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CD68 immunohistochemistry as a marker of E score for IgA nephropathy classification

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The Oxford Classification of IgA nephropathy(IgAN) is an evidence-based international consensus classification that was developed to improve prognostication in IgAN.

The MEST (mesangial hypercellularity, endocapillary hypercellularity, segmental sclerosis, and interstitial fibrosis/tubular atrophy) criteria have been applied; M 0/1 (\leq / $>$ 50% of glomeruli showing mesangial hypercellularity), E 0/1 (endocapillary hypercellularity absent/present), S 0/1 (segmental glomerulosclerosis absent/present), T 0/1/2 (tubular atrophy/interstitial fibrosis involving $<$ 25%/25–50%/ $>$ 50% of the cortex). By the subsequent validation studies, cellular/fibrocellular crescents have been added in the 2016 revision of the Oxford Classification, forming the MESTC criteria

The Oxford Classification E score (endocapillary hypercellularity) predicts renal functional decline in IgA nephropathy (IgAN) patients free from steroid/immunosuppressive (IS) therapy but is poorly reproducible among pathologists.

Because of the clinical importance of the E score and its poor reproducibility, there is a clear need to improve the scoring methodology. Soares MF et al. hypothesize that endocapillary hypercellularity largely reflects inflammatory cell infiltration within glomeruli and the use of immunohistochemistry to demonstrate CD68+ cells of monocyte-macrophage will resolve scoring difficulties and improve the reproducibility of E score. They demonstrated that a maximum glomerular CD68 count of 6 is the best cut-off for distinguishing E0 from E1 (sensitivity 94.1%, specificity 71%, area under the curve = 89%).

This presentation will introduce the use of CD 68 immunohistochemistry for E scoring with clinicopathologic correlations and share the practical interpretation experience.

1. Roberts ISD, Cook HT, Troyanov S et al. The Oxford classification of IgA nephropathy: pathology definitions, correlations, and reproducibility. *Kidney Int.* 2009; 76; 546–556.
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3. Roberts ISD. Oxford Classification of immunoglobulin A nephropathy: an update. *Curr. Opin. Nephrol. Hypertens.* 2013; 22; 281–286.
4. Soares MF, Genitsch V, Chakera A, Smith A, MacEwen C, Bellur SS, Alham NK, Roberts ISD. Relationship between renal CD68+ infiltrates and the Oxford Classification of IgA nephropathy. *Histopathology.* 2019;74;629-637.