Practicing Subspecialty Histopathology in a Developing Country: Is it Feasible?

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The practice of histopathology is still in the early evolutionary phase in many developing countries including Pakistan. As depicted vividly by Zubair et al.[1] a vast preponderance of lesions which should be biopsied are actually never biopsied in this part of the world, and even many surgical specimens removed from the patient are not subjected to histopathological evaluation[1]. Worse even, if the biopsy material is sent to the laboratories, its complete histopathological evaluation is not done due to the non-availability of ancillary techniques, like immunohistochemistry (IHC), molecular techniques, and electron microscopy (EM) in the majority of laboratories. Only a few centers in Pakistan, mostly in the private sector, are doing meaningful histopathology practice[1]. In rest of the laboratories, the majority of which are in public sector institutions, the diagnosis is still rendered on simple haematoxylin and eosin (H&E) stained slides. Even special tinctorial stains, like Masson's trichrome and silver based stains are not available in these laboratories, or if available, the quality is suboptimal[2]. The concept and the practice of subspecialties in histopathology in Pakistan are also at primitive stage, to say the least, as in most other developing countries. Even the few centers of repute claiming to practice quality histopathology lack this luxury, which is the routine in developed countries[3-5]. Obviously, then the conditions will be even worse in the practice of subspecialty histopathology. Only a few centers practice subspecialty histopathology at par with the developed world[5].

Our department of histopathology at Sindh Institute of Urology and Transplantation (SIUT) can be considered one prototype par excellence in the subspecialties of nephropathology and uropathology. SIUT started as an eight-bed urology ward in the Civil Hospital, Karachi, Pakistan. With the sheer dedication, devotion and hard work of Prof. Adeebul Hassan Rizvi and his team, it has progressed from a small ward to its present status of a centre of excellence in kidney and urologic diseases in the region. In 1991, it was granted the status of an institute by an Act of the Provincial Assembly of Sindh and has become one of the leading nephro-urological and transplant centers in the world. Soon after inception of the institute, the nephrology and transplant activities blossomed along with urology, due to the quality and the free service and a need was felt of a full-fledged histopathology department for in-house diagnostic service. The latter was established in 1995 by the late Prof. Javed Kazi, who had vast experience and training in the field of histopathology and renal and transplant pathology. His PhD training involved working under Prof. Raja Sinniah at the National University of Singapore. He then spent four yours at Addenbrooke's Hospital, University of Cambridge, England, which was one of the biggest renal and liver transplant centers in England in those days. Immediately before taking charge of the department, he also spent six months with Prof. Peter Furness, at the University of Leicester for furtherance and updating of renal and transplant pathology experience. Indeed, Prof. Furness was very instrumental in helping establish

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the new department of histopathology at SIUT and especially in the establishment of the new EM unit. He was generous enough to spare one of his senior EM technologists to train our technicians in the processing and cutting of tissue specimens for ultra structural examination and to start the unit in SIUT. Thus, our histopathology department was geared from the beginning towards fully equipped nephropathology unit in the country with the equipment and expertise at par with any international nephropathology laboratory. This included the first fully functional EM diagnostic facility in the whole country.

Our department is equipped with state of the art equipment and all necessary facilities required for optimal evaluation of all biopsy material in general and the nephro-urology specialty, in particular. We also enjoy a very close liaison with our clinical colleagues, which is so important for the accurate diagnosis of pathological lesions in all the above subspecialties, particularly the practice of renal pathology. Our tumor pathology practice is also expanding rapidly and it may surpass many other centers because we provide all treatment free of cost.

Nowadays, the bulk of our work consists of native renal and renal allograft biopsies, urological specimens and gastroenterology specimens. The author of this editorial is a trainee of late Prof. Javed Kazi who joined the department in 1999 and also spent three months at Academic Medical Center, Amsterdam, Netherlands in the Department of Prof. Jan Weening, a world renowned renal pathologist.

Since our department is fully equipped with all the diagnostic modalities required for an accurate diagnosis of the native renal and the renal transplant pathology, we were first to describe in international peer-reviewed journals, the true pattern of medical renal disorders prevalent in our country[6-11]. Occasional papers published in the past on the pattern of renal diseases on renal biopsies were based on light microscopy (LM) or at most IHC[12-15]. We described the pattern of renal diseases as investigated fully by LM, IHC, and EM studies[6,11]. Thus, we believe that our results more accurately reflect the patterns of renal diseases prevalent in our part of the world. This is the reason that our studies have been widely cited in the world literature on renal and urologic diseases. In fact, one of our papers has been cited in the Oxford Textbook of Clinical Nephrology. It is also interesting to note that our results more or less concur with those reported from the neighboring countries[16,17]. Lately, our center has also started molecular genetic studies of patients with certain disorders of kidneys, such as childhood steroid-resistant nephrotic syndrome and primary hypero-xaluria. A number of studies describing the molecular features of renal diseases have also been published from our center[18,19]. The molecular studies are shedding new light on the etiopathogenesis of these disorders in our part of the world[20].

However, the problems of running a specialized nephropathology laboratory in a developing country are numerous and often challenging. Some of these are common to those encountered in the more developed parts of the world, but others are unique to these resource poor countries, including shortage of funds, lack of training programmes for technicians and problems of procurement of optimal quality processing material and stains[2]. We have successfully tackled many of the above problems and are providing high quality diagnostic and research service to the institute and to poor masses of our country free of charge.

In conclusion, our histopathology department has successfully catered to the diagnostic and research needs of the nephrology, urology and kidney transplant needs of the institute and country and may be considered a role model for a subspecialty histopathology unit in a developing country.

Conflict of interest

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References

1. Ahmed Z, Qureshi A, Khurshid A. The practice of histopathology in a developing country: difficulties and challenges; plus a discussion on terrible disease burden we carry. J Clin Pathol 2009;62:97-101.
2. Furness PN, Kazi JI. Laboratory investigation of renal biopsy specimen. J Nephrol Urol Transplant 1998;1:19-26.
3. Kazi JI, Mubarak M. Histopathology in present era. J Pak Med Assoc 2009;59:1-2.
4. Haeney MR, Blair C. Raising standards in pathology: the accreditation process in the United Kingdom. J Qual Clin Pract 1998;18:75-82.
5. Young DS. Progressing towards laboratory accreditation in developing countries. Afr J Med Med Sci 2010;39:333-40.
6. Kazi JI, Mubarak M, Ahmed E, Akhter F, Naqvi SA, Rizvi SA. Pattern of glomerulonephritides in adults with nephrotic syndrome in Pakistan. Clin Exp Nephrol 2009;13:38-43.
7. Mubarak M, Kazi JI. Collapsing FSGS: A clinicopathologic study of 10 cases from Pakistan. Clin Exp Nephrol 2010;14:222-7.
8. Mubarak M, Lanewala A, Kazi JI, Akhter F, Sher A, Fayyaz A, et al. Histopathological spectrum of childhood nephrotic syndrome in Pakistan. Clin Exp Nephrol 2009;13:589-93.
9. Mubarak M, Kazi JI, Naqvi R, Ahmed E, Akhter F, Naqvi SA, et al. Pattern of renal diseases in native renal biopsies in adults from Pakistan. Nephrology (Carlton) 2011;16:87-92.
10. Mubarak M, Kazi JI. Role of immunoflourescence and electron microscopy in the evaluation of renal biopsies in nephrotic syndrome in a developing country. Ultrastruct Pathol 2009;33:260-4.
11. Lanewala A, Mubarak M, Akhter F, Aziz S, Bhatti S, Kazi JI. Pattern of pediatric renal disease observed in native renal biopsies in Pakistan. J Nephrol 2009;22:739-46.
12. Jamal Q, Jafarey NA, Naqvi AJ. A review of 1508 percutaneous renal biopsies. J Pak Med Assoc 1988;38:272-5.
13. Ali A, Ali MU, Akhtar SZ. Histological pattern of paediatric renal diseases in northern Pakistan. J Pak Med Assoc 2011;61:653-8.
14. Rabbani MA, Memon GM, Ahmad B, Memon S, Tahir SA, Tahir S. Percutaneous renal biopsy results: a retrospective analysis of 511 consecutive cases. Saudi J Kidney Dis Transpl 2012;23:614-8.
15. Nasir H, Chaudhry S, Raza W, Moatasim A, Mamoon N, Akhtar N. Role of immunoflourescence in the diagnosis of glomerulonephritis. J Pak Med Assoc 2012;62:240-3
16. Narasimhan B, Chacko B, John GT, Korula A, Kirubakaran MG, Jacob CK. Characterization of kidney lesions in Indian adults: towards a renal biopsy registry. J Nephrol 2006;19:205-10.
17. Das U, Dakshinamurty KV, Prayaga A. Pattern of biopsy-proven renal disease in a single center of south India: 19 years experience. Indian J Nephrol 2011;21:250-7.
18. Abid A, Khaliq S, Shahid S, Lanewala A, Mubarak M, Hashmi S, et al. A spectrum of novel NPHS1 and NPHS2 gene mutations in pediatric nephrotic syndrome patients from Pakistan. Gene 2012;502:133-7.
19. Shahid S, Abid A, Mehdi SQ, Firasat S, Lanewala A, Naqvi SA, et al. Association of the ACE-II genotype with the risk of nephrotic syndrome in Pakistani children. Gene 2012;493:165-8.
20. Mubarak M, Kazi JI. Beyond morphology: unraveling the genetic basis of childhood nephrotic syndrome in Pakistan. J Pak Med Assoc 2012;62:1127-8.