Society for Ultrastructural Pathology

SPRING 2013 NEWSLETTER

USCAP Companion Meeting - March 3, 2013 Baltimore

The 2013 USCAP Companion Session of the Society for Ultrastructural Pathology was a great success with excellent presentations by Elba Turbat-Herrera, Sara Miller, Evelyn Lockhart, John Hicks and Frank Schneider. The session entitled "Let's Get Small: Evaluation of Cellular and Subcellular Specimens" was moderated by Victor Roggli and David Howell.

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Pathologists in Training Awards

This year two poster presentations were selected for the SUP Pathologist in Training Award (PITA). Both demonstrated the important utility of electron microscopy in providing definitive diagnosis that affects patient care. The winners are Binara Assylbekova of the University of Texas Medical School at Houston for "Neuroendrocirine tumors of cervix—clinical, morphologic, immunophenotypic and electron microscopic features in two cases" and Jessica Munne of Parc de Salut Mar, Barcelona, Spain for "Poorly differentiated non-small cell lung carcinomas with paradoxal immunophenotype: a role for electron microscopy in the era of targeted therapy". The abstracts of these two presentations are printed below.

Neuroendocrine Tumors of Cervix - Clinical, Morphologic, Immunophenotypic, and Electron Microscopic Features in Two Cases. Binara Assylbekova, Shereen Billah, Steven Kolodziej, Meenakshi Bhattacharjee. University of Texas Medical School at Houston, Houston, TX

Background: Neuroendocrine tumors of the uterine cervix are rare in the gynecologic tract. The most recent Surveillance, Epidemiology and End-Results data on neuroendocrine tumors of the uterine cervix reported incidence of 0.42 cases per 1,000,000 women. They are being increasingly recognized with the more routine use of immunostaining in the evaluation of histopathologic features suggesting neuroendocrine differentiation.

They can be a pure lesion or occur in combination with adenocarcinoma or squamous cell carcinoma. Analogous to lung neuroendocrine tumors, cervical tumors are classified in four groups that are carcinoid, atypical carcinoid, large cell neuroendocrine tumors and small cell carcinoma. The former are grouped with the neuroendocrine tumors, whereas the latter are categorized as neuroendocrine carcinomas (NECs).

Design: We report the clinical and complete pathologic features in two such cases. The patients were 48 and 71 y and presented with vaginal bleeding. Both were multiparous females; both had history of hypertension and one was a smoker. Direct examination, and imaging studies revealed large cervical/lower uterine masses with obvious pelvic lymphadenopathy in one. The tumors ranged from 3.5 and 11.3 cm.

Results: Biopsies and hysterectomy specimens showed prominent neuroendocrine features by conventional morphology, with inconsistent immunostaining results; focal adenocarcinoma features were seen in one case. Transmission electron microscopy showed poorly differentiated cells with large nuclei with dispersed heterochromatin, prominent nucleoli, and occasional cytoplasmic dense-core granules. No cytoplasmic intermediate filaments were seen. Focally, luminal intercellular junctions were seen in the case with focal adenocarcinomatous features.

Conclusions: Recognition of NECs is important for appropriate therapy and management since these patients have worse clinical outcomes when compared with conventional cervical squamous or adenocarcinomas.

Immunohistochemistry may be inconclusive in determining neuroendocrine differentiation, and should be supplemented with ultrastructural studies for confirmation and correct categorization of the carcinoma for appropriate management.

Poorly Differentiated Non-Small Cell Lung Carcinomas with Paradoxal Immunophenotype: A Role for Electron Microscopy in the Era of Targeted Therapy. Jessica Munne, Lara Pijuan, Javier Gimeno, Nuria Juanpere, Laura Comerma, Luis Magan, Mercedes Simon, Sergi Serrano, Josep Lloreta. Parc de Salut Mar, Barcelona, Spain

Background: The identification of EGFR, ALK and K-RAS mutations in some adenocarcinomas of the lung and the development of targeted drugs for these cases have increased the impact of pathological classification in non-small cell carcinomas of the lung (NSCLC). Poorly differentiated cases require the use of immunohistochemistry (IHC) for the diagnosis of adenocarcinoma, as these are the cases that are candidates for molecular testing, and eventually for targeted therapy. However, IHC may be misleading, while electron microscopy (EM) allows the easy identification of very small luminal spaces not detectable by light microscopy. The aim of this study has been to assess the value of EM in the identification of glandular phenotype in a series of poorly differentiated NSCLC with conflicting IHC findings.

Design: Eight cases of poorly differentiated NSCLC identified by bronchoscopic or core needle biopsy, and with equivocal IHC results, were selected for this retrospective preliminary study. From 1 to 5 pieces of tissue, 0.5 mm each, were retrieved from paraffin and processed for EM.

Results: The samples for EM were technically adequate and informative in all cases. Ultrastructural features of adenocarcinoma, i.e., luminal spaces with short microvilli and occasional junctional complexes, were present in 4 cases that were thus classified as poorly differentiated adenocarcinomas. Previous IHC of these cases was TTF1-/p63-, TTF1-/p63+/34BE12+, and in one case CD56+/TTF1+. This case had been initially labeled as large cell neuroendocrine carcinoma. In the remaining 4 cases, glandular differentiation was lacking. Three of them showed relatively abundant tonofilaments and occasional desmosomes and were classified as poorly differentiated squamous cell carcinomas. Their previous IHC profiles were respectively CK7+/CK5,6-/p63-/TTF1-,CK7+/CK5,6+/p63+/TTF1+, and CK7-/CK5,6-/p63-/TTF1-/34BE12-. Finally, one case did not have squamous nor glandular features and was classified as large cell carcinoma.

Conclusions: Even using small samples retrieved from paraffin, EM is an extremely sensitive and specific tool that can provide very useful information to subtype poorly differentiated NSCLC when IHC results are misleading, and even when they seem to fit. Thus, EM can have an indirect impact on therapeutic decision making in these patients. A multicentric study is currently being undertaken to further support this application of EM.

USCAP Companion Meeting

The next USCAP companion meeting of the Society for Ultrastructural Pathology will occur in San Diego on March 2, 2014. This will be a combined meeting of the SUP and the Renal Pathology Society, highlighting the important role of electron microscopy in the diagnosis of renal transplant pathology. Details of the program will be presented in a future newsletter.

Ultrapath XVII, Portland, Oregon

Ultrapath XVII, with its them of "Multiscale Multidisciplinary Microscopy—EM and Beyond" will be held in Portland, Oregon, USA from July 27—August 1, 2014. Oregon Health and Science University (OHSU) will be the host institution with meetings to be held near Portland's downtown waterfront.

Our meeting will cover a continuum from advances in traditional contemporary electron microscopy to futuristic ultraimaging techniques. We will have our usual updates on patient-oriented electron microscopy and ancillary techniques. We will also talk about transitional techniques, interpretations, and futuristic and exciting new technologies—hopefully with tours of the Center for Spatial Systems Biomedicine, currently being built oat OHSU's South Waterfront.

Joe Gray, PhD (Chair, OHSU Department of Biomechanical Engineering) and Doug Weeks, MD (Chair, OHSU Department of Pathology) will be planning our program. Our social program will include outings around Portland in the heart of the beautiful Pacific Northwest.

Details about registration and hotels will be provided in a forthcoming newsletter. Please mark the date on your calendar!

The 40th Annual Meeting of the Society for Cutaneous Ultrastructural Research will take place at the Castellani Park Hotel Salzburg in Salzburg, Austria on May 12-14, 2013. The deadline for abstract submission is March 16, 2013 and early registration deadline is March 17, 2013. Further information including a listing of invited keynote speakers and their topics may be found online at: http://orgs.dermis.net/scur/scur2013/content/e01home/e01home/index_ger.html

The Microscopy Conference scheduled for August 25-30, 2013 in Regensburg is steadily approaching. The abstract submission deadline is March 31, 2013. For further information regarding the conference visit the website at www.mc2013.de

A joint meeting of the European Society of Pathology and the Association of Clinical Electron Microscopists will be held in London, UK from August 30 to September 3, 2014. Details will follow in a later newsletter.

Ultrapath XVI, Regensburg

Josef Schroeder reported that there have been numerous visits to the post-congress website to access the ciliopathy session, including 272 streams and 644 downloads. If you have not yet experienced the ciliopathy video-recordings, please check out the SUP website.

www.ultrapath.org

Pathology of Asbestos-Associated Diseases, 3rd Edition

The 3rd Edition of Pathology of Asbestos-Associated Diseases is being uploaded to the publisher (Springer-Verlag) and should be available later this year as an electronic full-color text. The lead editor is Tim D. Oury of the University of Pittsburgh. The text includes a detailed chapter and an appendix which explain the use of electron microscopy in the analysis of asbestos and other mineral fiber content of lung tissue samples in various asbestos-related disorders and exposure categories.

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1986

Bryan Eyden's New Electron Microscopy Book

Diagnostic Electron Microscopy: A Practical Guide to Interpretation and Technique summarises the current interpretational applications of TEM in diagnostic pathology. This concise and accessible volume provides a working guide to the main, or most useful, applications of the technique including practical topics of concern to laboratory scientists, brief guides to traditional tissue and microbiological preparation techniques, microwave processing, digital imaging and measurement uncertainty.

The text features both a screening and interpretational guide for TEM diagnostic applications and current TEM diagnostic tissue preparation methods pertinent to all clinical electron microscope units worldwide. Containing high-quality representative images, this up-to-date text includes detailed information on the most important diagnostic applications of transmission electron microscopy as well as instructions for specific tissues and current basic preparative techniques.

The book is relevant to trainee pathologists and practising pathologists who are expected to understand and evaluate/screen tissues by TEM. In addition, technical and scientific staff involved in tissue preparation and diagnostic tissue evaluation/ screening by TEM will find this text useful.

http://www.amazon.com/Diagnostic-Electron-Microscopy-Interpretation-Microscopical/dp/1119973996/ref=sr_1_1?s=books&ie=UTF8&qid=1362940513&sr=1-1&keywords=brian+eyden#reader_1119973996

Dr. Gerard Simon

It is with great sadness that I must inform you of the passing of Dr. Gerard Simon of Ontario on January 23, 2013. Dr. Simon dedicated his entire life to electron microscopy at Toronto and McMaster Universities in Ontario. He attended and participated in many meetings of the Society for Ultrastructural Pathology. The link below shares some memories about Dr. Simon. He was 82 years old.

http://www.lifenews.ca/thespec/profile/318999—simon-gerard-theodore-john

How-to-Book

Dear current and past SUP officers,

To provide information to folks considering running for office and assistance to those in office, I am in the process of composing "How-To" books. I envision these to be guides, rather than dogma, but having instructions written will be of use in conducting society business without reinventing the wheel.

Thus, I am requesting that you send me any information that you can provide on how you've done your job, any problems that have arisen and how you solved them, timelines of what needed to be done, contacts of people who have been helpful or names of the type of individual (e.g., banker, hotel salesperson, travel agent, etc.), and any insight or suggestions you may have for the future health of our society. I understand that everyone is busy, and to make it as easy as possible for you, I will accept this information in any format that you can provide (typed or hand-written, electronic or mailed/faxes, prose or lists).

For example, as a past meeting organizer, I could have used a list of jobs that needed to be done, whom to contact for information, a timeline of when various tasks needed to be done (e.g., signing hotel or meeting space contracts), etc. Having already served as Local Arrangements Chair for the Microscopy Society of America, I had both a "How-To" MSA booklet and some idea of negotiations with hotels. However, not everyone who accepts an office or request to plan a meeting has this experience. Obviously, various meetings have been handled in different ways. In general, those in the US have been managed by scientists and have not been handled by professional meeting organizers; the risks and profits have been those of the society. Some European meetings have also been handled this way, while others have been turned over to an outside organization. There are advantages and disadvantages to both; thus, I am not pointing accusatory fingers at any particular method. However, I believe that since the biennial meeting is our most important function, we need to have information available to members who volunteer to host one.

Would you please think about your current and past tasks in office and send me information in as much detail as you can by April 22? I will then compile it and send drafts to everyone who supplied data. I will then make necessary corrections and then have our web master put these "How-To" documents on our site.

Thank you in advance.

Very sincerely,

Sara Miller

President-elect Society for Ultrastructural Pathology

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