COVID ASSOCIATED GLOMERULONEPHRITIS- AN ALARM FOR ATYPICAL INFECTION RELATED GLOMERULONEPHRITIS

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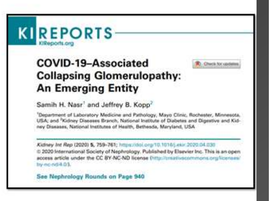
INTRODUCTION

- SARS-CoV-2 is the emerging infection of the 21st century.
- Heterogenous manifestation involving multiple organs.
- Acute tubular injury was postulated as the predominant form of renal injury.
- Glomerular involvement in covid is relatively rare but were reported from various regions.
- Both proliferative and non-proliferative glomerulonephritis had been reported.
- Collapsing glomerulopathy is the commonest entity.
- Infection-related glomerulonephritis (IRGN) is a typical example of immunological, renal injury due to non-renal infections.


KI REPORTS
kireports.org
COVID-19–Associated Collapsing Glomerulopathy: An Emerging Entity
Samih H. Nasr[1] and Jeffrey B. Kopp[2]
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See Nephrology Rounds on Page 940

Aims And Objective

1)To identify the histological changes in a bunch of patients presenting in hospital OPD during 2nd COVID outbreak with
- History of mild respiratory illness in recent past and covid antibody positive in absence of vaccine availability
- Nephrotic range proteinuria with active sediment in urine
- Renal dysfunction and hypertension suggestive of IRGN like illness

3) To follow up the outcome of these patients

Materials and methods

Study Design: Single centre prospective study.
Place of Study: I.P.G.M.E&R and SSKM Hospital, Kolkata.
Sample size: 8 patients : 7 native and 1 post transplant kidney biopsy.
Duration: Oct 2020 to April 2021
Follow up: Till June 2021

Media: Michel's medium.
Stain : Fluorescein isothiocyanate (FITC)-conjugated polyclonal rabbit anti-sera against human IgG, IgM, IgA, C3 & C1q.
The slides examined under immunofluorescence microscope
intensity of deposit : (+) to (+++).
Control slides were examined simultaneously.

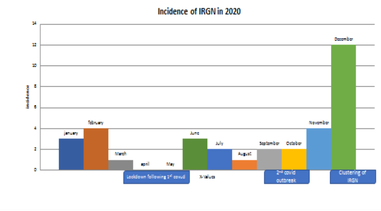
INCLUSION CRITERA

1) All patients are afebrile at presentation and with history of mild respiratory tract infection within 4 to 6 weeks
2) Temporal association with covid infection- SARS COV2 RT-PCR negative report but on further laboratory investigation COVID IgG anti-spike antibody was positive indicating past infection as vaccine was not available in India in that period.
3) Absence of any systemic infection or autoimmune diseases.

EXCLUSION CRITERIA

1)Patient with known autoimmune diseases
2)Chronic kidney diseases

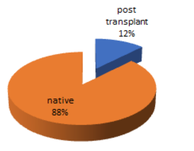
Clustering of IRGN following 2nd covid outbreak: Temporal Association with Covid illness



RESULTS

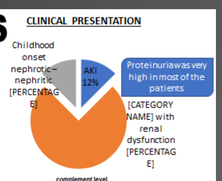
CLINICAL DATA: Atypical IRGN

TYPE OF BIOPSY

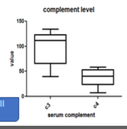


Not only native kidney one transplant patient had this RPGN like illness

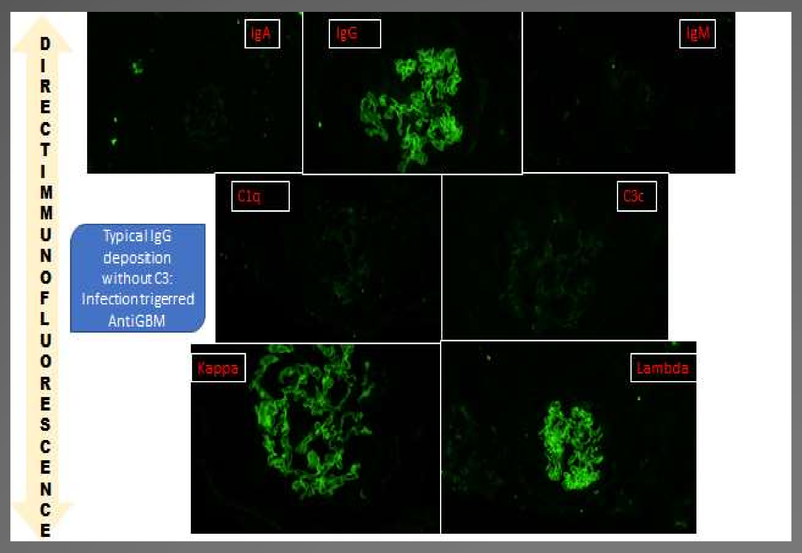
CLINICAL PRESENTATION



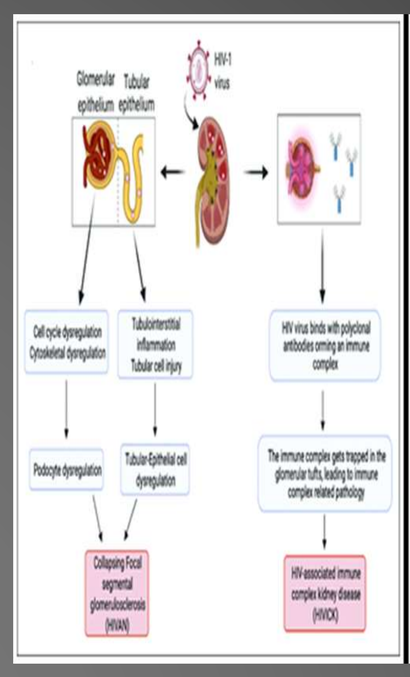
Proteinuria was very high in most of the patients

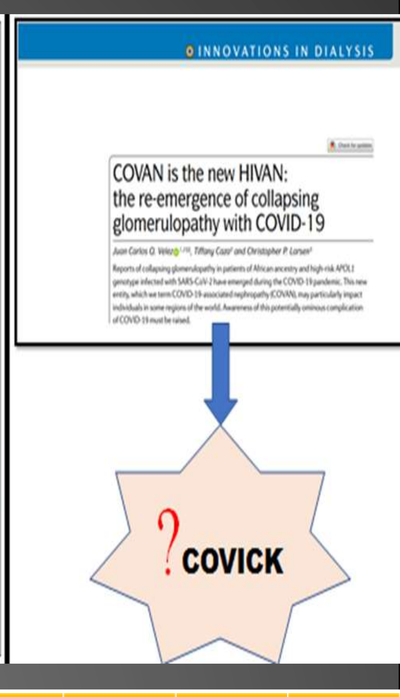


C3 was not low in all patients

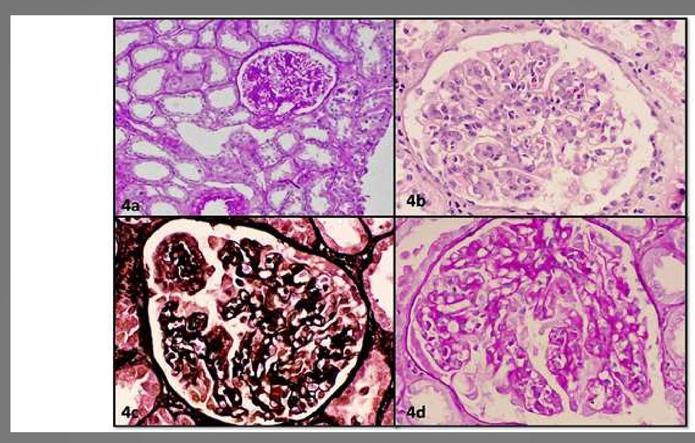


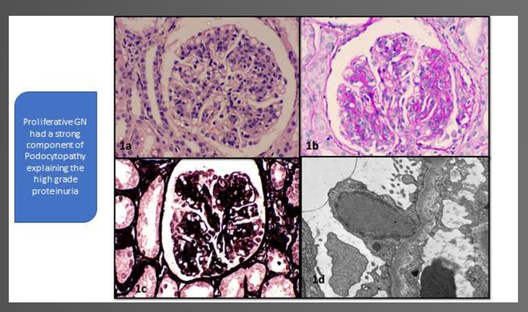
Typical IgG deposition without C3: Infection triggerred AntiGBM





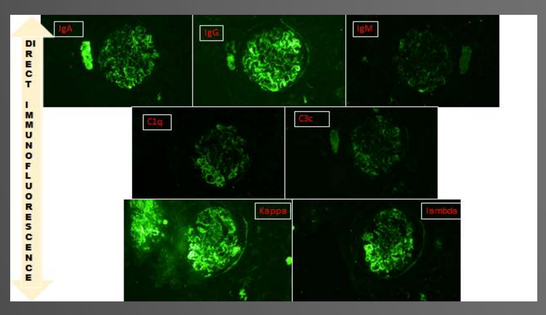
PATTERN OF INJURY



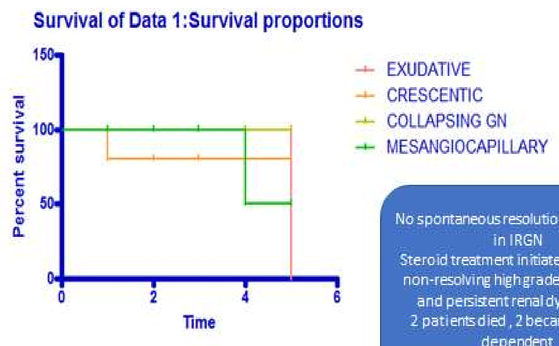


Proliferative GN had a strong component of Podocytopathy explaining the high grade proteinuria

	Our study	Shetty et al,2021	Magoon et al,2020	Kudose et al,2020	Liu et al,2020	Izzedine et al,2020
1.Country	India	United States	England	United States	China	France
2. Number of cases	8	6	2	17	36 trials out of 6395	2
3.Mean age	36.87 years (range 12 to 61)	56 years	42 years	54 years	Not mentioned	43.5
4.Male:female ratio	7:1	1:1	1:1	2.:1	Not mentioned	All female
5.Most common clinical presentation	New onset hypertension	Fever	New onset proteinuria	Nephrotic range proteinuria	AKI and CKD	Nephrotic range proteinuria
6.Pattern of glomerular injury	Exudative and proliferative glomerulonephritis with variable number of crescents, along with	Collapsing GN	Collapsing variant of FSGS	podocytopathy,(five patients with collapsing glomerulopathy and one patient with minimal change disease)	Not mentioned.	Collapsing glomerulopathy

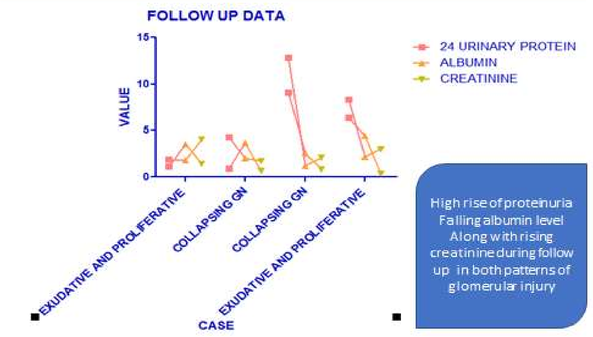


SURVIVAL

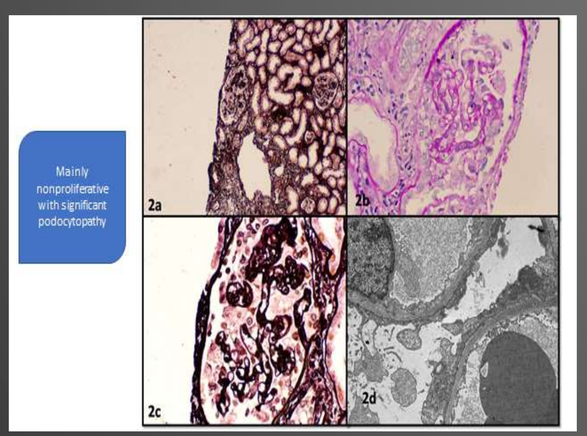


No spontaneous resolution as expected in IRGN
Steroid treatment initiated observing non-resolving high grade proteinuria and persistent renal dysfunction
2 patients died , 2 became dialysis dependent

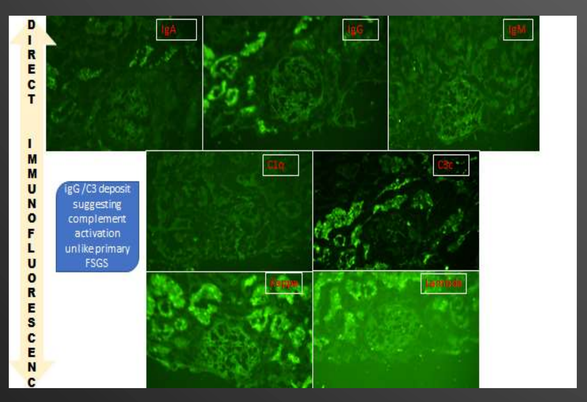
FOLLOW UP DATA



High rise of proteinuria
Falling albumin level
Along with rising creatinine during follow up in both patterns of glomerular injury



Mainly nonproliferative with significant podocytopathy

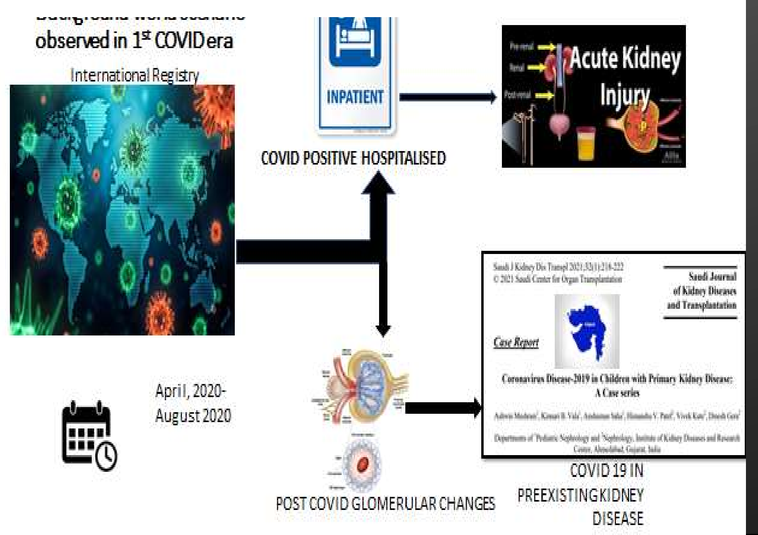


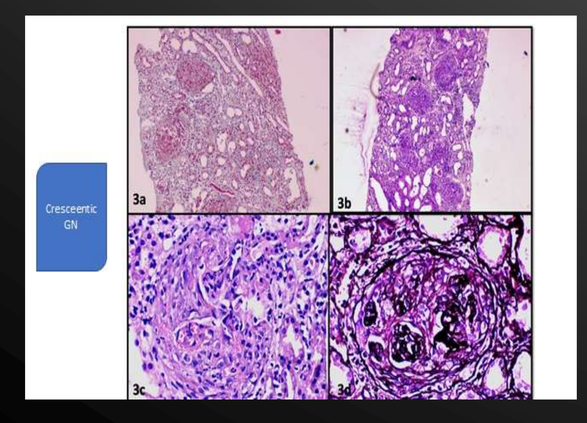
IgG /C3 deposit suggesting complement activation unlike primary FSGS

CONCLUSION

- We reported a case series with varied form of glomerular injury.
- Prognosis is worse both in collapsing GN and exudative proliferative disease.
- 50% patients progressed to end stage renal diseases with death among two of them.
- We conclude infection related glomerular disease and immune mediated injury with covid aetiology had worse outcome : It should be an alarm to the clinician

DISCUSSION





Cresceentic GN

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