AUTOSOMAL DOMINANT TUBULOINTERSTITIAL KIDNEY DISEASE. CHALLENGE IN DIAGNOSING WITHOUT ACCESS TO GENETIC TESTING: A CASE REPORT

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Abstract

In nephrological practice we usually face to glomerular diseases that have well-recognized symptoms. Therefore, when we see a patient with an impaired kidney function but without any sings of glomerular diseases it is always more challengeable to discover the reason of it. The present case illustrates a tubulointerstitial lesions due to possible genetic reason. A 38-year-old non-hypertensive female presented with impaired renal function (urea 10,04 mmol/L; serum creatinine 143,1 mcmol/L; GFR-Epi 40 ml/min), family history of CKD (her brother had impaired renal function and her father died in the age of 48 due to CKD), proteinuria 0,5 g/day, urinary sediment unremarkable. As on admission an elevation of serum creatinine was discovered without severe daily proteinuria and the family background showed a progressive trend to the end stage kidney disease the kidney biopsy was considered mandatory even despite the fact that at advanced stages of CKD benefits from kidney biopsy with diagnostic purposes appear to be lower. In our opinion, a primary glomerulopathy should not be the reason of impaired kidney function in this case due to the absence of a long-term, severe proteinuria and hypertension. The pathology report proved our thoughts reveling interstitial kidney disease without any other signs **(Figure)**. This fact has led us to the thought of some genetic disorders. Relying on her family history, the middle age of an onset and the progression to end stage kidney disease an autosomal dominant tubulointerstitial kidney disease was suspected. In conclusion, initially diagnosed tubulointerstitial kidney disease is likely to be secondary to mutation in genes encoding mucin-1 **(Table)**. Pathology findings in this case played the pivotal role in establishing diagnosis. However, it still needs to be proved by genetic tests.

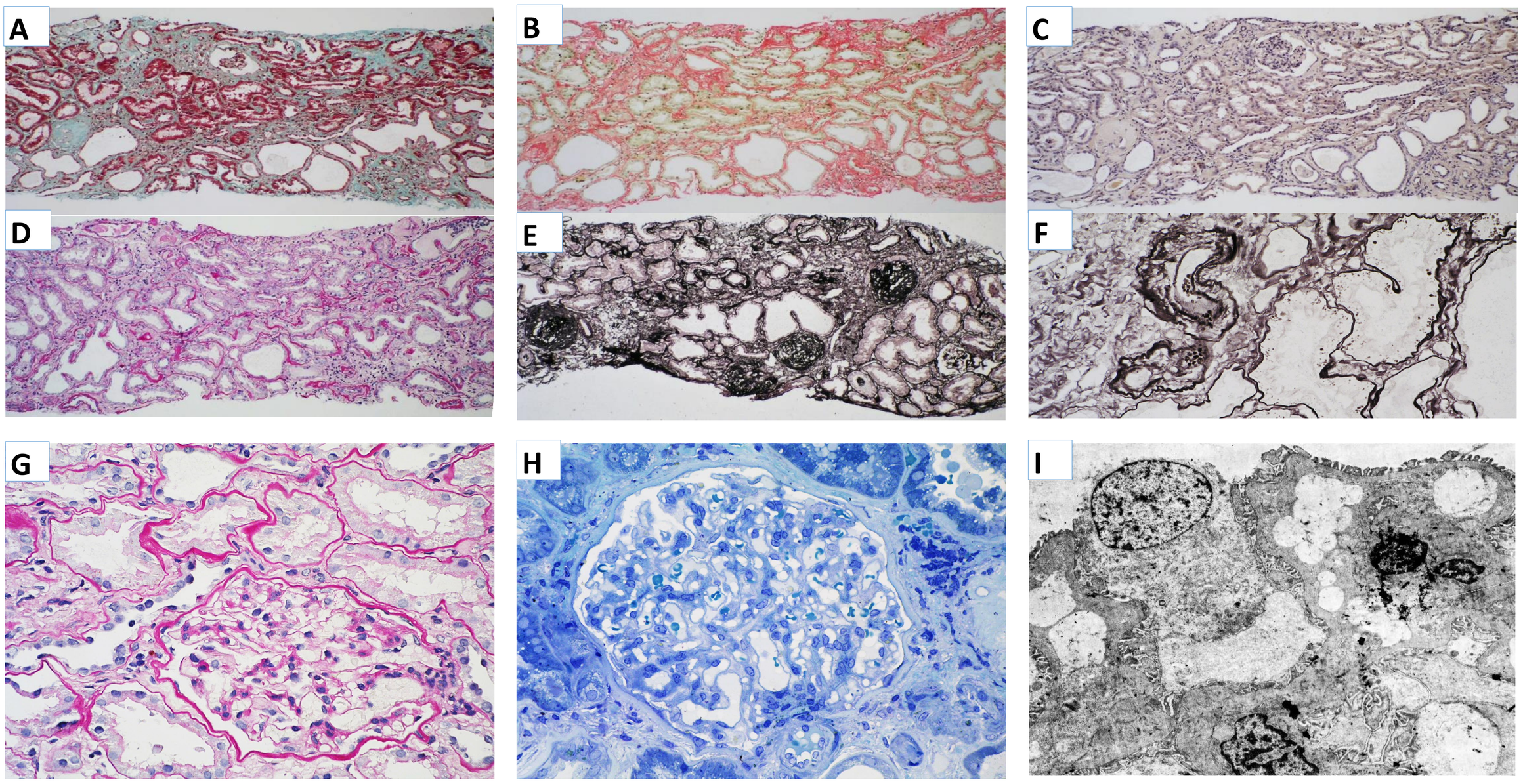

Figure. The chronic tubulointerstitial kidney disease with 58% (14/24) glomerulosclerosis and unremarkable other glomeruli.
A – Masson-Goldner stain, x100. B – Picro-Sirius, x100. C – Congo Red, x100. D – PAS, x100. E – PAMS, x100. F – PAMS, x400 G – PAS, x400, H – Semithin section, methylene blue, x400. I - Transmission electron micrograph of the relatively normal glomerulus, original magnification x2400

Table. Types of autosomal dominant tubulointerstitial kidney disease (medullary cystic kidney disease)

Characteristic	ADTKD due to UMOD mutations (ADTKD-UMOD)	ADTKD due to REN mutations (ADTKD-MOD)	ADTKD due to MUC1 mutations (ADTKD-MUC1)
Inheritance	Autosomal dominant	Autosomal dominant	Autosomal dominant
Urinalysis results	Bland without protein	Bland without protein	Bland without protein
Renal ultrasound	Normal or small kidneys, occasional cysts	Normal or small kidneys, occasional cysts	Normal or small kidneys, occasional cysts
Age of ESRD (years)	20 to 70	40 to 80	20 to 80
Kidney biopsy	Interstitial fibrosis, nondiagnostic	Interstitial fibrosis, nondiagnostic	Interstitial fibrosis, nondiagnostic
Definitive diagnosis	Genetic analysis	Genetic analysis	Genetic analysis
Associated findings	Many family members with gout, some in the teenage years	Low or low-normal blood pressure, hyperuricemia, anemia in childhood, mild hyperkalemia	No associated findings
Treatment	No specific treatment; allopurinol for gout	High-sodium diet or fludrocortisone	No specific treatment
Frequency	Rare	Very rare	Rare
Other names	Uromodulin kidney disease (UKD), medullary cystic kidney disease type 2 (MCKD2), familial juvenile hyperuricemic nephropathy (FJHN)	Familial juvenile hyperuricemic nephropathy type 2 (FJHN2)	Mucin-1 kidney disease (MKD), medullary cystic kidney disease type 1 (MCKD1)