

PLA2R antibodies and PLA2R and THSD7A glomerular deposits in psoriasis patients with membranous nephropathy

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Background:

- The association between psoriasis and membranous nephropathy (MN) remains largely unclear.
- we examined the prevalence of serum PLA2R antibody and characterized the expression of PLA2R and THSD7A in the glomeruli in patients with renal biopsy-confirmed MN and psoriasis.

Methods:

- A total of 24 patients with MN without evidence of a secondary cause except psoriasis were enrolled.
- The clinical and pathological features were retrospectively analyzed.
- Serum anti-PLA2R antibody was measured using IFA Mosaic.
- Renal tissue samples stored in the laboratory bio-bank were used for PLA2R staining under immunofluorescence microscopy and THSD7A immunohistochemical analysis.

Results:

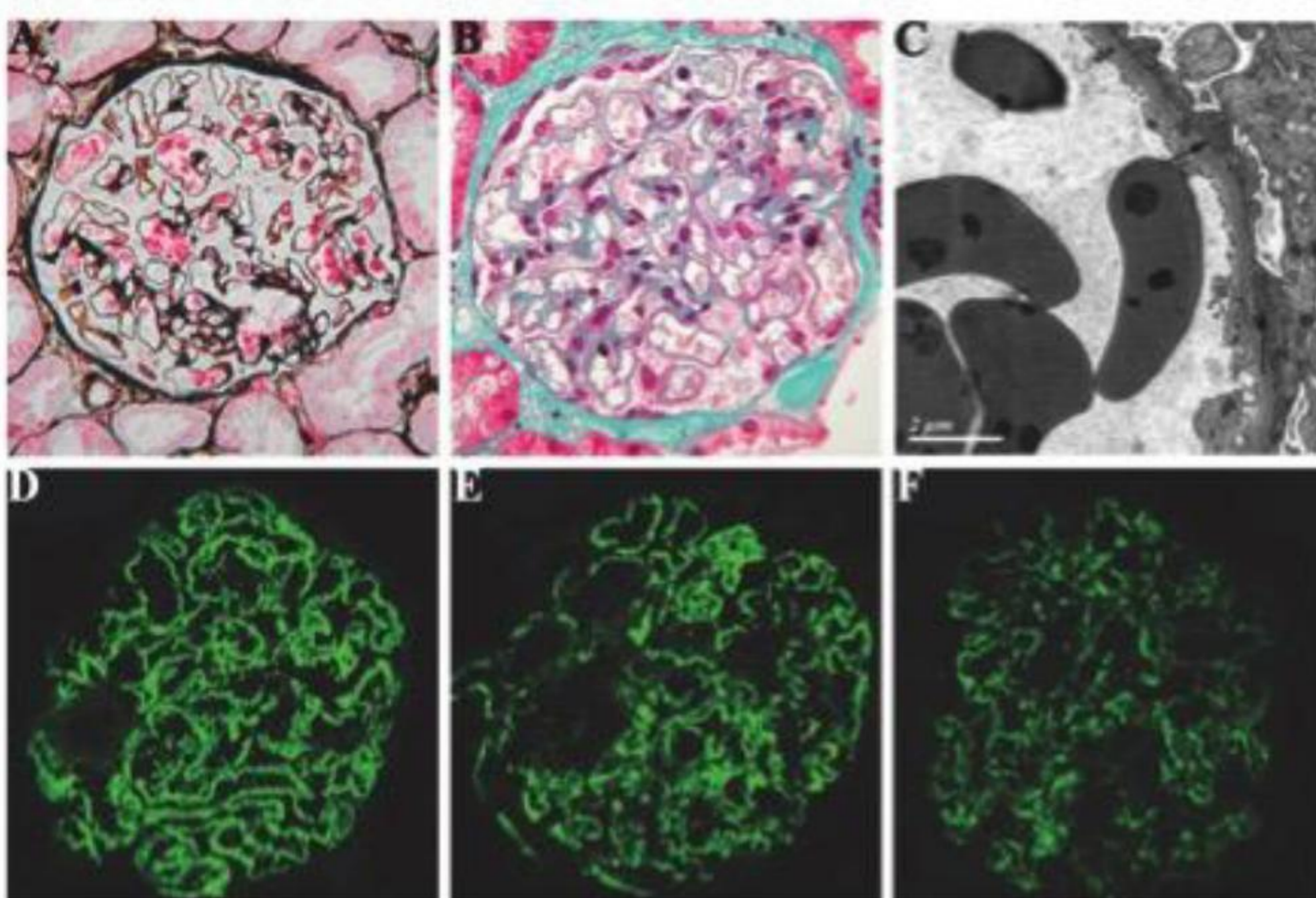
Table 1. General characteristics of patients with psoriasis and MN

Characteristics	
Patients (n)	24
Male/Female	21/3
Mean age±SD (range, yr)	43.58±15.68 (17-69)
Duration of psoriasis (Median, range) (m)	90 (4-480)
Duration of kidney disease (Median, range) (m)	2 (0.33-108)
Serum creatinine (mg/dl)	0.99 ± 0.43
Serum albumin (g/l)	28.25 ± 8.77
Urinary protein (g/24 h)	4.99 ± 2.87
Hematuria, n (%)	5 (20.8)
Hypertension, n (%)	9 (37.5)
Anemia, n (%)	3 (12.5)
Diabetes mellitus, n (%)	5 (20.8)
Low complement C3, n (%)	4 (16.7)
Serum anti-PLA2R antibody positive, n (%)	7 (29.2)

Table 2. IF and EM findings in patients with psoriasis and membranous nephropathy

Case	IF findings						Electron microscopy findings			Stage of MN
	IgG	IgA	IgM	C3	C1q	PLA2R	Subepithelial deposits	Subendothelial deposits	Mesangial deposits	
1	1+	1+	1+	1+	1+	Neg	ND	ND	ND	ND
2	2+	1+	Neg	2+	Neg	Neg	ND	ND	ND	ND
3	1+	Neg	1+	1+	1+	Neg	ND	ND	ND	ND
4	2+	1+	1+	2+	Neg	Neg	ND	ND	ND	ND
5	2+	1+	Neg	2+	Neg	Neg	+	Neg	Neg	2
6	4+	1+	1+	2+	1+	Neg	+	Neg	Neg	2
7	2+	Neg	Neg	1+	Neg	Neg	+	+	+	2
8	2+	Neg	Neg	2+	1+	Neg	+	Neg	Neg	2
9	2+	1+	Neg	1+	Neg	Neg	+	Neg	+	3
10	2+	Neg	Neg	2+	1+	Neg	+	Neg	+	1
11	2+	Neg	Neg	2+	1+	Neg	+	+	+	1
12	2+	1+	1+	2+	1+	+	+	Neg	Neg	3
13	2+	Neg	Neg	1+	1+	+	+	Neg	+	3
14	2+	Neg	Neg	2+	Neg	Neg	+	Neg	Neg	1
15	2+	Neg	Neg	1+	Neg	+	+	Neg	Neg	3
16	2+	Neg	Neg	Neg	Neg	Neg	+	Neg	+	2
17	2+	1+	1+	1+	1+	Neg	+	Neg	+	3
18	2+	Neg	Neg	2+	1+	+	+	Neg	Neg	2
19	2+	2+	Neg	1+	Neg	+	+	Neg	+	3
20	2+	Neg	Neg	2+	1+	+	+	Neg	Neg	2
21	2+	Neg	Neg	2+	Neg	+	+	+	+	3
22	2+	Neg	1+	2+	Neg	Neg	+	Neg	Neg	2
23	2+	Neg	Neg	2+	Neg	Neg	+	Neg	Neg	1
24	2+	Neg	Neg	2+	Neg	Neg	+	Neg	Neg	3

Figure 1. Pathologic findings of MN in patients with psoriasis.

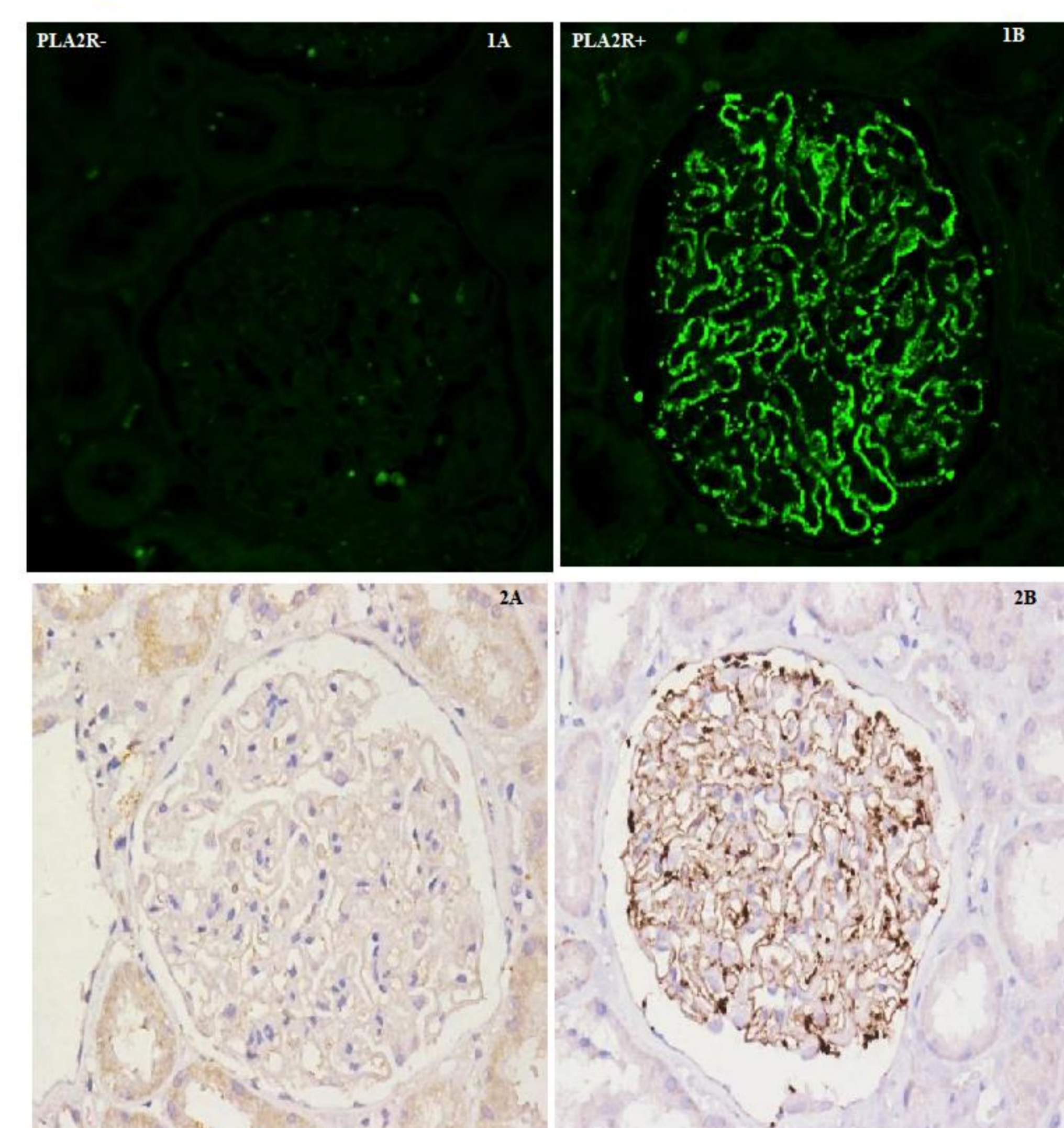


- (A) and (B) Glomeruli with subepithelial fuchsinophilic deposits along the epithelium.
- (C) Glomerular subepithelial electron-dense deposits with foot process effacement.
- (D)-(F) Staining for IgG (2+), C3 (2+) and C1q (1+)

Conclusions:

The prevalence of serum anti-PLA2R antibody and glomerular expression of PLA2R and THSD7A was significantly lower in patients with psoriasis and MN than in those with idiopathic MN, suggesting that MN is secondary to psoriasis in the majority of patients. However, idiopathic MN might also accompany psoriasis in a minority of psoriatic patients with positive serum anti-PLA2R antibody.

Figure 2. Expression of PLA2R and THSD7A in glomerular



- PLA2R was negative in 17 patients (1A), and positive in 7 patients with MN and psoriasis (1B).
- THSD7A was negative in all 24 patients (2A), and a positive control is shown in patients with idiopathic MN (2B).