

# Journal of Nephrology

## Concurrent diabetic nephropathy and C1q nephropathy in a young male patient: The first report in literature

Ali Momeni<sup>1,\*</sup>, Hamid Nasri<sup>2</sup>

<sup>1</sup>Department of Nephrology, Shahrekord University of Medical Sciences, Shahrekord, Iran

<sup>2</sup>Department of Nephrology, Division of Nephropathology, Isfahan University of Medical Sciences, Isfahan, Iran

### ARTICLE INFO

*Article type:*  
Case Report

*Article history:*  
Received: 3 December 2012  
Revised: 29 January 2013  
Accepted: 28 February 2013  
Published online: 1 July 2013

*Keywords:*  
C1q nephropathy  
Diabetic nephropathy  
Glomerulopathy

### ABSTRACT

**Background:** C1q nephropathy (C1qN) is an uncommon glomerulopathy with a significant deposition of C1q in mesangium without clinical evidence of lupus. According to the best of our knowledge, there is not any report on coincidence of diabetes mellitus and C1qN.

**Case presentation:** In this report, we presented a 28 years-old-patient with type 1 diabetes and nephrotic range proteinuria, glomerular hematuria and C1q glomerulopathy in renal biopsy.

**Conclusions:** According to the best of our knowledge, there is no previous report about the association between type 1 DM and C1qN. Prevalence of autoimmune disease is higher in type 1 DM and this may explain the relation between DM and C1qN in our patient.

### *Implication for health policy/practice/research/medical education:*

C1q nephropathy (C1qN) is an uncommon glomerulopathy with a significant deposition of C1q in mesangium without clinical evidence of lupus. According to the best of our knowledge, there is not any report on coincidence of diabetes mellitus and C1qN. Prevalence of autoimmune disease is higher in type 1 DM and this may explain the relation between DM and C1qN in our patient.

**Please cite this paper as:** Momeni A, Nasri H. Concurrent diabetic nephropathy and C1q nephropathy in a young male patient: the first report in literature. J Nephrology. 2013; 2(3): 201-203, DOI: 10.12860/JNP.2013.32

### Introduction

C1q nephropathy (C1qN) is an uncommon glomerular disorder with mesangial deposits on electron microscopy and prominent C1q deposits on immunofluorescence microscopy. In light microscopy, minor changes, focal segmental glomerulosclerosis (FSGS), proliferative glomerulonephritis, or other lesions may be seen. Generally, two predominant

clinicopathologic features of C1qN are minimal change-like lesion or FSGS, with significant proteinuria, and a typical immune complex-mediated glomerular disease with different severity of glomerular lesions.

Moreover, diagnosis of C1qN is based on the presence of intense, mesangial staining for C1q without clinical evidence of SLE (1). Due to different descriptions of symptoms of disease, his-

\*Corresponding author: Ali Momeni, Internal Medicine Department, Hajar Hospital, Shahrekord, Iran. Tel: +989133267459, Fax: +91318 2245 715, Email: [ali.momeny@yahoo.com](mailto:ali.momeny@yahoo.com)

topathology features, and prognosis, C1qN may be a combination of several diseases rather than a single disorder (2).

In the early stage of type 1 diabetes mellitus (DM) glomerular enlargement, hyperfiltration, and increased glomerular filtration rate occurs. The first pathological findings in light microscopy are mesangial expansion and thickening of glomerular basement membrane, that become apparent a few years after beginning of DM (3). After several years, the characteristic diabetic nephropathy (DN) lesions including glomerular nodular sclerosis (Kimmelstiel Wilson), or diffuse sclerosis may be observable (4). Herein we present a case of 28 years-old man presenting with increasing peripheral edema and nephrotic range proteinuria. His renal biopsy examination revealed concurrent DN and C1qN. To the best of our knowledge, this is the first case report of such association in the literature.

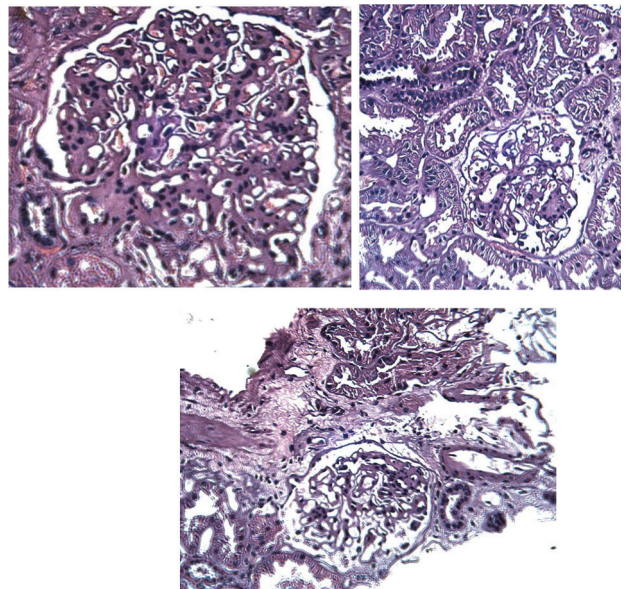
## 2. Case

The patient was a 28-years-old man with type 1 DM for about 14 years. He was referred to nephrology clinic because of increasing peripheral edema and nephrotic range proteinuria.

Physical examination showed that he had 3+ pitting edema and blood pressure of 130/90 mmHg. Laboratory examinations revealed the following information: Hemoglobin = 12.8 g/dl, blood urea nitrogen = 36 mg/dl, serum creatinine = 2.2 mg/dl, Na = 138 meq/lit, K = 4.9 meq/lit, calcium = 8.4 mg/dl, phosphorus = 5 mg/dl, parathormone = 74 µg/ml, serum PH = 7.38, serum bicarbonate = 21 meq/lit, serum albumin = 2.8 g/dl. The patient's urinalysis showed 3+ protein and 40-50 dysmorphic red blood cells (RBCs) in high power field of light microscopy. There was 3850 mg/day proteinuria. Kidneys' sizes in sonography were 105 and 108 mm with

cortical thickness of about 11 to 12 mm. Patient's documents revealed persistent hematuria, three years before referring.

In examination, proliferative retinopathy was detected and photocoagulation of retina was conducted. The results of kidney biopsy were as follow: In mesangial area, mesangial proliferation and widening of mesangial area and nodular glomerulosclerosis were observed. Moreover, a capsular drop was seen. Mild interstitial fibrosis and mild arteriolosclerosis were found, too. There was RBCs in tubular lumens. In immunofluorescence microscopic study, there was a significant C1q deposition (>2+) in the mesangial area. Rest of the immunoglobulins and complement components were negative. The biopsy findings were consistent with the presence of DN and C1qN [Figure 1(a,b,c)].



**Figure 1.** Mesangial widening and mesangial proliferation in one of the mesangial regions (a) and early nodular glomerulosclerosis (b). Mesangial proliferation (c).

## 3. Discussion

Unusual types of glomerular lesions such as minimal change disease or mesangiocapillary proliferation were reported in DN (5). In 164 dia-

betic patients who underwent renal biopsy, Chihara et al., showed other unusual glomerulopathies in 36 cases (6). A case of DM with fibrillary glomerulonephritis was reported by Gielen et al. (7). Dizdar et al. reported a 35 years-old-male with history of type 1 DM for 18 years and hypothyroidism and edema that have membranoproliferative glomerulopathy in renal biopsy (8).

C1qN is an uncommon glomerulopathy, nevertheless a few unusual cases of this disease were reported. For instance, Ardalan et al. reported a case with C1qN and deforming arthritis in a 26 years-old-woman, who presented with generalized edema (9). Also, a child with Gitelman syndrome and C1qN was reported by Hanevold et al. (10).

#### 4. Conclusions

According to the best of our knowledge, there is no previous report about the association between type 1 DM and C1qN. Prevalence of autoimmune disease is higher in type 1 DM and this may explain the relation between DM and C1qN in our patient.

#### Authors' contributions

AA prepared the manuscript. HN reported the pathology and wrote some parts of the paper. AM completed the final draft.

#### References

1. Markowitz GS, Schwimmer JA, Stokes MB, Nasr S, Seigle RL, Valeri AM, et al. C1q nephropathy: a variant of focal segmental glomerulosclerosis. *Kidney Int.* 2003 Oct;64(4):1232-40.
2. Jennette JC, Hipp CG. C1q nephropathy: a distinct pathologic entity usually causing nephrotic syndrome. *Am J Kidney Dis.* 1985 Aug;6(2):103-10.
3. Ritz E. Nephropathy in type 2 diabetes. *J Intern Med.* 1999 Feb;245(2):111-26.
4. Kimmelstiel P, Wilson C. Intercapillary Lesions in the

Glomeruli of the Kidney. *Am J Pathol.* 1936 Jan;12(1):83-98 7.

5. Olsen S. Identification of non-diabetic glomerular disease in renal biopsies from diabetics--a dilemma. *Nephrol Dial Transplant.* 1999 Aug;14(8):1846-9.
6. Chihara J, Takebayashi S, Taguchi T, Yokoyama K, Harada T, Naito S. Glomerulonephritis in diabetic patients and its effect on the prognosis. *Nephron.* 1986;43(1):45-9.
7. Gielen GA, Wetzels JF, Steenberg EJ, Mudde AH. Fibrillary glomerulonephritis in a patient with type 2 diabetes mellitus. *Neth J Med.* 2006 Apr;64(4):119-23.
8. Dizdar O, Kahraman S, Genctoy G, Ertoy D, Arici M, Altun B, et al. Membranoproliferative glomerulonephritis associated with type 1 diabetes mellitus and Hashimoto's thyroiditis. *Nephrol Dial Transplant.* 2004 Apr;19(4):988-9.
9. Ardalan MR, Nasri H. C1q Nephropathy in Association with Deforming Arthritis. *Int J Nephrol Urol.* 2010;2(2):383-5.
10. Hanevold C, Mian A, Dalton R. C1q nephropathy in association with Gitelman syndrome: a case report. *Pediatr Nephrol.* 2006 Dec;21(12):1904-8.