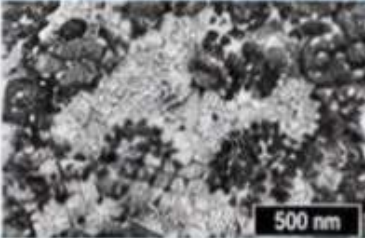
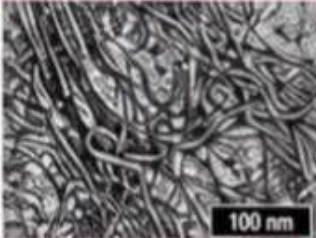
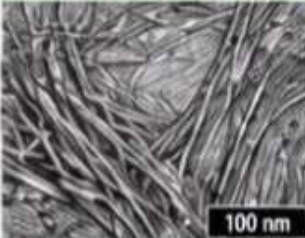
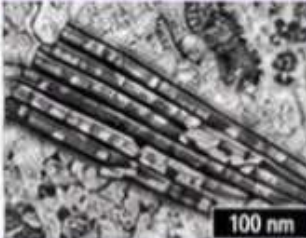
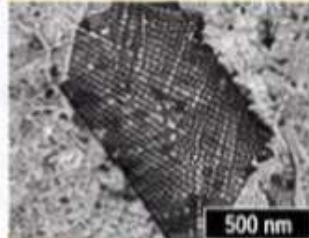
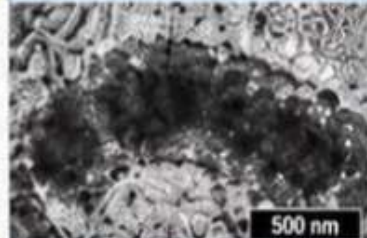


Types of Deposits Identified by Electron Microscopy in Renal Disease

Granular (Amorphous) Deposits	Fibrillary Deposits	Amyloid Fibrils	Microtubular Deposits	Crystalline Deposits	Dense (Highly Electron-Dense) Deposits
					
Granular deposits	Fibrils	Amyloid fibrils	Microtubules	Crystals	Dense intramembranous deposits
• Irregular, non-organized electron-dense deposits • Variable size and shape • Commonly immune complex deposits • Seen in membranous nephropathy, lupus nephritis, postinfectious GN, MPGN, C3 glomerulopathy (C3GN)	• Randomly arranged fibrils • Diameter usually 15–25 nm • Non-branching • Seen in fibrillary glomerulonephritis • DNALB9 often positive (by IHC)	• Randomly arranged fibrils • Diameter 8–12 nm • Non-branching • Extracellular (mesangial and/or capillary wall) • Seen in amyloidosis (AL, AA, hereditary, etc.)	• Organized, parallel tubular structures • Diameter 30–50 nm • Often hollow • Seen in immunotactoid glomerulopathy and some cryoglobulinemic GN	• Well-formed, geometric crystalline structures • Variable shape (needle, rhomboid, rectangular) • Seen in light chain proximal tubulopathy, crystalline podocytopathy and drug related crystal deposition	• Extremely electron-dense ("black") deposits • May be intramembranous and ribbon-like • Seen in dense deposit disease (C3 glomerulopathy) • GBM architecture often obscured



ECNG

Extracorporeal Nephrology Group

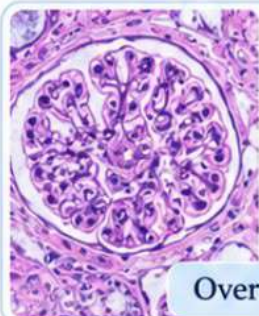
An Academic Forum for Nephrologists, DM Trainees,
Physicians, and Healthcare Professionals

ECNG • RENAL HISTOPATHOLOGY

Light microscopy | Immunofluorescence | Electron microscopy

Clinical Utility of Electron Microscopy (EM) in Renal Biopsy

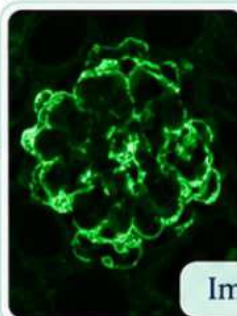
An adjunct to Light Microscopy (LM) + Immunofluorescence (IF)



Light
Microscopy
(LM)

Overall architecture

+



Immuno-
fluorescence
(IF)

Immune deposits

+



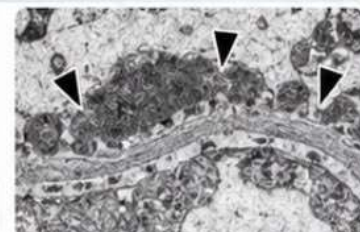
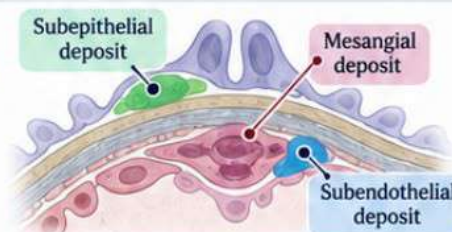
Electron
Microscopy
(EM)

Ultrastructure

What EM adds

1 Deposit location & organization

Subepithelial / subendothelial / mesangial.



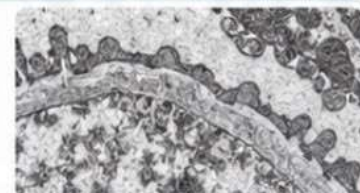
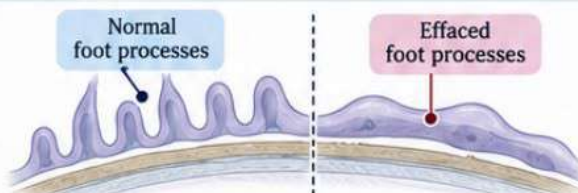
2 GBM architecture

Thinning, thickening, splitting / lamellation.



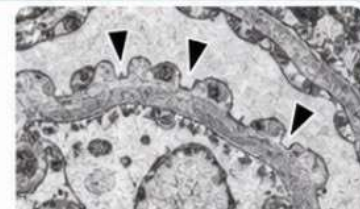
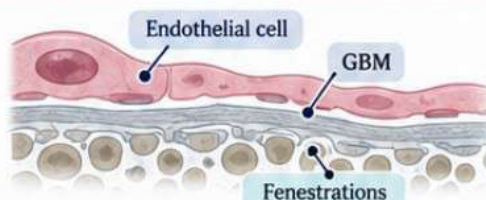
3 Podocyte injury

Foot-process effacement.



4 Endothelial / basement-membrane details

Clues to TMA and inherited disease.



Clinical value | Can refine classification when LM + IF and clinical findings leave uncertainty.

Evidence note: No randomized trial comparing LM + IF with vs without EM identified; support comes mainly from diagnostic-utility evidence and expert practice.

Interpret all findings with clinical context.



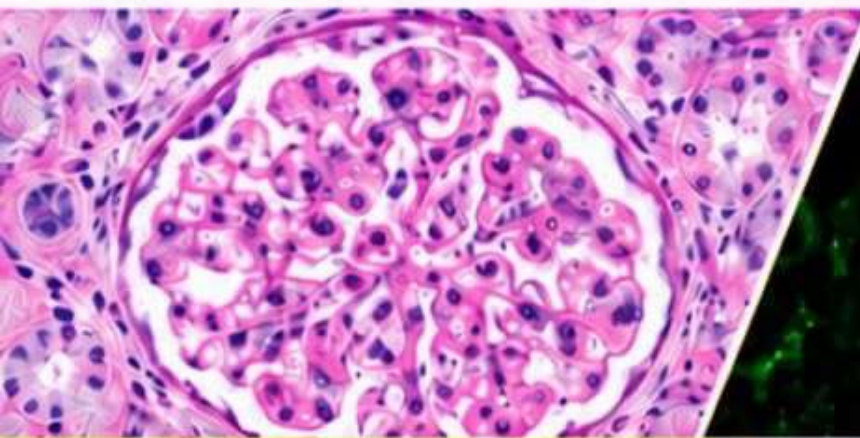
ECNG

Extracorporeal Nephrology Group

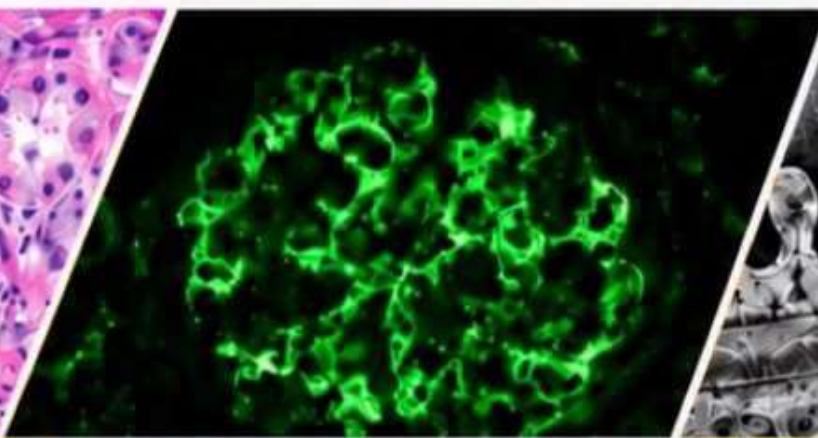
*An Academic Forum for Nephrologists, DM Trainees,
Physicians, and Healthcare Professionals*

RENAL BIOPSY: LM • IF • EM

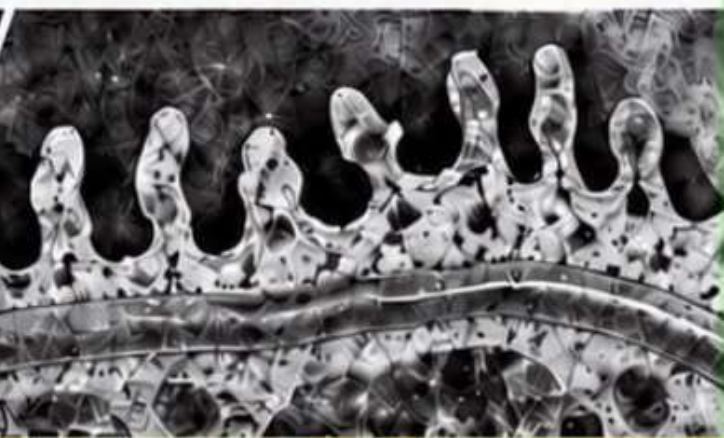
Integrating LM, IF & EM for Accurate Diagnosis and Treatment



LM — Tissue architecture



IF — Immune deposits



EM — Ultrastructure & deposit location