

10 questions: a Belgian pathologist, Peter Van Eyken, on the future of pediatric pathology

Interview by Sonia Nemolato

Interviewee's curriculum vitae

Full name: Van Eyken Peter, Louis, Hendrik. **Diplomas:** Doctor in Medicine, Surgery and Obstetrics, Katholieke Universiteit Leuven, 1986 (maxima cum laude + congratulations); Geaggregeerde voor het Hoger Onderwijs (Ph.D.), Katholieke Universiteit Leuven, 1990. **Specialisation in pathological anatomy:** Dienst Pathologische Ontleedkunde II, Universitair Ziekenhuis Sint Rafaël, K.U.Leuven (Chairman Professor Dr. V.J. Desmet) 1986-1993. **Appointments:** Research assistant of the Belgian National Fund for Scientific Research, 1986-1990; Assistant, dienst Pathologische Ontleedkunde II, Universitair Ziekenhuis Sint Rafaël, K.U.Leuven 1986-1993; Staff pathologist, Sint Jansziekenhuis, Genk, 1993-; Consultant pathologist, Pathology Department, Universitair Ziekenhuis Sint Rafaël, K.U.Leuven (Chairman Professor Dr. V.J. Desmet), 1993-. **Membership:** Belgische Vereniging voor Pathologische Anatomie; Vlaamse Vereniging voor Gastroenterologie; British Division of the International Academy of Pathology; Pathological Society of Great Britain and Ireland; European Association for the Study of the Liver (EASL); American Gastroenterological Association (AGA); American Association for the Study of Liver Diseases (AASLD); United States and Canadian Academy of Pathology (USCAP); European Society of Pathology (ESP). **Publications, chapters in textbooks, scientific communications, lectures:** he has published more than 100 papers in International Journals, more than a dozen of chapters in international books (see more in the "References" section at the end of the interview); he gave more than one hundred lectures in international meetings, worldwide.

Interviewer's curriculum vitae

Sonia Nemolato was born in Vimercate (Italy) on November 20th, 1980. In 2005, she was graduated in Medicine at the University of Cagliari, defending a thesis on celiac disease. In 2010, she was postgraduated in Pathology discussing a thesis on Thymosin beta 4 in human tissues in health and disease. During her frequency in the Postgraduated School of Pathology, she had a training on gastrointestinal pathology at the Catholic University of Leuven under the supervision of Professor Karel Geboes. On December 2012, she became Researcher in the Department of Pathology of the University Hospital San Giovanni di Dio, in Cagliari where she cooperates with Professor Gavino Faa. The scientific activity of Dott. Nemolato has been mainly focused on the role of Thymosin beta 4 during human fetal development and in perinatal disease. She is also involved in a project on human nephrogenesis and in renal diseases of the newborn.

Keywords

Pathology, cytokeratins, liver biopsy interpretation, pediatric pathology, liver development, bile duct atresia, kidney biopsy interpretation, nephrogenesis, H&E-stained sections, immunohistochemistry, molecular pathology.

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How to cite

Van Eyken P, Nemolato S. 10 questions: a Belgian pathologist, Peter Van Eyken, on the future of pathology. Interview by Sonia Nemolato. *J Pediatr Neonat Individual Med.* 2013;2(1):74-80. doi: 10.7363/020108.

1. You are a pupil of Valeer Desmet, one of the leading liver pathologists in the world. What was it like spending so many years with him?

It was a real privilege to be trained by Valeer Desmet. He had an encyclopedic knowledge of liver pathology and – most importantly – was ready to share his experience with other people. It made no difference whether he was teaching a first year resident or a fellow. He taught us a very systematic approach to a liver biopsy and this has served me well not only in reading liver biopsies but in all areas of pathology. I got to know him as a kind person, a humble man and a gentleman with high moral standards.

2. Your first research project focused on cytokeratins: how has your research changed liver biopsy interpretation in clinical practice?

During my research project, I used cytokeratin immunohistochemistry to study bile duct development, biliary diseases and liver tumors. The use of cytokeratin immunohistochemistry allowed us to gain new insights into bile duct development, more specifically the development of the ductal plate which is relevant for the understanding of the so-called ductal plate malformation. Cytokeratin immunohistochemistry also proved very useful in the differential diagnosis of liver tumors, and our findings in hepatocellular carcinoma and hepatoblastoma have been corroborated many times since. Our studies also demonstrated the remarkable plasticity of the different cell types in the liver. Cytokeratin immunohistochemistry is also useful in the differential diagnosis of chronic hepatitis versus chronic biliary diseases. Our studies

also resulted in the introduction of the cytokeratin 7 immunohistochemical stain as a quasi-routine diagnostic stain in professor Desmet's laboratory.

3. What are the most important innovations in pathology of the last years? What is changing in your approach to histology and to cytology?

The introduction of molecular techniques. They do not replace the light microscope but rather are powerful tools to classify or re-classify diseases and tumors and to further our understanding of disease processes. They also help us to look with a new eye at tumors and diseases we thought we understood. I'd like to emphasize that the molecular and cytogenetic data need to be integrated with morphology.

4. What is the role of pathologists in pediatric pathology? How is their relationship with pediatricians is changing?

The pathologist is increasingly becoming part of the team that is treating a patient. This is highly motivating for the pathologist and it also benefits the patient.

5. How is the role of the pathologist changing in neonatal and in perinatal medicine?

The role of the pathologist is no longer limited to providing a morphological diagnosis. The pathologist should take an active role in multidisciplinary discussions. Pathology is also increasingly important in diagnosing hereditary cancer syndromes and we should alert clinicians when necessary.

6. As a young researcher, you published many articles on liver development and on bile duct atresia: did your studies change the way you approach liver biopsy interpretation in a newborn?

Being familiar with normal liver and bile duct development is a necessary requirement for the correct interpretation of liver biopsies of children with bile duct atresia or paucity of bile ducts. My work also provided some building blocks for a larger hypothesis of professor Desmet, concerning the role of ductal plates in hepatic ductular reactions. I can refer the interested reader to 3 papers by V. Desmet published in the same issue of *Virchows Archiv* (2011;458:251-79) with a comprehensive

discussion of his hypotheses. Personally, I think his hypotheses have indeed changed our thinking about some congenital and acquired liver diseases.

7. After years of involvement in kidney biopsy interpretation in adults, recently, you became involved in studies on nephrogenesis. Which is the relationship between renal development and adult kidney pathology?

In analogy with the liver, the use of immunohistochemistry and molecular techniques allows us to have a new look at renal development, to move beyond the very detailed morphologic descriptions of embryonic development that have been with us for many decades. My good friend prof. dr. Gavino Faa has recently made very interesting observations in this field. Understanding the mechanisms that drive nephronogenesis may ultimately lead to therapies of chronic renal failure.

8. What is your opinion on networks in medicine? Should pathology be integrated with “omic” sciences and informatics ?

Pathology is by its very nature a discipline that interacts with other disciplines. Knowledge has grown exponentially and integrating data generated by the many different techniques is a major challenge.

9. What about the future of pathology? New techniques or new eyes in the interpretation of H&E-stained sections? What is the role of immunohistochemistry? And of of molecular pathology?

I'm convinced that the future of pathology is bright. Surgical pathology will not become obsolete in the near future, provided that we are ready to integrate molecular and cytogenetic data into our practice when needed. Immunohistochemistry will remain important since it allows the localization of antigens in specific cell types in complex tissues (information that is lost when studying homogenates or extracts of tissues!). A tissue section is only a 'snapshot' of a dynamic process, but in many respects comes closer to 'real life' than cell cultures. In oncology, the surgical pathology report provides a wealth of prognostic and predictive data (indispensable for the treatment of the patient) at a very low price. So, we can be proud to offer value for money!

10. Could you advise young medical doctors to become pathologists? What are your suggestions?

Most certainly. I would advise them to spend some time in the pathology laboratory during their clinical training years and to talk to the pathologist. I do hope that the enthusiasm characteristic of many pathologists will prove contagious. And for those students interested in perinatal pathology, I can strongly recommend a stay with prof. dr. Philippe Moerman in the pathology department of the UZ Leuven!

Declaration of interest

The Authors declare that there is no conflict of interest.

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