# SEMINARIO DE CASOS:
DIAGNÓSTICOS AL LÍMITE DE LO INVISIBLE


## VALORACIÓN POR BIOPSIA RENAL DE POSIBLE DONANTE VIVA DE RIÑÓN CON HEMATURIA PERSISTENTE

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# HISTORIA CLÍNICA

- Mujer de 46 años.
- Estudio para donación de trasplante renal (marido).

- **Antecedentes personales:**
  - Dos episodios de cólicos nefríticos en riñón izquierdo que fue tratado con litotricia (se encuentra asintomática desde entonces).
  - Infección del tracto urinario.
  - Hepatitis por VHB en 2000 (core +, carga viral -).

- **Antecedentes familiares:**
  - Padre fallecido de Ca de pulmón a los 72 años, **sin alteraciones renales**.
  - Madre de 71 años con bocio, **no alteraciones renales.**
  - 3 hermanos sanos.

# Analítica

- Ligera hipercalciuria normocalcémica
- Perfil tiroideo: normal. Proteinograma normal.
- GFR normal(114ml/min), creatinina 0,6 mg/dL e ionograma normal.
- ANAs y ANCAs negativos. C3 normal con C4 bajo.
- Antígenos tumorales normales (CA-125, CA19,9, CEA)

**Anormales y Sedimento :**

- **Ligera Hematuria dismórfica persistente**

- **Ligera proteinuria de 414 mg/24 h, sin albuminuria (alb/cr<30 mg)**

- Ecografia renal: normal, con **2 quistes** en riñón derecho.
- Examen ginecológico normal

**Table 3 | Causes of persistent microscopic hematuria**

*(A) Glomerular bleeding (common causes, not associated with proteinuria or casts)*

1. TBMN
2. AS (early stage) or carrier state
3. IgAN

*(B) Extraglomerular bleeding*

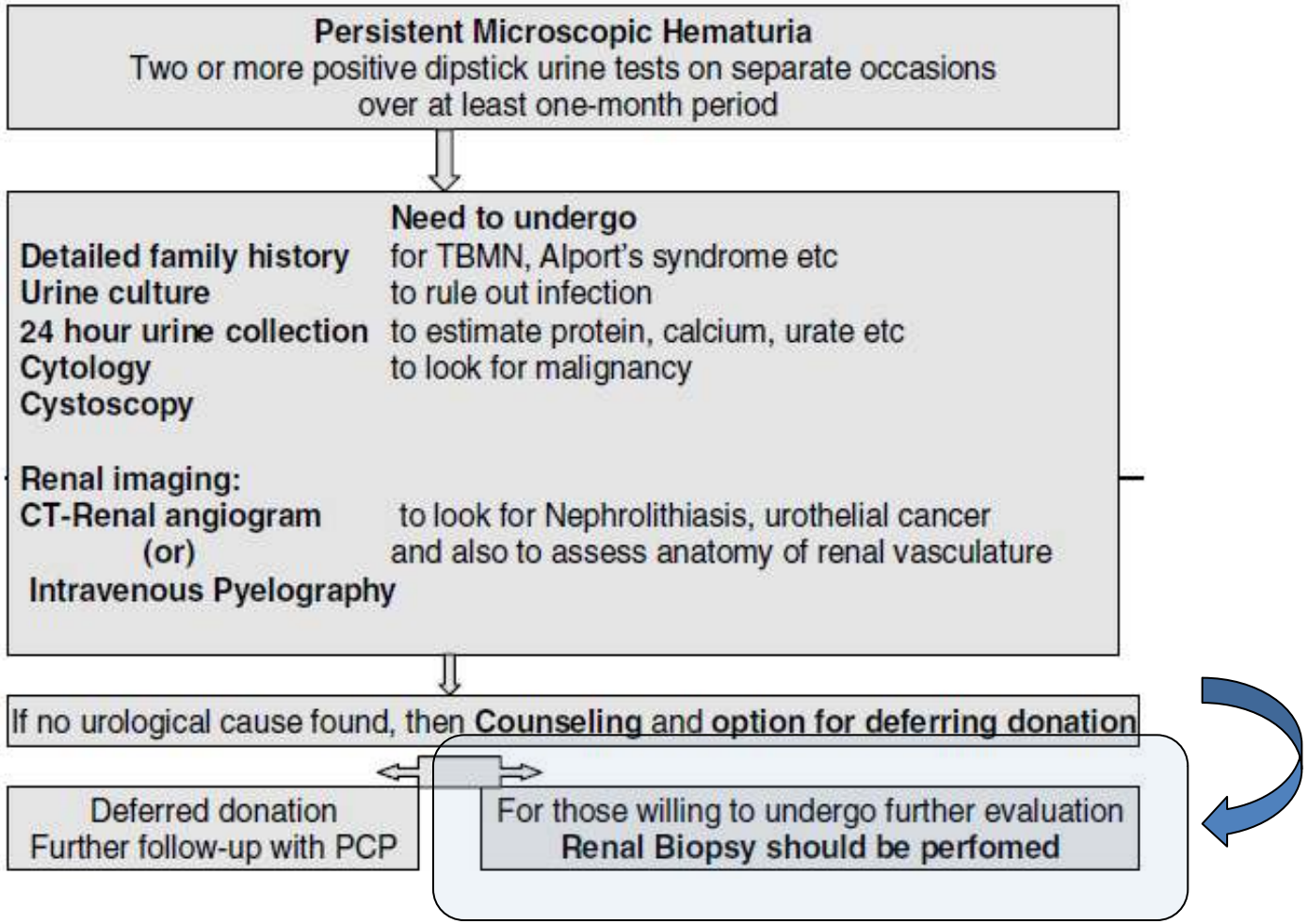
1. Stone disease
2. Hemoglobinopathy (SS/SA hemoglobin)
2. Polycystic kidney disease
3. Benign prostatic hyperplasia (elderly donors)
4. Malignancy (bladder, kidney, prostate)
5. Arteriovenous malformations and fistulas
6. Schistosomiasis (in endemic areas)
7. Hypercalciuria, hyperuricosuria, etc.

AS, Alport's syndrome; IgAN, IgA nephropathy; TBMN, thin basement membrane nephropathy.

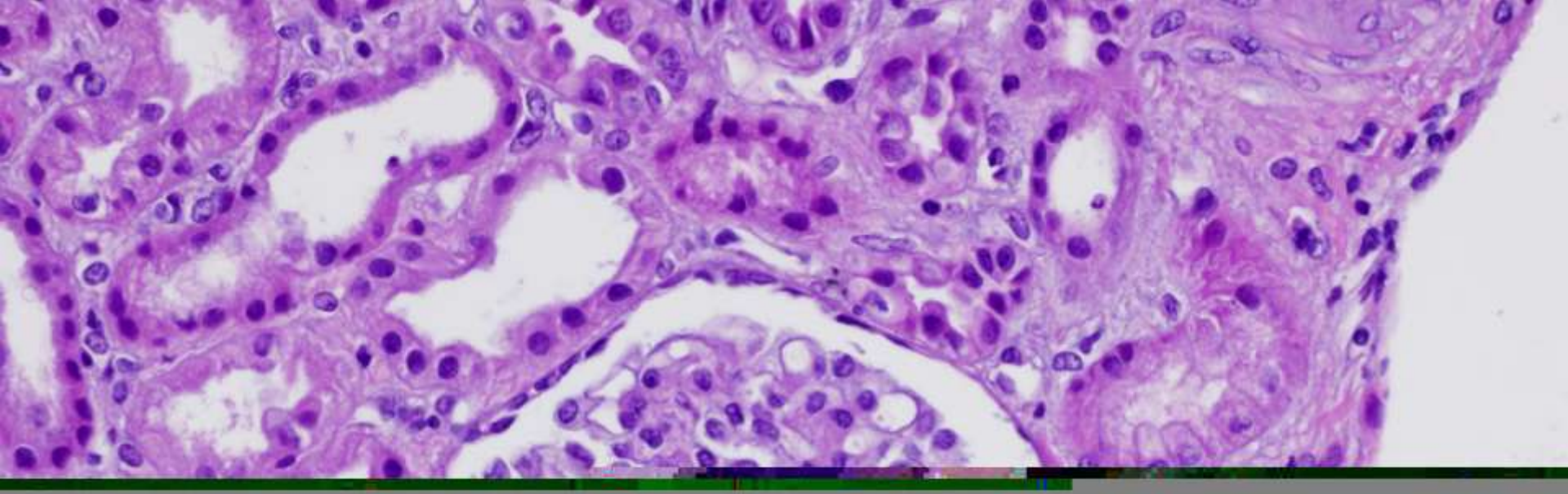
Vadivel N. Kidney Int. 2007 Jan;7:173-7.

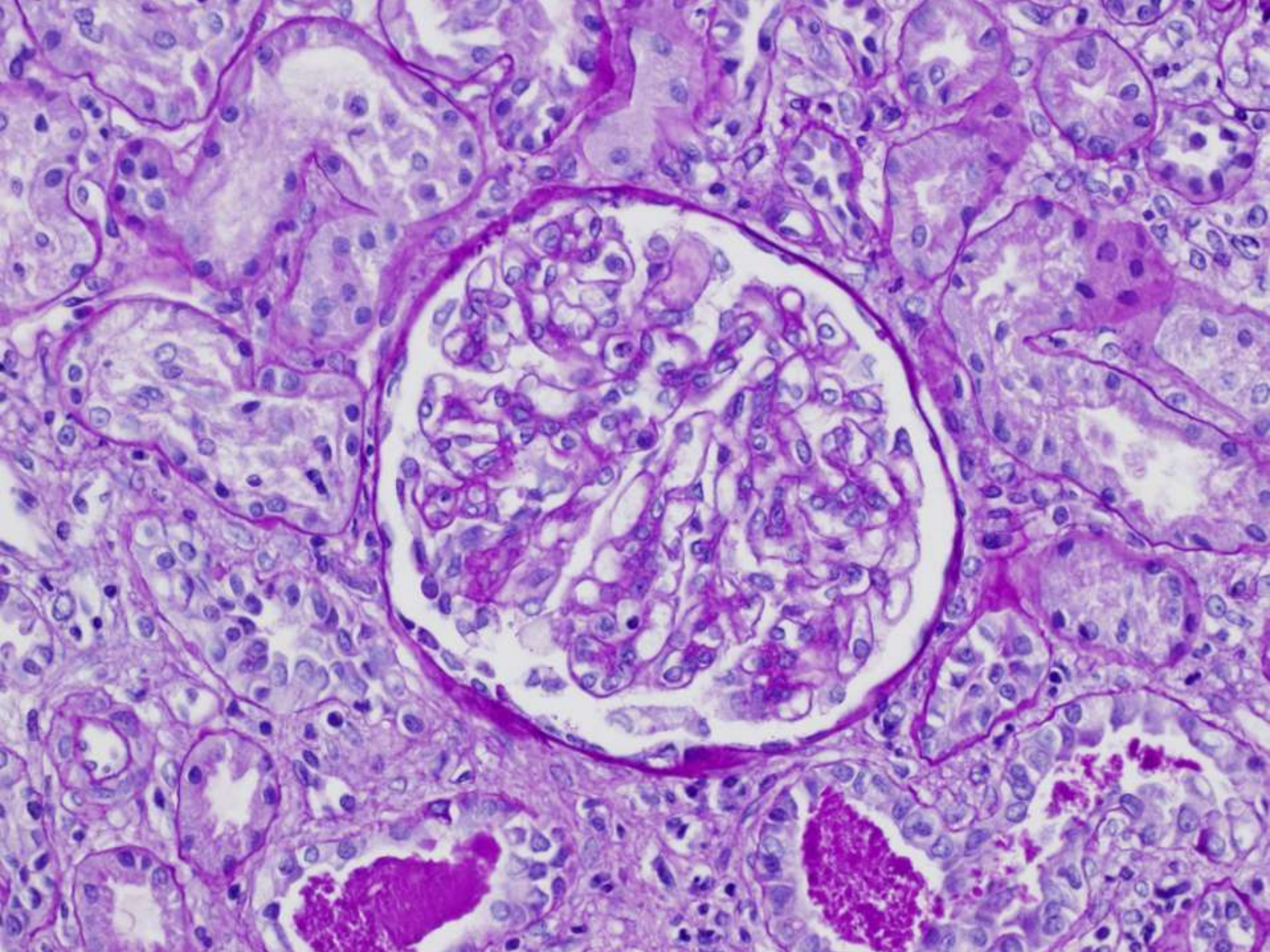
# ¿CONTRAINDICA LA HEMATURIA LA DONACIÓN DEL RIÑON?

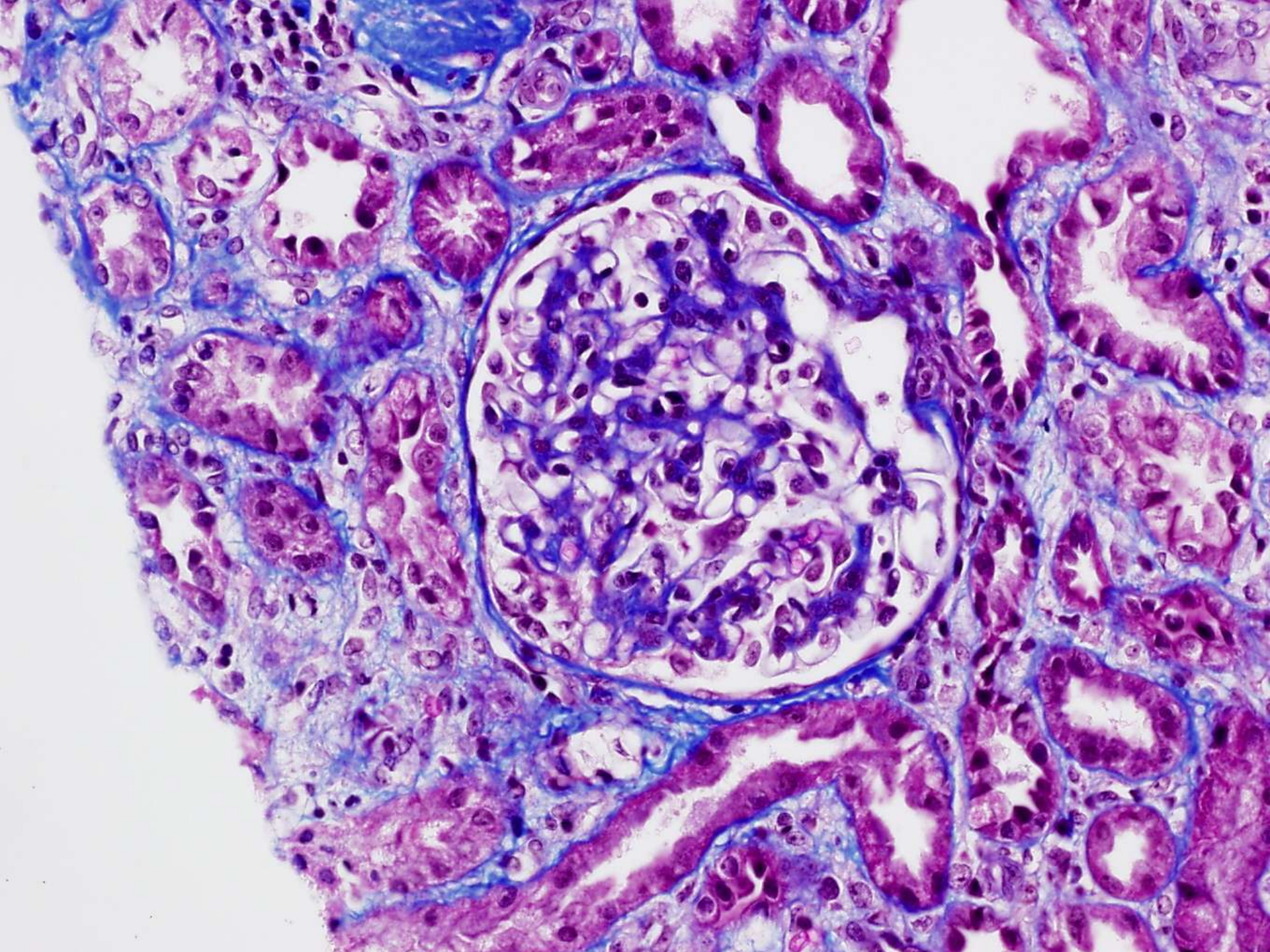
**Table 2 | Algorithm to investigate microscopic hematuria in donors**

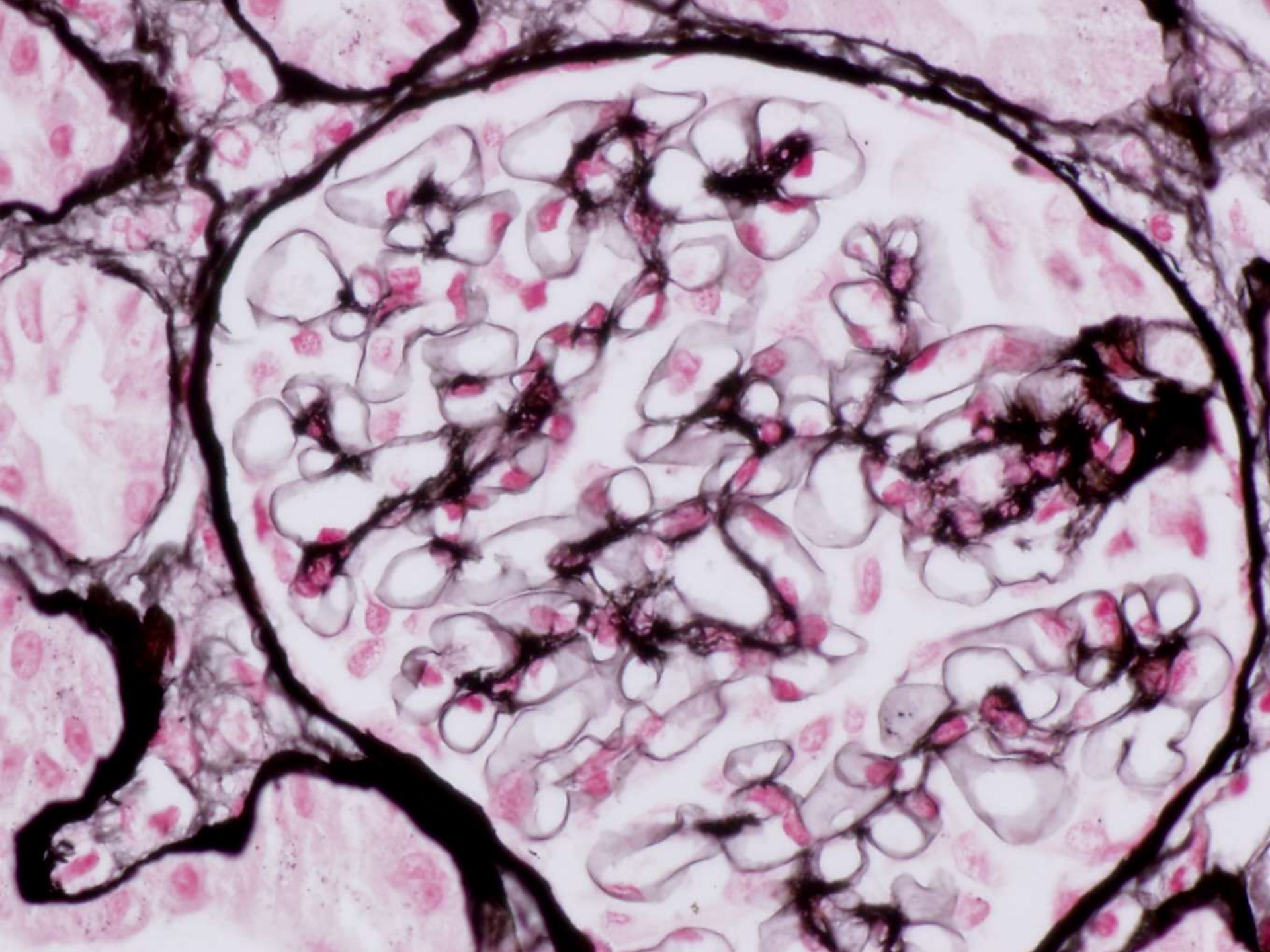


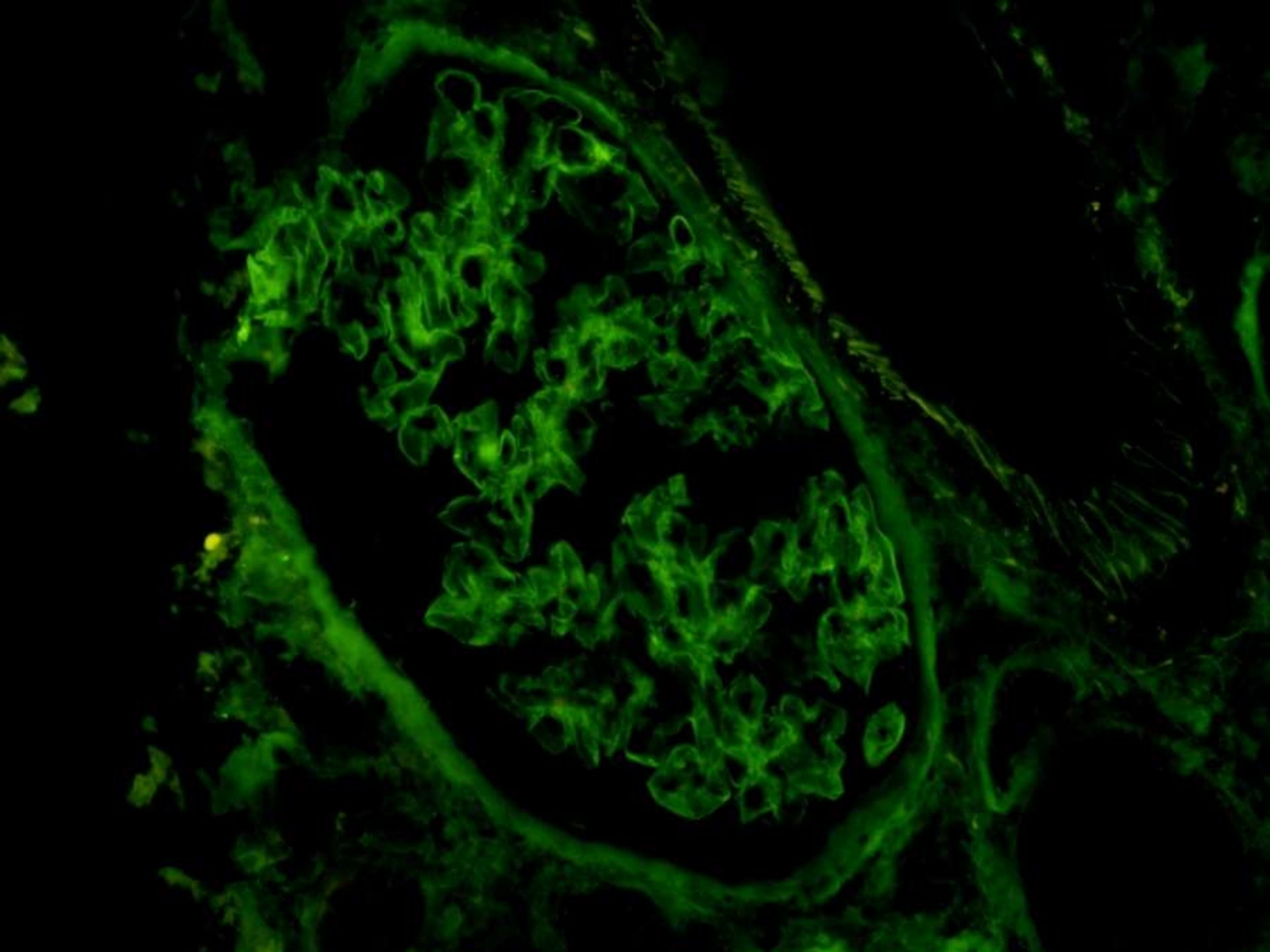

Vadivel N. Kidney Int. 2007 Jan;71:173-7.

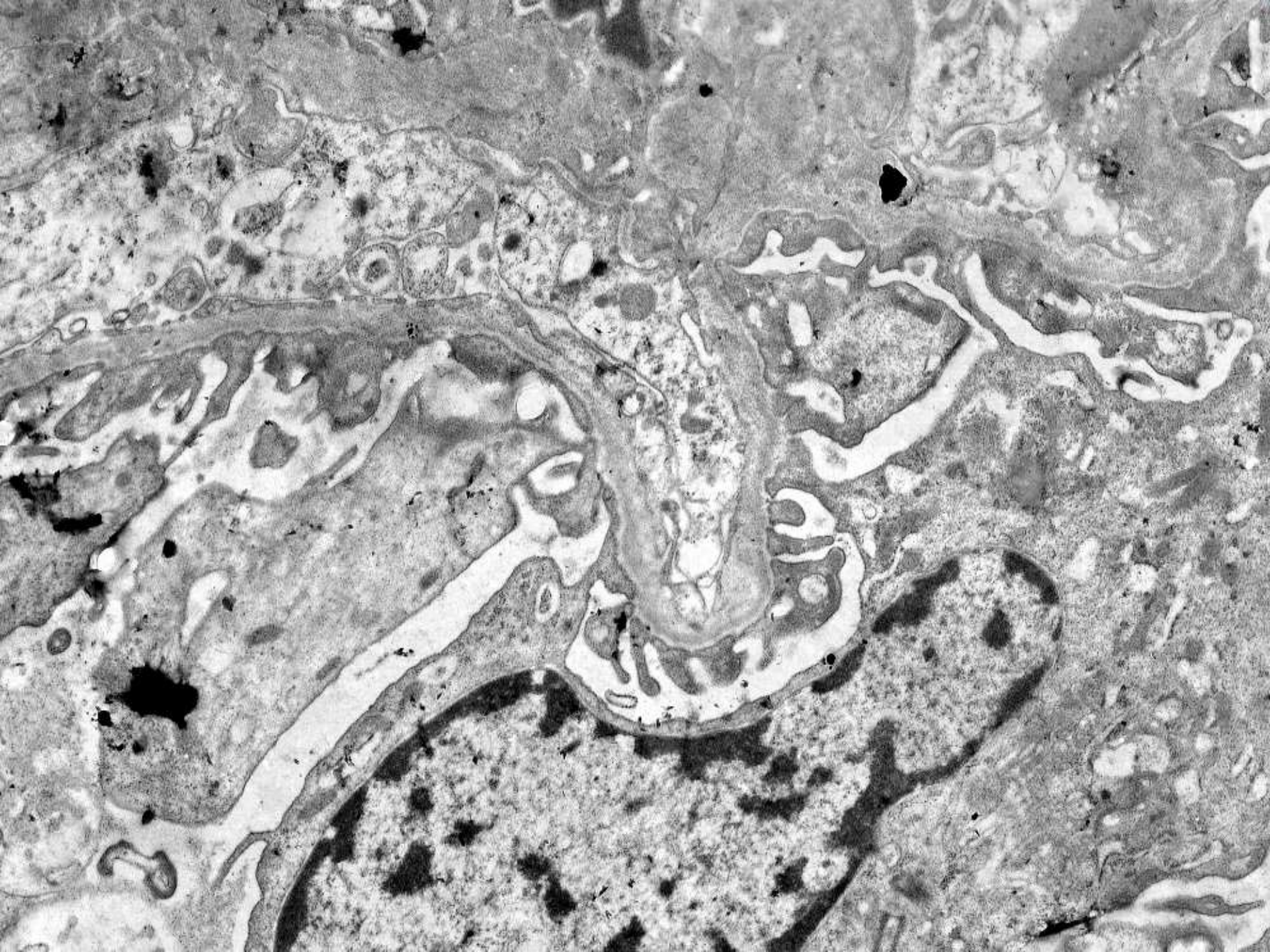


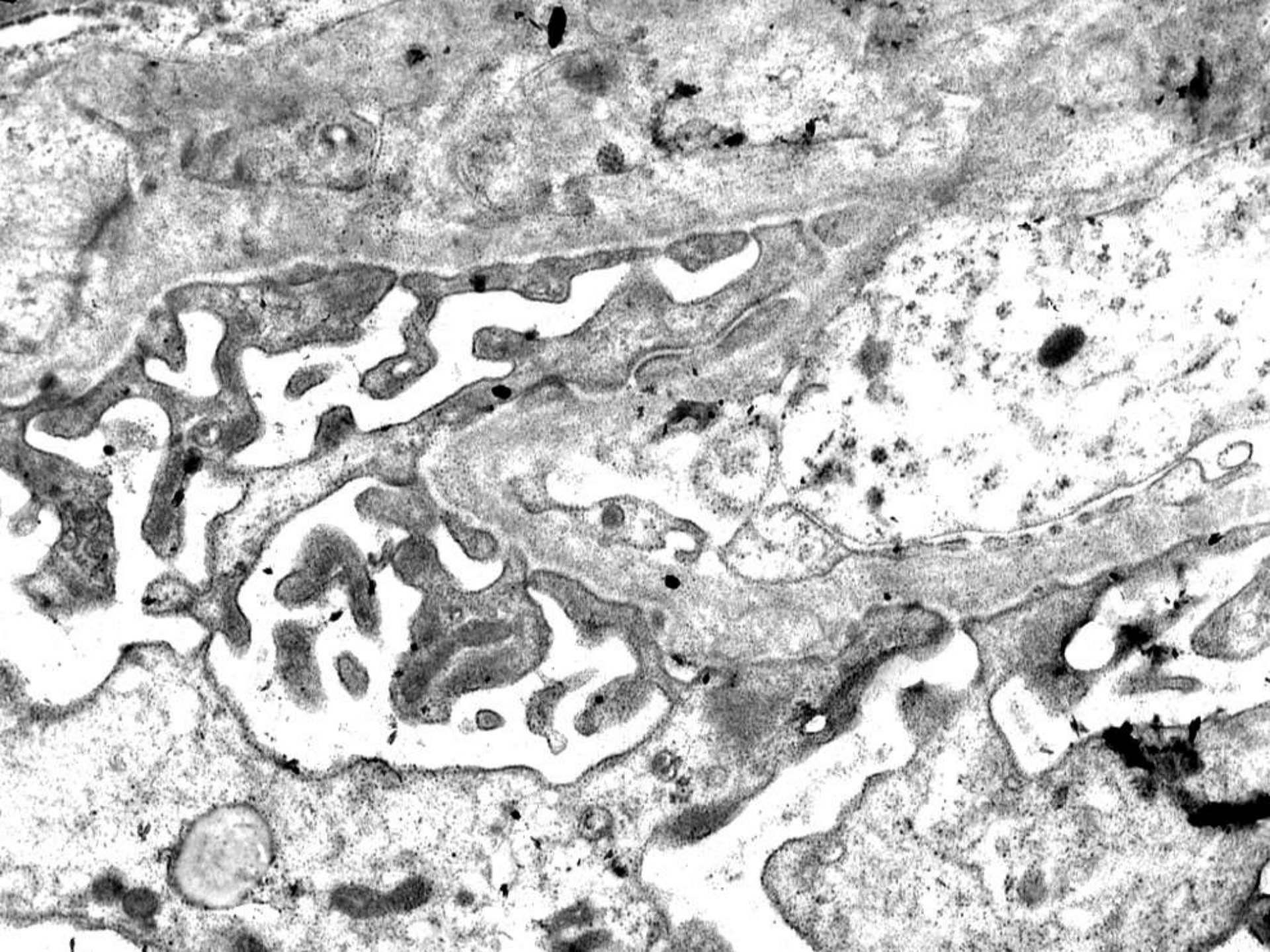


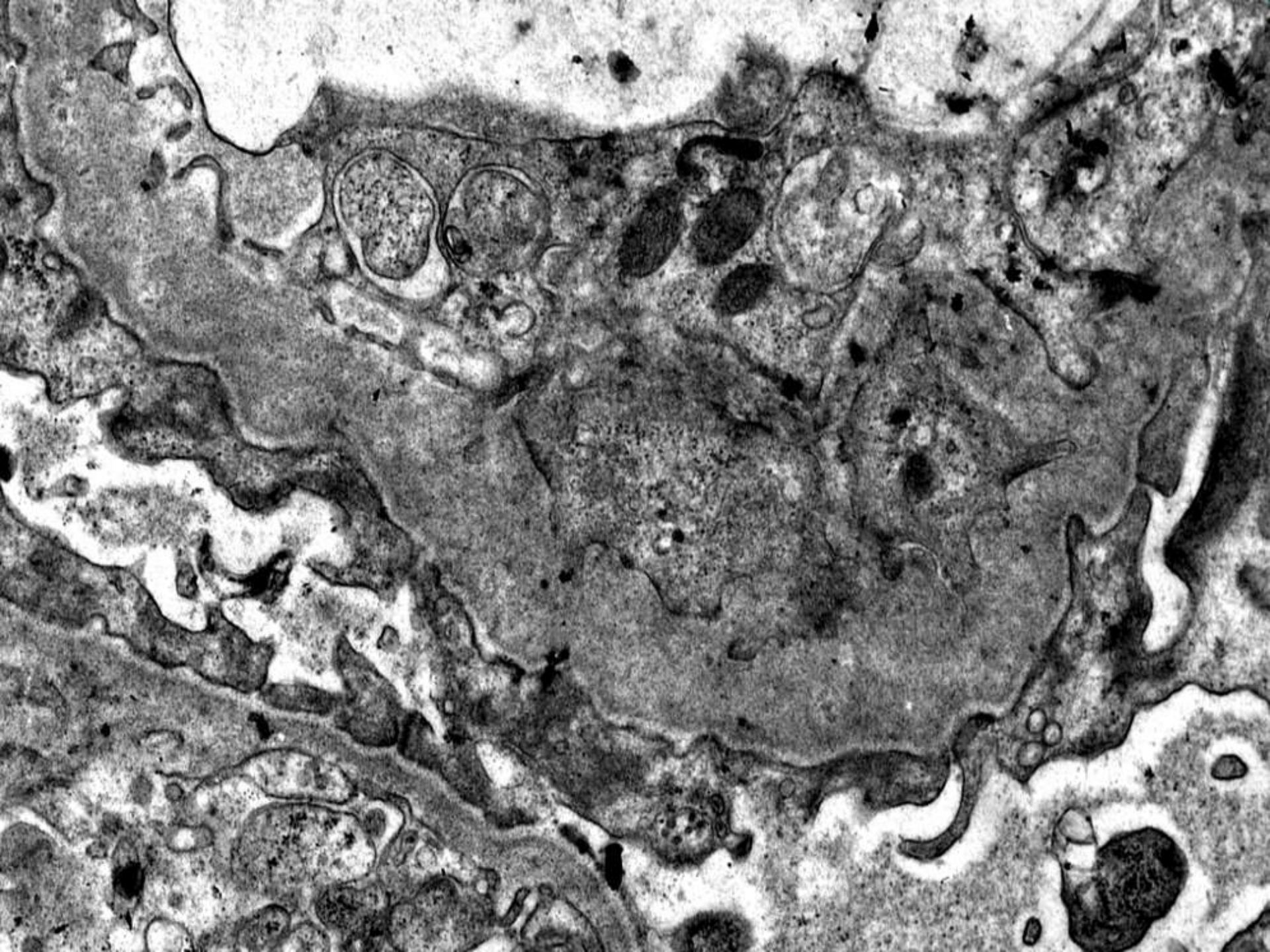












# ¿Está indicada la donación del riñón para trasplante?

American Journal of Transplantation 2010; 10: 1597–1604
Wiley Periodicals Inc.



doi: 10.1111/j.1600-6143.2010.03077.x

# Persistent Glomerular Hematuria in Living Kidney Donors Confers a Risk of Progressive Kidney Disease in Donors After Heminephrectomy

In parallel with the global increase in the prevalence of end-stage kidney disease (ESKD) (1), the number of living donor kidney transplantations for ESKD has steadily increased (2). Because living kidney donation is justified on the premise of acceptable safety (3), the risks involved in heminephrectomy should be clearly determined. Although long-term (up

after donation, which may progress to ESKD (7–11). Nevertheless, factors imposing a postdonation risk on donors, including kidney disease, have been poorly investigated

Here, to clarify whether hematuria is a risk factor for progressive kidney disease after living kidney donation, we investigated the prevalence of hematuria in donors before and after donation. We then checked the association between hematuria and signs of progressive kidney disease, such as the development of persistent proteinuria or decline in renal function in living kidney donors.

-242 donantes vivos
-8,3% presentan **hematuria persistente** antes del trasplante

**Table 2:** Association between baseline characteristics and persistent proteinuria after donation in 242 living kidney donors

| Variable | Proteinuria after donation: No or occasional (n = 222) | Proteinuria after donation: Persistent (n = 20) | p-Value |
|---|---|---|---|
| Male, % | 40.0 | 45.0 | 0.67 |
| Age, years | 57 (49 to 64) | 61 (54 to 69) | 0.15 |
| Hemoglobin, g/dL | 13.5 (12.8 to 14.3) | 13.6 (12.2 to 14.6) | 0.73 |
| Uric acid, mg/dL | 4.8 (4.1 to 5.9) | 4.9 (4.0 to 6.0) | 0.74 |
| Total cholesterol, mg/dL | 202 (178 to 232) | 209 (171 to 221) | 0.78 |
| Triglyceride, mg/dL | 111 (76 to 177) | 118 (85 to 155) | 0.66 |
| Time since donation, month | 27 (15 to 48) | 35 (18 to 47) | 0.37 |

Variables were expressed as median (interquartile range) or percentage.
CKD = chronic kidney disease; eGFR = estimated glomerular filtration rate.

| **Variables estudiadas con resultados significativos** | **Valor p** |
|---|---|
| Aumento de la presión arterial<br>-Sistólica<br>-Diastólica | <0,01 |
| -Tratamiento con antihipertensivos | 0,07 |
| -Proteinuria ocasional con moldes | <0.01 |
| -HEMATURIA DISMÓRFICA PERSISTENTE | <0,01 |

# La hematuria microscopica persistente después de la donación se asocia a menor GFR

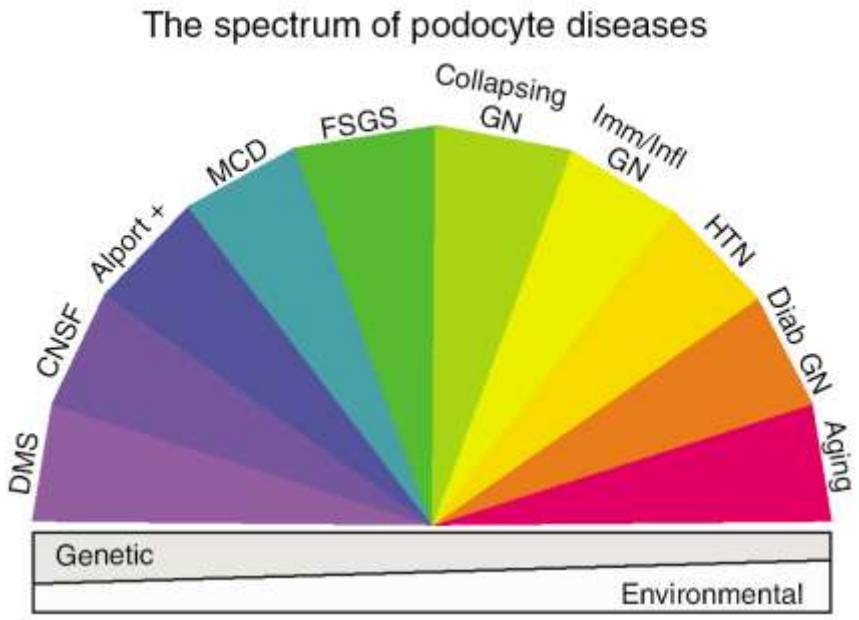
**Table 4:** Association between yearly percent changes in glomerular filtration rate from 1 year after donation and clinical characteristics in 163 living kidney donors

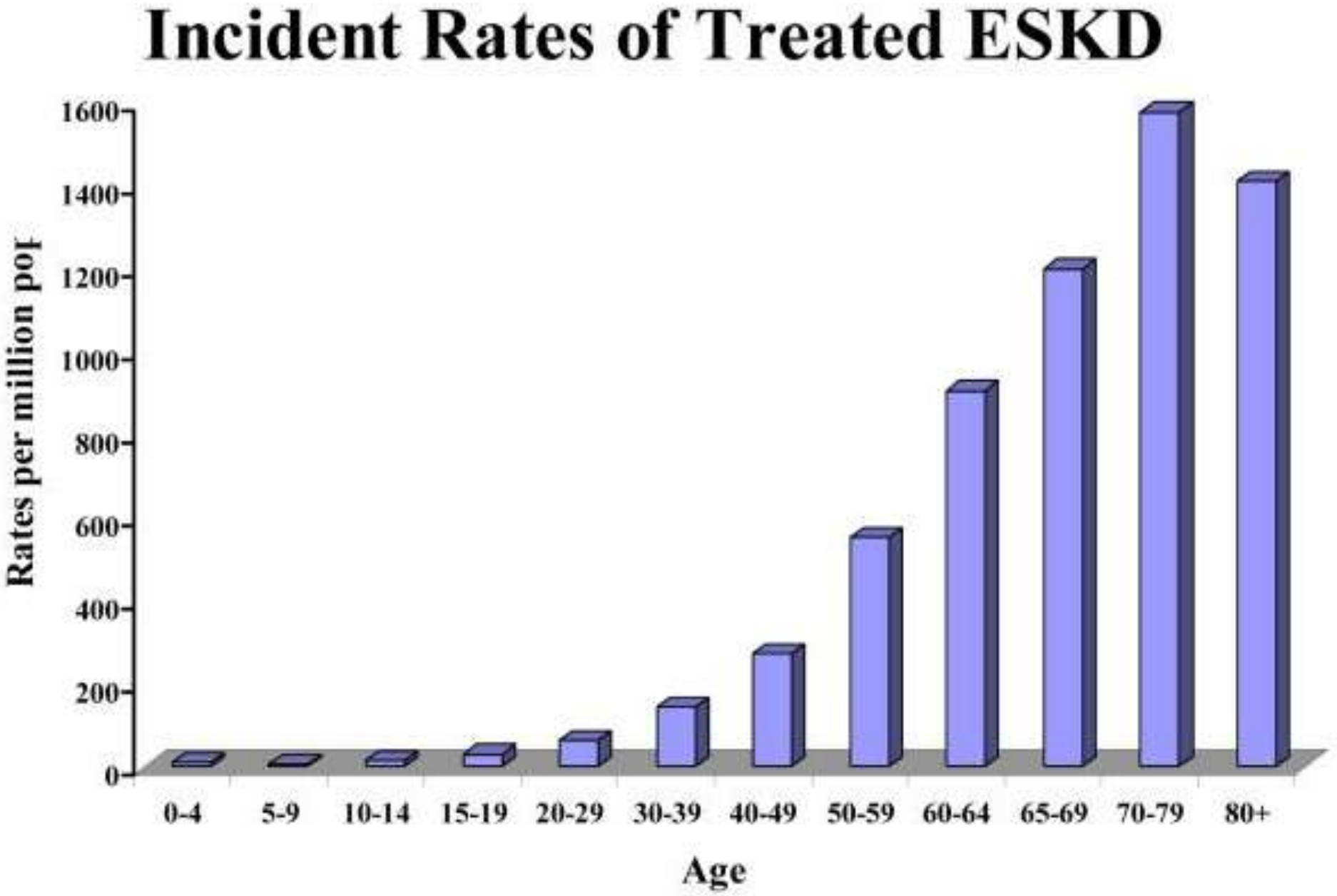
| | Univariate analysis | | Multivariate analysis[1] | |
|---|---|---|---|---|
| Variable | β (95%CI) | p-Value | β (95%CI) | p-Value |
| Predonation characteristic | | | | |
| Body-mass index, kg/m$^2$, 1 unit | 0.26 (0.11 to 0.42) | 0.001 | 0.20 (0.02 to 0.38) | 0.03 |
| eGFR, mL/min/1.73m$^2$, 1 unit | 0.03 (−0.01 to 0.06) | 0.12 | 0.04 (0.01 to 0.07) | 0.04 |
| Proteinuria by dipstick (vs. negative test) | | | | |
| Occasional | −0.01 (−2.49 to 2.48) | 1.00 | −0.27 (−2.79 to 2.24) | 0.83 |
| Postdonation characteristic | | | | |
| Hematuria (vs. negative test) | | | | |
| Occasional | 0.23 (−1.56 to 2.03) | 0.80 | 0.29 (−1.50 to 2.08) | 0.75 |
| Persistent without d-RBC | −0.10 (−3.53 to 3.33) | 0.96 | −0.74 (−4.21 to 2.73) | 0.67 |
| Persistent with d-RBC | −2.07 (−3.70 to −0.44) | 0.01 | −1.69 (−3.36 to −0.01) | 0.048 |
| Time since donation, month, 1 unit | −0.02 (−0.05 to 0.01) | 0.12 | −0.03 (−0.06 to 0.01) | 0.08 |

[1]Adjusted for age, sex, proteinuria, eGFR and body-mass index before donation, and hematuria after donation and variables with p-value less than 0.2 in univariate analysis, namely serum albumin, uric acid, total cholesterol at donation and donation for sibling ($R^2 = 0.15$). Excluded variables from covariates which had a p-value more than 0.2 in univariate analysis: predonation variables of hematuria, smoking, family history of IgA nephropathy or Alport syndrome, serum hemoglobin and triglyceride; and postdonation variables of proteinuria.
CI = confidence interval; d-RBC = dysmorphic red blood cells; eGFR = estimated glomerular filtration rate.

# Significado de la fusión parcial de podocitos

- Puede estar relacionada con episodios cortos de proteinuria o con la edad






Wiggins J. Podocytes and glomerular function with aging. Semin Nephrol. 2009;29:587-93.

# CONCLUSIONES

- Los pacientes con microhematuria glomerular persistente y alteraciones renales morfológicas deben excluirse como donantes vivos.

phic. Although histological findings could not be evaluated in this study, we expect that light microscopy in many of the donors would have revealed minor glomerular abnormality, mild mesangial proliferative change, or partially global sclerosis in glomeruli, with either mesangial IgA and C3 deposition by immunofluorescence (IgAN), as well as thin glomerular basement membrane (GBM) and segmental attenuation of the lamina densa (TBMN), or thickening and lamellation of GBM (AS) on electron microscopy, as previously reported (19,20,29,30).

Although the paucity of evidence for the eligibility of candidates with isolated hematuria and their risk after donation has meant that the acceptability of glomerular hematuria in kidney donors remains controversial (19,20,29,31,32), our results clearly show that donors with persistent hematuria and d-RBC are at significant risk of developing persistent proteinuria or lower GFR, which also confer worse renal outcomes in patients with TBMN, IgAN or AS (31,33–36). The eligibility of potential donors with isolated but persistent dysmorphic hematuria should therefore be closely considered.

http://www.kidney-international.org





# Accepting prospective kidney donors with asymptomatic urinary abnormalities: Are we shooting in the dark?

N Vadivel[1], A Stankovic[1], HG Rennke[1] and AK Singh[1]

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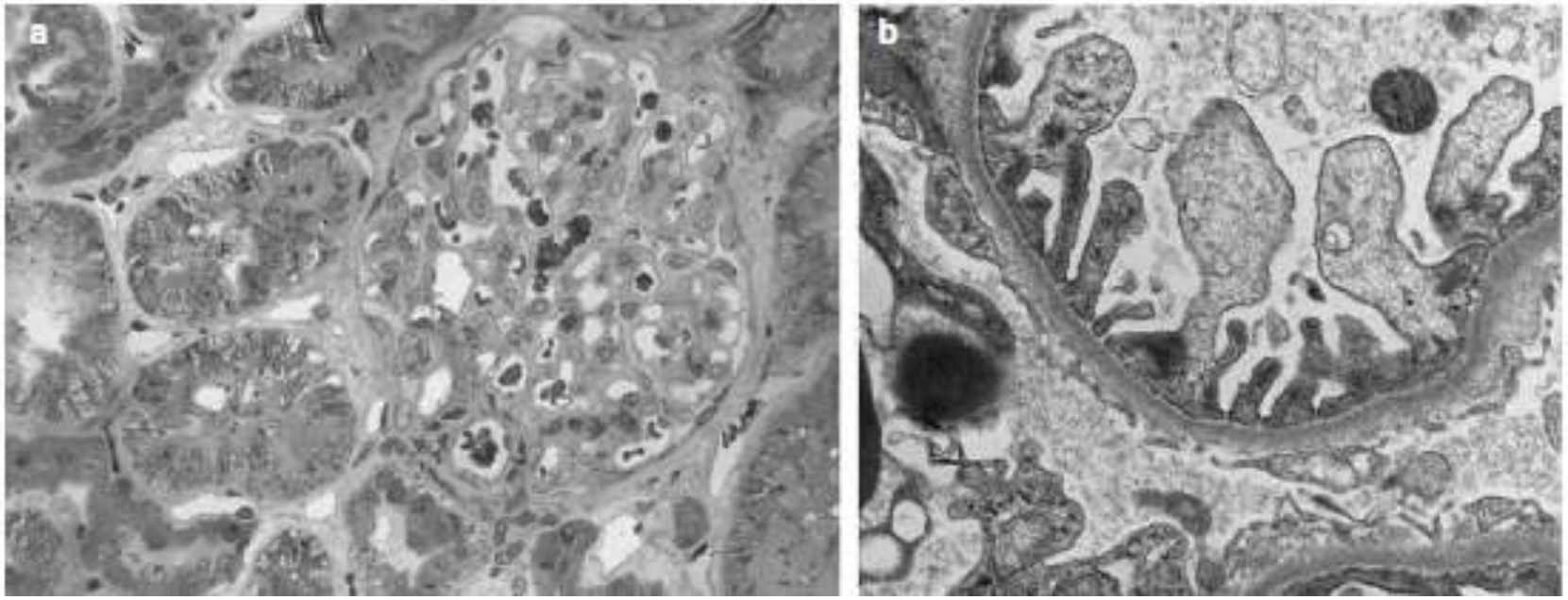
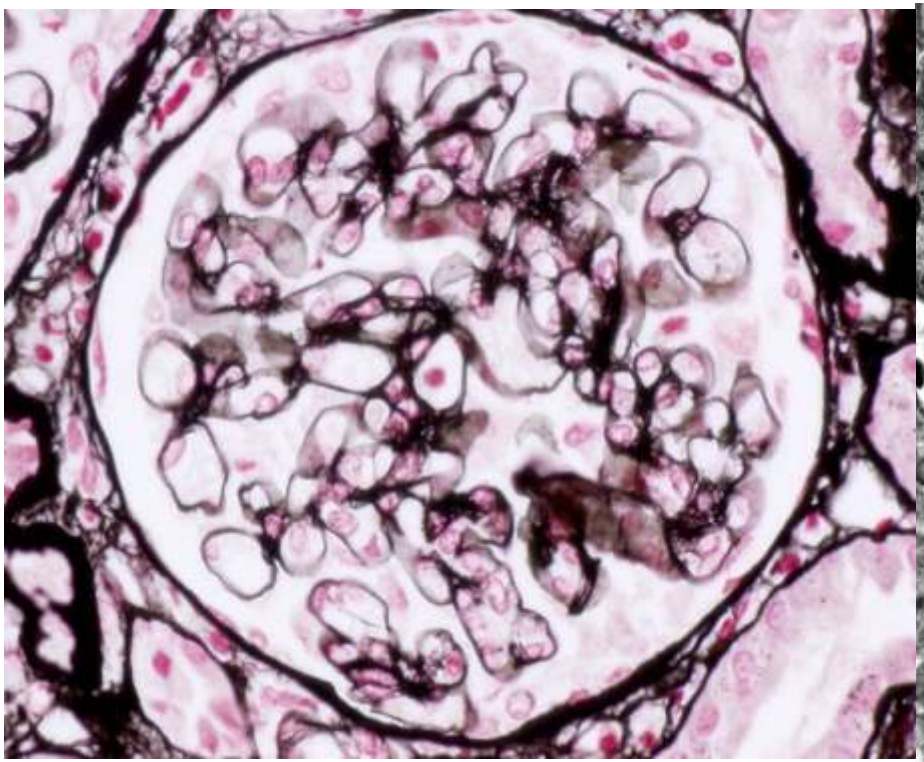
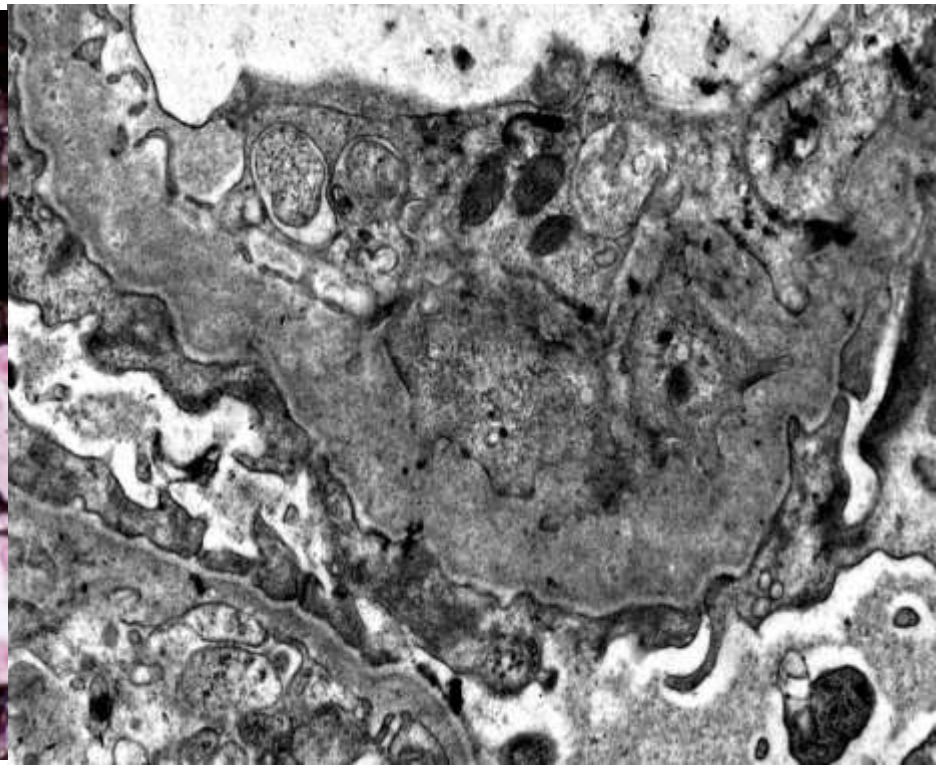



Vadivel N. Kidney Int. 2007 Jan;71(2):173-7.

- Mujer 46 años,posible donante viva
- Hematuria dismórfica persistente
- Sin antecedentes familiares





FUSIÓN PARCIAL DE PODOCITOS

Membrana basal glomerular normal

**SE DESCARTA A LA PACIENTE COMO DONANTE**

MUCHAS GRACIAS POR SU ATENCIÓN