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Weakened IgG4 Staining and Positive PLA2R staining Indicate Resolving Primary Membranous Glomerulopathy (MGN)

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The Correlation between Serum Creatinine and PTH Levels in Dialysis Patients in Egypt

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Introduction/Objective: Chronic kidney disease (CKD) is affecting about 14% of the general population. CKD is associated with a decrease in calcium level in the body. In the early stages of (CKD), dialysis may not be needed. The late stages of CKD will require dialysis or a kidney transplant to save a life.

Secondary hyperparathyroidism is a crucial disorder in CKD patients. It explains why the illness causes a significant change in bone and mineral metabolism. This study aims to study renal hyperparathyroidism (rHPT) in dialysis patients with late-stage of chronic kidney disease (CKD).

Methods/Case Report: A total of 55 subjects were enrolled in this study for late-stage dialysis patients from Egypt. Serum creatinine and PTH levels were measured. Among the 55 subjects; 41 subjects (74.5%) were males, 14 subjects (25.5%) were females with a mean age of 52.7 and 34.3 years for males and females, respectively.

Subjects were divided into two groups; Study group I consists of 33 dialysis patients; three patients were females (9%) while 30 patients were males (91%), and control group II consists of 22 healthy individuals, 11 subjects were females (50%), and 11 subjects were males (50%).

Results (if a Case Study enter NA): In our study, in comparison between two groups as regards blood investigations. The means of creatinine and PTH in the study group I were 8.93 mg/dl and 316.8, while in the control group II were 0.9, and 38.4 respectively.

Comparing the two groups shows that mean of Creatinine and PTH in the study group was statistically significantly higher than the control group (p-value less than 0.001).

Conclusion: In patients with CKD, accurate measurement of (PTH) is critical for treatment decision-making to reduce the risk of bone and cardiovascular diseases.

We recommend that patients with diabetes and high blood pressure be aware that they must take their medications consistently to avoid kidney problems.

Rare presentation of kappa light chain proximal tubulopathy with fibrillar aggregates

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Introduction/Objective: Patients with dysproteinemias may show a spectrum of renal alterations due to organized deposits of excess immunoglobulins, including primary amyloidosis, myeloma cast nephropathy, monoclonal immunoglobulin deposition disease, and light chain proximal tubulopathy (LCPT). Among the least common is LCPT, which shows ultrastructural cytoplasmic light chain inclusions with crystalline morphology or rarely fibrillar aggregates. We present the case of a patient with LCPT with fibrillar aggregates that is the only such case registered in our large academic surgical pathology electronic database. Our aim is to increase understanding and recognition of this rare variant.

Methods/Case Report: A 73-year-old man presented with 540 mg/day proteinuria, serum creatinine 5.73 mg/dL, platelets 178,000/cc, and 20% plasma cells in his bone marrow biopsy specimen. Kidney needle biopsy cores examined by light, fluorescent and transmission electron microscopy (EM) showed kappa light chain cast nephropathy and kappa LCPT with fibrillary aggregates, the latter requiring unmasking of kappa epitopes using pronase-treated paraffin sections. Congo red stain was negative. By EM, proximal tubules contained intracellular bundles of tightly aggregated fibrils with mean fibril diameter of 7.7 +/- 1.6 nm. Individual bundles were variably shaped as round, oval, spicular or irregular blobs. Fibrils were not seen in glomeruli.

Results (if a Case Study enter NA): NA

Conclusion: This rare presentation of LCPT with fibrillar aggregates reinforces the utility of renal biopsy diagnosis that includes careful ultrastructural examination of renal tubules. In the absence of EM, the unique fibrillar organization of these cytoplasmic light chain aggregates would otherwise go unrecognized.

Weakened IgG4 Staining and Positive PLA2R staining Indicate Resolving Primary Membranous Glomerulopathy (MGN)

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Introduction/Objective: IgG4 related disease, a systemic autoimmune inflammatory disorders, can be identified by high% of IgG4 positive plasma cells, thus IgG4 staining in paraffin embedded tissue is widely available in the most of pathology labs. IgG4 staining has been found useful to

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identify primary MGN (PLA2R and/or THSD7A positive) by others and us. This study was to scrutinize the findings of primary vs secondary MGN needed for IgG4 staining as a screening tool in our renal pathology practice over pasts 5 years

Methods/Case Report: IgG4 staining in paraffin embedded tissue was performed in 45 primary MGN and 43 secondary MGN after the clinical history was reviewed and a possibility of primary MGN cannot be excluded. In addition, both groups of cases were also stained for PLA2R. Detail correlation with clinical history was analyzed.

Results (if a Case Study enter NA): Totally 82 % (37/45) of primary MGN was found diffuse positive for IgG4 staining at 2+ intensity in the glomeruli. Seven out of eight remaining primary MGN cases with either negative or weak IgG4 stained MGN were found to have diffuse resolving features by electron microscopy but there was still positive PLA2R staining in the glomeruli. All secondary MGN were stained negatively for both IgG4 and PLA2R and we found that etiologies of the secondary MGN included membranous lupus nephritis, infection, GVHD, or variants of cancers.

Conclusion: Our data indicate that IgG4 staining along (without IgG1-3 staining) is a reliable screening tool to confirm the majority of primary MGN vs secondary MGN in paraffin embedded tissue. As both PLA2R+ and THSD7A+ primary MGN are both IgG4 related, the IgG4 staining may potentially represent a wider range of scope in identifying primary MGN. In addition, negative/weak IgG4 staining in PLA2R-positive MGN most likely represents a primary MGN with resolving features.

Papillary Renal Cell Carcinoma with Extensive Spindle Cell Foci: Mimicker of Mucinous Tubular and Spindle Cell Carcinoma

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Introduction/Objective: Papillary Renal Cell Carcinoma (PRCC), the 2nd most common RCC, accounts for 10-15% of cases and is usually composed of tubules and papillae with foamy histiocytes in papillary cores. Mucinous tubular and spindle cell carcinoma (MTSC) is composed of tightly packed, elongated, curvilinear tubules with smooth luminal surfaces, separated by mucinous stroma. MTSC is associated with a more favorable prognosis than PRCC. PRCC and MTSC have significant histologic and histochemical overlap including elongated tubules and stromal Alcian blue positive mucin deposits.

Methods/Case Report: We report a case of a 75 year old female who underwent a robotic assisted partial nephrectomy for resection of a 5.7 x 5.2 x 5.0 cm left upper pole solid renal mass. Spindle cell change with elongated tubules reminiscent of MTSC was present in several blocks; however, the luminal surface was shaggy favoring PRCC. Patchy prominent extracellular Alcian blue positive mucin deposits were also present. PRCC and MTSC both express CK7, AMACR, and EMA. However, absent expression of E-cadherin and strong CD10 expression favored PRCC. Multiple foci of solid spindle cells in a whorled pattern with clear cell change, necrosis, and high grade nuclei bordering on sarcomatoid RCC were present in other blocks. Multiple papillations and psammoma bodies also supported PRCC. A spectrum of spindle cell change was present, ranging from elongated tubules reminiscent of MTSC to whorled foci with high grade nuclei approaching sarcomatoid RCC.

Results (if a Case Study enter NA): NA

Conclusion: Submission of multiple sections and awareness of the protean morphologic features of PRCC are essential in making the correct diagnosis.

Transfusion Medicine/Blood Banking

Service Learning is Action Learning: A Novel Way to Increase Classroom Learning Retention

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Introduction/Objective: As educators, how do we ignite students to become effective and engaging ambassadors for the medical laboratory profession while making learning difficult concepts fun? This case study explores the use of service learning as an effective tool in nurturing advocacy for issues affecting the health and longevity of minority populations within the community, while learning hematological and blood banking concepts.

Methods/Case Report: Four MLT student cohorts comprised of twelve to sixteen students each participated in a ten- week, service-learning assignment as part of their Medical Laboratory Technician Curriculum. Assignment objectives were to: (1) understand racial /cultural history that preclude individuals from participating in hematopoietic stem cell donation and transplant; and, (2) develop and implement a strategy to recruit donors for the screening event. Students actively recruited across their college campus and surrounding communities to enroll one hundred new stem cell donors, with over fifty percent of these donors identifying as people of color. This activity represented ten percent of their course grade. Examples of assignments students were required to

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