A Rare Diabetes Mellitus Case Who Develops Nephropathy Without Detection of Diabetic Retinopathy

Diyabetik Retinopati Saptanmadan Nefropati Gelişen Nadir Bir Diabetes Mellitus Olgusu

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ABSTRACT Diabetes mellitus frequency is increasing gradually. Microvascular and macrovascular complications cause severe morbidity and mortality. Diabetic nephropathy is the leading cause of kidney disease. Diabetic retinopathy is a major cause of blindness. Microvascular complications mostly seen together. Diabetic retinopathy may be an indicator for diabetic nephropathy. Diabetic nephropathy is mostly diagnosed in patient with diabetic retinopathy. In our case the patient was 68 -year-old man, followed by 10 years for diabetes mellitus, 1 year hypertension, 1 year coronary heart disease, admitted with severe proteinuria. Fundoscopic examination performed and retinopathy was not detected. Renal biopsy was performed for evaluation of proteinuria and biopsy results were compatible with diabetic nephropahty. Our case is remarkable for development of diabetic nephropathy without development of retinopathy.

Key Words: Diabetes mellitus; diabetic nephropathies; proteinuria; diabetic retinopathy

ÖZET Diyabet sıklığı gün geçtikçe artmaktadır. Mikrovasküler ve makrovasküler komplikasyonlar önemli morbidite ve mortalite sebepleridir. Mikrovasküler komplikasyonlardan nefropati son dönem böbrek yetmezliğinin en sık sebebidir. Retinopati ise bu hasta grubunda önde gelen körlük sebepleri arasındadır. Mikrovasküler komplikasyonlar sıklıkla birlikte görülmektedir. Retinopati saptanması nefropati saptanması için belirteç olmaktadır. Diyabetik nefropatisi olan hastalarda diyabetik retinopati yüksek oranlarda görülmektedir. Vakamız 68 yaşında erkek hasta 10 yıldır diyabet, 1 yıldır hipertansiyon, 1 yıldır koroner arter hastalığı tanıları ile izlenmekteyken ciddi proteinürisi olması sebebiyle incelendi. Göz dibi muayenesinde retinopati saptanmadı. Ciddi proteinüri nedenini açıklamak için yapılan böbrek biyopsisinde diyabetik nefropatiyle uyumlu görünüm tespit edildi. Vaka retinopati saptanmadan diyabetik nefropati olması açısından önemlidir.

Anahtar Kelimeler: Diabetes mellitus; diyabetik nefropati; proteinüri; diyabetik retinopati

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Number of patients with diabetes mellitus (DM) is approximately estimated as 18.2 million cases worldwide (total population 6.3%) and 800 000 new patients are encountered each year.[1] Microvascular and macrovascular complications are important cause of cardiovascular morbidity and mortality. Nephropathy; a microvascular complication of DM; is the most common cause of end stage renal failure and retinopathy is one of the leading cause of blindness. Microvascular complications generally emerge in collaboration with each others.[2] Detection of retinopathy is decisive for detection of nephropathy.[3]

CASE REPORT

Sixty eight years old male patient with history DM for over 10 years and hypertension/coronary artery disease for 1 year admitted to our hospital with proteinuria; 24-hours urine protein excretion 4.24 g/day. Physical examination: Fever 36.2°C, pulse rate 72/min, breath rate 24/min and the blood pressure 100/70 mmHg. The patient had no significant physical examination finding except wheezing in lower lung zones. The ocular examination of fundus revealed grade 1 hypertensive retinopathy without any evidence of diabetic retinopathy. Laboratory tests of the patient were as follows: Serum creatinine 1.19 mg/dL (0.5-1.2), albumin 3.7 mg/dL (3.5-5.2), total protein: 6.4 mg/dL (6-8.5), hemoglobin: 13.6 g/dL (13.6-17.2), LDL: 199 mg/dL (0-100), triglycerides 247 mg/dL (0-200), C3: 139 C4: 31,8 were normal and ANA was negative. In renal biopsy, 18 glomeruli were determined in the kidney tissue microscopically. Three of the glomeruli had global sclerosis. In addition, an increase in glomerulus mesengial matrix, one or more mesengial nodule formation, areas of capillary wall thickness, hyaline thickness in the walls of arterioles (hyaline arteriolosclerosis), tubular atrophy in some sites and basement membrane thickness were observed. Immuno-fluorescence microscopy had showed no additional findings with Ig M, A, C3C, C1q negativity at methanamine-fibrinogen silver, rust and trichrome stains. Congo red dye was negative. Diabetic nodular sclerosis was established with histopathological and immunofluorescence findings.

Diet and lifestyle changes are recommended and blood glucose levels were regulated.

DISCUSSION

Prevalence of diabetes is increasing day by day. Microvascular and macrovascular complications are the important cause of cardiovascular morbidity and mortality. A microvascular complication nephropathy is the most common cause of end stage renal failure. And retinopathy is the leading cause of blindness. Microvascular complications are often associated with each others. Risk factors include hypertension, hyperlipidemia, non-regulating blood glucose levels. Rate of retinopathy in patients with DM has estimated as 83% in a 25 years follow-up.[1] Nephropathy in diabetic patients is diagnosed by measuring microalbuminuria levels and decreasing GFR levels. The prevalence of nephropathy in patients with DM is estimated as 40%.[2] Nephropathy is correlated DM and can be detected by biopsy. However, biopsy is an invasive process that has many complications, Therefore, different methods may be more available. In a study it's assumed that diabetic nephropathy can be anticipated with diabetic retinopathy. In this study, diabetic retinopathy had 65% sensitivity and 75% specificity for diabetic nephropathy.[3] If there is no diabetic retinopathy, other reasons should be explored for nephropathy.[4] Our case who's considered diabetic nephropathy had no diabetic retinopathy signs in retinal examination. Subsequently, a kidney biopsy for detecting etiology has also shown glomerular sclerosis. This case is interesting cause of presence of diabetic nephropathy without diabetic retinopathy.

Diabetic nephropathy often occurs with progressive deterioration of renal function due to damaged intraglomerular arterioles and is the most common cause of end stage renal failure. Diabetic nephropathy develops in 5-15 years in DM Type 1, while diagnosis can be determined immediately in DM 2 patients. Investigation of early nephropathy requires measurement of microalbuminuria and estimating eGFR. Screening for diabetic nephropathy in type 1 diabetic adults initiates after 5 years onset and maintains periodically per year. In type 2 DM, screening initiates immediately after diagnosis maintains periodically per year. Glycemic control should be ensured to prevent or to delay nephropathy in Type 1 and Type 2 diabetic patients. If albumin/creatinine ratio is high without hypertension, ACE-inhibitors or ARBs are recommended to delay chronic renal diseases.[5]

Diabetic retinopathy is a progressive microangiopathy affecting primarily retinal precapillary arterioles, capillaries and venules. Comorbidities such as hypertension due to chronic hyperglycemia also affect diabetic retinopathy prognosis. But diabetic

retinopathy may also involve large vessels. The prevalence of diabetic retinopathy in diabetes patients over 20 years is over 60%. Diabetic retinopathy is one of the leading cause of blindness in developed countries. Retinopathy screening should be performed annually after 5 years of diagnosis, initiating from puberty. Retinopathy screening should be performed during diagnosis in type 2 diabetic patients; diabetic retinopathy should be screened annually in diabetic patients who have no retinopathy or minimally and should be screened every 3-6 months in patients with advanced retinopathy.[6-8] Optimal control of glycemia and blood pressure should be maintained. Patients who have high lipid levels are at high risk for retinopathy and should be controlled.[8]

Diabetes is a common disease and chronic complications of diabetes are the main causes of severe morbidity and mortality. Nephropathy is one of these complications and is one of the major causes of end stage renal failure and should be taken precautions. In this context, present data suggests that diabetic retinopathy has an important role in determining diabetic nephropathy, but this doesn't mean that nephropathy develops in all cases with retinopathy.

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