A Case of Paraneoplastic Nephrotic Syndrome

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INTRODUCTION

- Minimal change disease (MCD): shortening of foot processes of podocytes, resulting in protein leakage & nephrotic syndrome
- Nephrotic range proteinuria secondary to MCD-reported in hematologic malignancies
- However, very few cases of MCD reported in association with lung adenocarcinoma
- Paraneoplastic nephrotic syndrome is a rare complication of malignancy, mistaken for idiopathic glomerulonephritis
- Failure to recognize paraneoplastic nephrotic syndrome can subject patients to ineffective & potentially harmful therapy

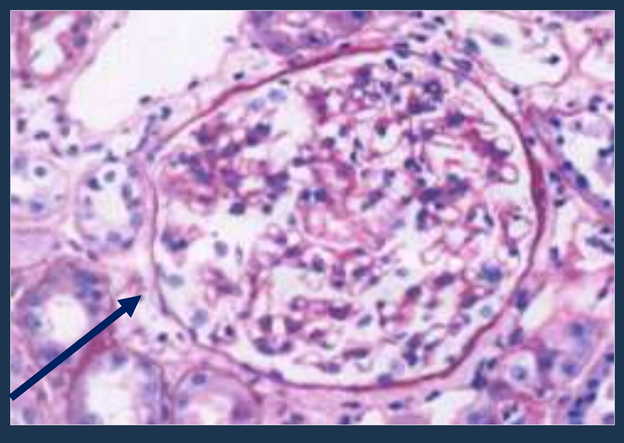

Image 1: Light Microscopy-normocellular glomeruli

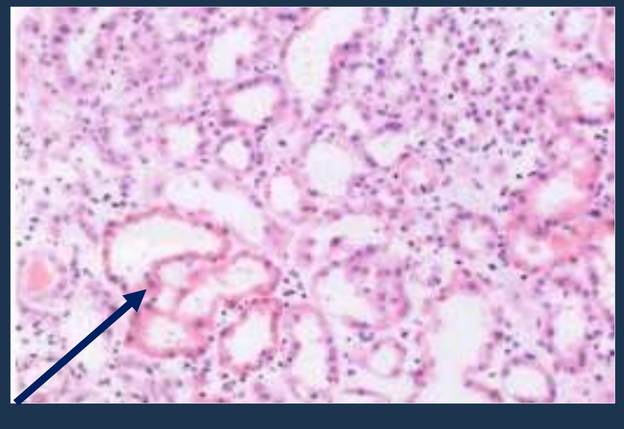

Image 2: Light Microscopy-tubular injury

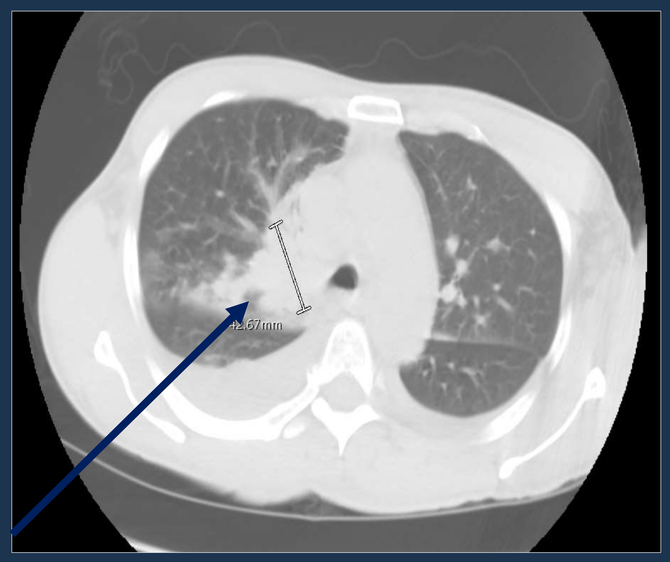

Image 3: Right upper lobe consolidation

CASE REPORT

- 50-year-old male, current smoker presented with dry cough, dyspnea & lower extremity edema for 2 months
- Labs- nephrotic proteinuria. Urine protein/creatinine ratio (UPCR) of 7.7; serum albumin of 1.7g/dL
- Further work up of nephrotic syndrome- negative for infectious & rheumatologic/autoimmune etiology
- CT chest (Image 3)- right upper lobe consolidation concerning for bronchogenic malignancy.
- Lung biopsy- poorly differentiated adenocarcinoma
- Renal biopsy- features of MCD on light microscopy (Image 1&2) confirmed on electron microscopy
- MCD nephrotic proteinuria was attributed to paraneoplastic phenomenon secondary to lung adenocarcinoma
- Treatment was initiated with carboplatin/pemetrexed for lung cancer & prednisone/cyclosporine for MCD.
- UPCR progressively declined to 1.6 after initiation of therapy

CONCLUSIONS

- Overproduction of VEGF by cancer cells has been proposed to alter function of podocytes, leading to MCD & nephrotic range proteinuria
- As nephrotic range proteinuria is not directly related to lung adenocarcinoma, it is termed paraneoplastic nephrotic syndrome
- Treatment of paraneoplastic glomerular syndrome differs from glomerulonephritis caused by other etiology
- In our case, nephrotic proteinuria responded to immunosuppressive/chemo therapy in a patient with metastatic lung adenocarcinoma.

SUMMARY

- Paraneoplastic Nephrotic Syndrome should be considered in the differential diagnosis in patients with lung adenocarcinoma presenting with nephrotic range proteinuria

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