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Vaka Sunumu

A Case of Seven-Year-Old Boy with Lupus Nephritis

Manolya KARA*, Nur CANPOLAT, Işın KILIÇASLAN***, Salim ÇALIŞKAN**, Lale SEVER**, Özgür KASAPÇOPUR******

A Case of Seven-Year-Old Boy with Lupus Nephritis

Systemic lupus erythematosus (SLE) is an autoimmune disorder which is less often observed in children than adults. It is uncommon in children younger than ten years, especially in boys. In all age groups, nearly 15% of all cases have onset of disease over 16 years of age. Lupus nephritis is one of the most serious organ involvements of the disease and its symptoms are generally related to hypertension, proteinuria, and renal failure. But it may be also asymptomatic. Renal disease occurs in 90% of patients in the course of the disease. During its course serious complications as thrombotic microangiopathy. may develop. Recent reports suggest that renal involvement is more frequent in children than in adults. Childhood-onset lupus nephritis can be more severe than the late-onset disease. We present a 7-year-old boy with lupus nephritis who was previously misdiagnosed as Henoch - Schönlein Purpura (HSP).

Keywords: *Childhood, lupus nephritis, systemic lupus erythematosus*

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Yedi Yaşında Lupus Nefriti Tanılı Çocuk Vaka

Sistemik lupus eritematozus (SLE) çocuklarda erişkinlerden daha ender gözlenen otoimmün bir hastalıktır. Hastalık 10 yaşın altındaki çocuklarda özellikle erkeklerde oldukça enderdir. Tüm yaş grupları içinde 16 yaşın üzerinde hastalığın gözükme sıklığı %15 civarındadır. Lupus nefriti, hastalığın en ciddi organ tutulumundan biridir. Vakaların yaklaşık %90'ında böbrek tutulumu gözlenmektedir. Lupus nefriti hipertansiyon, proteinüri ve böbrek yetmezliği ile prezente olabileceği gibi asemptomatik de seyredebilir. Seyri sırasında trombotik mikroanjiyopati gibi ağır komplikasyonlar gelişebilir. Literatürdeki son yayınlara göre böbrek tutulumu çocuklarda daha sık gözlenmektedir. Çocuklarda gelişen lupus nefriti daha ağır seyredebilmektedir. Burada, öncesinde yanlışlıkla Henoch Schöenlein Purpura tanısı alan 7 yaşında lupus nefriti vakası sunulmuştur.

Anahtar kelimeler: *Çocukluk çağı, lupus nefriti, sistemik lupus eritematozus*

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INTRODUCTION

Systemic lupus erythematosus (SLE) is a multisystemic autoimmune disorder which is less often observed in children than adults. In all age groups, nearly 15% of all cases have onset of disease before 16 years of age. In children SLE usually occurs in adolescent period [1]. It is uncommon before age of ten and very rare before 5 years of age [2]. In pediatric population SLE more frequently affects girls than boys; the girl to boy ratio is 4:1 to 5:1. A lower ratio has been reported in younger ages [1-3].

Childhood-onset SLE can be considered as more severe [1]. Lupus nephritis is one of the most serious organ involvements of the disease which occurs more frequently than in adults [1]. As high as 60-80% of children with SLE have renal impairment at the time of diagnosis. Renal disease occurs in 90% of the patients in the course of the disease [1-4]. Lupus nephritis may present in a wide spectrum of symptoms and

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*İ. Ü. İstanbul Tıp Fakültesi Çocuk Enfeksiyon Bilim Dalı
**İ. Ü. Cerrahpaşa Tıp Fakültesi Çocuk Nefroloji Bilim Dalı
***İ. Ü. İstanbul Tıp Fakültesi Patoloji Bilim Dalı, İstanbul
****İstanbul Üniversitesi Cerrahpaşa Tıp Fakültesi Çocuk Romatoloji Bilim Dalı
Yazışma adresi: Uzm. Dr. Manolya Kara, İ. Ü. İstanbul Tıp Fakültesi, Çocuk Enfeksiyon Hastalıkları Bilim Dalı, Çapa / İstanbul
e-posta: manolya_kara@yahoo.com
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clinical conditions which include nephrotic syndrome and renal failure and only asymptomatic urinary findings as well [1]. It may also present with thrombotic microangiopathy. Childhood-onset lupus nephritis has been reported to be more severe than the late-onset disease. In pediatric literature, analyses of renal biyopsy findings (involving 365 children and adolescents) revealed that 65% of the SLE patients had WHO class III and IV renal histology indicating severe renal involvement [5].

Because of the different presentations and the rarity of the disease in childhood, diagnosis can be difficult. Early diagnosis with appropriate treatment is essential to provide a favourable outcome and to promote normal childhood and adolescent development. We herein present a 7-year-old boy with lupus nephritis who was previously misdiagnosed as Henoch-Schönlein Purpura (HSP).

CASE REPORT

A seven-year-old boy, previously diagnosed as Henoch Schönlein Purpura based on the presence of polyarthritis and generalized rash was referred to our hospital for further diagnostic studies and management. He was previously healthy with unremarkable childhood history. He had been attended to a primary health care center with complaints of generalized pain and disability in multiple joints with a few days of duration plus maculopapular rash all over his body emerging on the day of admission. He had been diagnosed as Henoch-Schönlein purpura and given nonsteroidal anti-inflammatory drug for arthritis.

In the physical examination, the patient was generally seemed well with age-appropriate development. His blood pressure was high as 130/90 mmHg. He had no edema but had disseminated maculopapular rash which was more dense on the lower extremities. There was no sign of active arthritis. Other system examinations were unremarkable. Laboratory investigations revealed mild anemia and hypoalbuminemia with high erythrocyte sedimentation rate. Urinalysis showed proteinuria and urinary sediment showed microscopic hematuria. Both serum levels of complement 3 (C3) and 4 (C4) were below the normal values (C3= 57.6 mg/dL and C4= <5.88 mg/dL). Antinuclear antibody (ANA) was positive in 1:1000 titer and an anti-double-stranded DNA titer was high as above 3.01 index (N= ≤0.9 index). Laboratory findings are detailed in Table 1.

Table 1. Laboratory findings of the patient.

	Onset of disease (7-yrs-old)	5 years after diagnosis (12-yrs-old)
Hemoglobin (g/dL)	10.9	12.4
White blood cells (per mm^3)	7600	9800
Platelets ($x10^9$/mL)	227	266
ESR (mm/hr)	57	6
Serum creatinine (mg/dL)	0.6	0.5
Serum albumin (g/dL)	2.5	4.6
C3 (mg/dL)*	57.6	130
C4 (mg/dL)*	<5.88	26
ANA	1:1000 (+)	Borderline (+)
Anti-dsDNA	>3.01**	10.1***
Anticardiolipin IgG (GPL U/mL)*	19.4	1.6
Anticardiolipin IgM (MPL U/mL)*	10.1	1.04
Urine sediment	60 erythrocytes	0-1 erythrocyte
Urinary protein	(+++)	(-)
24-hr urinary protein (g/m^2/day)	3.2	

Abbreviations: ESR, erythrocyte sedimentation rate; C3, complement 3; C4 complement 4; C1-INH, C1 esterase inhibitor; ANA, antinuclear antibodies; anti-dsDNA, double stranded DNA antibodies.

Renal biopsy showed proliferative changes, polymorphonuclear exudation and focal karyorrhexis in all glomeruli in the light microscopic examination. Fibrocellular crescent formation was observed in 23 out of 29 glomeruli (Figure 1). Immunofluorescent microscopy showed full house immune deposits. In the light of these biopsy findings, the pathological diagnosis was defined as diffuse global proliferative type of lupus nephritis, active class IV G (ISN/RPS 2003). The patient was diagnosed as SLE nephritis based on the clinical and laboratory evidences of SLE and the renal biopsy findings. He was treated with pulse methylprednisolone (five doses) and pulse cyclophosphamide (six doses) for the induction therapy. Urinary findings disappeared after the induction treatment. The maintenance therapy consisted of low dose steroid and azathioprine for 12 months. No recurrence was observed during neither treatment period nor the four years of follow-up without any treatment. The patient is still in remarkable remission with a normal renal function and no proteinuria. Detailed laboratory findings are shown at the last

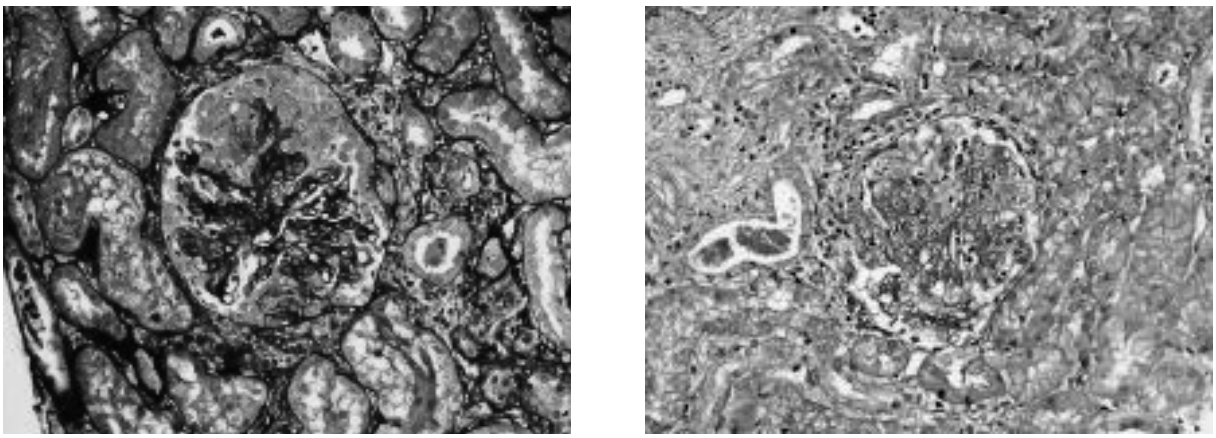

Figure 1. Renal biopsy specimens
Proliferative changes, polymorphonuclear exudation, karyorrhexis and crescent formation in a glomerulus seen. (A) HE stain, (B) PAS stain

visit when he was 12 years old (Table 1).

DISCUSSION

We presented a 7 - year old boy with lupus nephritis previously misdiagnosed as Henoch - Schönlein Purpura since it is more common in children. Childhood-onset SLE is infrequent before age of ten [2]. Bahari et al. found that most of their patients were above ten years of age [6]. In a study reported by Bogdanovic et 6 out of 53 children were diagnosed as SLE before age of ten [7] Tucker et al. reported that 23 % of the children with SLE were diagnosed before age of 10 years [8]. Exceptional cases including a 6 month old girl diagnosed with SLE were reported in literature [9]. Female predominance is observed in all age groups being most prominent after puberty raising the suspicion of effects of sex hormones. Since it is rare in the first decade of life especially in boys, and has wide variety of symptoms diagnosis of the disease may be delayed. It is believed that delay in diagnosis may be responsible for poorer prognosis [10]. High clinical suspicion is essential for the diagnosis of childhood-onset SLE. We diagnosed our patient as SLE according to American College of Rheumatology Diagnostic criteria, based on clinical and additional laboratory findings, including heavy proteinuria with microscopic hematuria, high titers of both ANA and anti DNA antibodies, and low complement levels. Renal biopsy confirmed the diagnosis of lupus nephritis with a "full-house" immunoflourescence pattern.

Lupus nephritis is one of the main organ involvement that determines the outcome of the patients with SLE.2 Renal involvement is more frequent in children compared to adults [1]. Approximately 90 % of the children with systemic lupus erythematosus have some degree of renal involvement which is a wide clinical spectrum including asymptomatic urinary findings to nephrotic syndrome and renal failure [1]. Histopathological assessment of the severity of lupus nephritis is mandatory since it is the most important predictor of mortality and morbidity. In a study which included nine different pediatric lupus series (365 children and adolescents), it was demonstrated that 25 % of cases had WHO class I-II histology, 65% had class III or IV which was correlated with severe renal involvement [10]. Our patient was diagnosed as WHO class IV since he had fibrocellular crescent formation. As in many other inflammatory diseases, corticosteroids and cytotoxic agents such as azathioprine or cyclophosphamide are main cornerstones of therapy. Many studies have been investigated comparing corticosteroids vs cytotoxic agents and they both have some dilemmas including adverse effects. Our patient received an aggressive immunosuppressive therapy for induction since he had high crescent formation and increased activity index on renal biopsy. Immunosupressive therapy was continued for a total of 12 months and he followed-up without treatment. Six years after onset of the disease, at the 12 years of age, he is in a good clinical condition and still in a remarkable clinical remission

without any treatment.

Juvenile-onset SLE is different from adult onset disease for many aspects. In spite of conflicting results reported in various studies, systemic manifestations, nephritis, neuro-psychiatric disease are seemed to be more common in children at presentation than adults [5-8]. Children are more prone to long - term effects of both the disease and treatment toxicity with expectant longer life spans. In conclusion, since as early as the diagnosis is made, the better prognosis will be expected, SLE should be kept in mind in the differential diagnosis of multisystem disease with children not only in girls but also in young boys. The diagnosis can be made with awareness and suspicion.

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