# Correlates of Systemic Disease in Adult IgA Vasculitis: A Retrospective Study of Clinical and Laboratory Findings

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## Background

- IgA vasculitis (IgAV) is a systemic immune complex-mediated, small-vessel leukocytoclastic vasculitis. Clinical manifestations of IgAV include cutaneous purpura, arthralgias, acute enteritis, and glomerulonephritis.
- Several studies have demonstrated that adult patients develop systemic involvement more frequently, with a higher risk of kidney disease and severe GI bleeding compared to children.
- This highlights the importance of identifying prognostic markers that can help identify adult IgAV patients who are at risk of developing unfavorable extracutaneous manifestations.

## Objectives

- Based on previous reports suggesting they may be valuable prognostic indicators, we aimed to assess if IgAV lesions above the waist, neutrophil-to-lymphocyte ratio (NLR) > 3.34, and/or the presence of perivascular IgM on lesional skin biopsies were associated with increased risk of systemic disease.

## Methods

- We performed a retrospective review of adult patients seen at Cleveland Clinic between 2002 and 2022 with the diagnosis of IgAV or with pathology reports containing the terms IgAV or HSP. Patients were included only if they met the EULAR/PRINTO/PRES classification criteria for IgAV and were followed for one year for the development of IgAV-related systemic symptoms.

## Results

- A total of 304 patients met inclusion criteria and systemic involvement occurred in 182 (60%) patients. ***(Table 1)***
- Lesions above the waist were found to be a significant predictor in the development of renal disease (p=0.04). ***(Table 2)***
- IgM deposition and NLR>3.34 were not found to be significant predictors of systemic involvement (p=0.58 and p=0.41, respectively). (***Table 3 and Table 4)***

**Table 1. Summary of demographic and clinical factors**

| Factor | Total (N=304) |
|---|---|
| Male | 164 (53.9) |
| Female | 140 (46.1) |
| Age (mean years) | 51.0 ± 17.9 |
| Race | |
| Asian | 6 (2.0) |
| Black | 23 (7.6) |
| Multiracial/Multicultural | 13 (4.3) |
| White | 253 (83.2) |
| Unknown | 9 (3.0) |
| Duration of cutaneous vasculitic lesions prior to presentation | |
| < 24 hours | 9 (3.0) |
| 24 - 47 hours | 24 (8.1) |
| 48 - 71 hours | 15 (5.0) |
| 72 hours or longer | 250 (83.9) |
| Unknown | 6 (2.0) |
| Lesion Distribution | |
| Below Waist Only | 118 (38.8) |
| Above and Below Waist | 185 (60.9) |
| Unknown | 1 (0.3) |
| Systemic involvement | 182 (59.9) |
| Joint | 89 (29.3) |
| Abdominal | 73 (24.0) |
| Pain | 63 (20.7) |
| GI Bleed | 10 (3.3) |
| Renal | 118 (38.8) |
| Hematuria and/or proteinuria | 62 (20.4) |
| Glomerulonephritis | 56 (18.4) |

Statistics presented as N (%), Mean ± SD

**Table 2. Association between lesion distribution and systemic involvement**

| | | Lesions above the waist N=185 (61) | Lesions below the waist only N=118 (39) | P value |
|---|---|---|---|---|
| Renal | No | 105 (57) | 80 (68) | **0.04** |
| | Yes | 80 (43) | 38 (32) | |
| GI | No | 136 (74) | 95 (81) | 0.11 |
| | Yes | 49 (26) | 23 (19) | |
| Joint | No | 130 (70) | 84 (71) | 0.50 |
| | Yes | 55 (30) | 34 (29) | |

**Table 3. Association between systemic involvement and DIF findings**

| | | No systemic involvement N = 112 (42.7) | Systemic Involvement N = 150 (57.3) | P value |
|---|---|---|---|---|
| IgA | Not present | 47 (42) | 59 (39) | 0.67 |
| | Present | 65 (58) | 91 (61) | |
| IgG | Not present | 104 (93) | 133 (89) | 0.25 |
| | Present | 8 (7) | 17 (11) | |
| IgM | Not present | 88 (79) | 122 (81) | 0.58 |
| | Present | 24 (21) | 28 (19) | |
| C3 | Not present | 45 (40) | 70 (47) | 0.29 |
| | Present | 67 (60) | 80 (53) | |
| Fibrinogen | Not present | 88 (79) | 117 (78) | 0.91 |
| | Present | 24 (21) | 33 (22) | |

Statistics presented as N (column %)

**Table 4. Association between neutrophil-to-lymphocyte ratio (NLR) and systemic involvement**

| | | NLR > 3.34 | NLR ≤ 3.34 | P value |
|---|---|---|---|---|
| Systemic Involvement | No | 36 (50) | 36 (50) | 0.41 |
| | Yes | 54 (44) | 69 (56) | |
| Renal | No | 50 (44) | 63 (56) | 0.53 |
| | Yes | 40 (49) | 42 (51) | |
| Abdominal | No | 71 (48) | 78 (52) | 0.45 |
| | Yes | 19 (41) | 27 (59) | |
| Joint | No | 64 (47) | 73 (53) | 0.81 |
| | Yes | 26 (45) | 32 (55) | |

## Discussion

- Our study retrospectively analyzed clinical and laboratory findings in 304 adult patients presenting with IgAV at a single tertiary care, multi-hospital institution over a 20-year period.
- Systemic involvement in adults is a major cause of morbidity and can lead to significant long-term organ impairment. Of visceral organs that may be affected by IgAV, renal involvement is arguably the most concerning.
- Our research has revealed significant associations with systemic involvement in IgAV patients, providing valuable insights for risk stratification.
- In our cohort, the presence of cutaneous vasculitic lesions above the waist, which is typically indicative of more widespread cutaneous involvement, may serve as a useful predictor of current or impending renal involvement in adults with IgAV. Further studies are needed to confirm this observation.
- Study strengths include cohort size, the largest, to our knowledge, among studies investigating correlations between clinical findings and systemic manifestations of IgAV. Additionally, our cohort was restricted to patients with biopsy-proven leukocytoclastic vasculitis.
- This study was limited by its retrospective nature.

## References

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