practice. According to LauGH,¹ Dye DW,⁴ Lochmuller CM⁵ and many others routine use of histopathology is advocated in autopsy practice.

Byard and Winskog discussed whether it is required or redundant. Standard English textbooks do not give consistent recommendations. While Gradwohl's text book is equivocal, The Pathology of Homicide advocates microscopy of pertinent lesions and vital organs. Spitz and Fisher's Medico legal Investigation of Death has an entire chapter on microscopic forensic pathology that encourages histological examination. Wiley's Encyclopaedia of Forensic Science maintains complete histopathologic examination of all organs is necessary at autopsy and Prahlow's Forensic Pathology indicates that some cases always require microscopy.⁶

Hospital autopsy and medico legal autopsy: The objectives are different in hospital autopsy and medico legal autopsy. Where Histopathology is a routine in hospital autopsies, it is not so in medico legal autopsies.

According to some, routine histopathology is not necessary in medico legal practice as it does not significantly modify the cause of death.^{2,3} Hence, based on the type of case, a discretion can be made on the same. In my experience, there have been instances in which myocarditis was found in cases of found dead and it would have been missed if histopathology had not been done.

REVIEW ARTICLE

So, in cases of sudden deaths, sports related deaths, deaths due to chronic drug or alcohol abuse, delayed deaths after hypoxic brain damage, epileptic deaths, and arrhythmias, histopathologic examination is helpful. In cases like myocardial infarction (>6 hours), cerebral haemorrhage, the abnormal lesion is often grossly visible, histopathology helps to increase the precision of the cause of death.

In certain complex situations, there may be a combination of trauma and natural disease, which may or may not be the cause of death. It may lead to reduced survival or may even predispose to trauma. In some situations, trauma aggravates the natural disease and the individual succumbs to the same. In such a situation due importance should be given to the trigger which stands out as the cause of death. In such situations histopathology can be used as an ancillary investigation.

Positive aspects of histopathology: The reasons for recommending routine use of histopathology are as follows. It may significantly affect the cause of death.⁴ It has the ability to hone the slide viewing skills of the forensic pathologist.¹ Yet another reason is that routine histopathologic examination has benefits beyond determining cause of death like being a form of documentation, perception of thoroughness in court, training of residents to see abundance of normal histology and examples of medical disease.⁵

Histology was regarded as in some way contributory (providing, altering or confirming a cause of death) 53% of the time according to an audit by Langlois NE.⁷ In most of the situations the findings at a cellular level gives a clearer dimension to the problem at large.

These are in relation to definitive pathological diagnosis, confirmation of equivocal and occult pathology, serving as a form of permanent record, and providing invaluable material for education and research.³ In short, it improves the quality of the opinion. Also, there is the slide which remains as a solid proof of the findings. Using the slides for academic purpose and training of undergraduates and postgraduates is essential as they understand the basics of histopathology and also the findings they expect to find in a particular case.

Difficulties in practice: It is equally important to keep in mind the other side of the coin. Many a times what we assume at the gross organ level may not corroborate in histopathology. In such a situation, how much importance should be given to the histopathology findings? Is it correct to oversee the autopsy findings and give an opinion based on histopathology findings alone? Here it is important to know the factors which cause such a difference and these are:

- 1) The site of sampling may not be appropriate.
- 2) The slide may have artefacts during collection, preparation.
- 3) The experience of the person who is reading the slide.
- 4) Autolysis.
- 5) Training in forensic histopathology.

It is also a possibility that neither the forensic medicine practitioner, nor the pathologist may have exhaustive training in forensic histopathology. This was based on a study of microscopic diagnostic consistency in forensic pathology between different laboratories.

REVIEW ARTICLE

The reasons may be that few pathologists are interested in forensic pathology, and also there is less quantum of load of autopsy slides as compared to clinical slides for the pathologist. Lack of formal training and knowledge in microscopic pathology may be a problem for the forensic medicine practitioner. The solution for the same appears to be intense training for forensic medicine practitioners and increase in number of forensic pathologists dealing with forensic histopathology.⁸

Curriculum in different countries: In few countries forensic medicine is not a part of pathology. Here, the curriculum of Forensic Medicine gives knowledge of basic pathology and histopathology findings informally in few selected situations. This includes microscopic anatomy of different organs & tissues and microscopic appearances of vital organs and histopathology in cases of sudden death and other related diseases which can cause sudden death by complications.

They also have to know important staining techniques. For the training they are posted to pathology department for a few weeks.⁹ The curriculum in pathology in such places does not give much significance to forensic histopathology⁹ either and medical autopsy training for pathologists is not uniform.¹⁰ In contrast, in few other countries, the curriculum of forensic histopathology is highly detailed and in depth training is given for many years.^{11,12}

Confidence through training: Hence it may be concluded that hands on in depth training in forensic histopathology is desirable. This serves mainly the academic and research purpose. For the legal purpose it is often debatable whether the forensic medicine practitioner is the authority in histopathology. This debate exists in all areas of forensic medicine practice, including odontology, radiology, and anthropology to name a few. In such areas the forensic medicine practitioner is opining because of the confidence obtained through training. If it is possible to give similar training in histopathology as well, such hurdles may be overcome over time.

Also, it may be presumed that presently histopathology need not be depended upon giving the cause of death in all cases. It may be apt to say that using histopathology and depending on histopathology are different. We have to use it when needed. But keeping the opinion reserved pending histopathology report when the cause of death is obvious does not seem to be a correct approach since it delays the cause of justice.

Search for truth: The advantage of using histopathology is that it may help to give the whole truth or the reason behind the cause of death. Why did a person commit suicide, was it due to Intractable pain, or was a tumour altering his thinking? Why did a young person have a myocardial infarction? Why did an experienced surgeon traumatize a specific area and cause death of the individual? Answers as such help to give a third dimension to our subject and can provide relief to grieving or guilt of the living. Also, the scope of research in the less explored areas is immense and in future, may help to develop clarity in the many grey areas in the field of forensic medicine. Regular in depth training of postgraduates in forensic histopathology as part of their curriculum can help in this direction.

REVIEW ARTICLE

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

REFERENCES:

1. Lau G and Lai S H. Forensic histopathology. In: Tsokos M, editor. Forensic Pathology Reviews. New Jersey: Humana Press; 2008. Volume 5, p 240-264.
2. Molina D K, Wood, L E, Frost R E. Is Routine Histopathologic Examination Beneficial in All Medico legal Autopsies? Am Journal of Forensic Med Pathol 2007; 28 (1): 1-3.
3. Pathak A, Mangal HM, Histo-Pathology Examination in Medico-legal Autopsy Pros & Cons. J Indian Acad Forensic Med 2010; 32 (2): 128-131.
4. Dye DW, Peretti FJ and Kokes C P, Histologic Evidence of Repetitive Blunt Force Abdominal Trauma in Four Pediatric Fatalities. Journal of Forensic Sciences 2008; 53: 1430–1433.
5. Lochmuller CM. The importance of histological evaluation on death investigation two cases of fatal proximal airway masses, Am J Forensic Med Pathol 2011; 32 (3): 266-268.
6. Hunsaker J C. Histology in forensic practice. Forensic science, medicine and pathology 2012; 8 (1): 66-68.
7. Langlois N E. The use of histology in 638 coronial post-mortem examinations of adults: an audit Med Sci Law 2006 Oct; 46 (4): 310-20.
8. Akyildiz G U, Korkmaz G, E Albek. Institutional review of slides for forensic pathology, Types of inconsistencies. Am J Forensic Med Pathol 2010; 31(3): 222-226.
9. Regulations and curricula for post graduate degree and diploma course in medical sciences 2000. Rajiv Gandhi University of Health Sciences, Karnataka. 2000: p179.
10. Bhusnurmath SR, Bhusnurmath BS. How can the postgraduate training program in pathology departments in India be improved? Indian J Pathol Microbiol 2011; 54(3): 441-447.
11. The Royal College of Pathologists. Curriculum for specialty training in Forensic Histopathology 2012. London. p5-10.
12. The Royal College of Pathologists Australia. RCPA Trainee handbook- Forensic Pathology. 2014. Australia. p3-4.

AUTHORS:

1. Padmini Hannah Noone

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Forensic Medicine, Vydehi Institute of Medical Sciences and Research Centre, Bangalore.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Padmini Hannah Noone,
C-101, UKN esperanza,
Tumbarahalli, Bangalore-66.
E-mail: padmini.noone@gmail.com

Date of Submission: 27/07/2014.
Date of Peer Review: 28/07/2014.
Date of Acceptance: 08/08/2014.
Date of Publishing: 04/09/2014.