HENOCH-SCHONLEIN SYNDROME IN NORTHERN INDIAN CHILDREN

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ABSTRACT

In order to evaluate clinical features and renal pathological findings of Henoch-Schonlein syndrome (HSS) in northern Indian Children, we studied 47 such cases. The mean age at onset was 8.5 yr; sex ratio (M : F) 2.6 : 1. The clinical features were purpuric rash (96%), abdominal pain (64%), Henoch-Schonlein nephritis (51%) and arthralgias (47%). Patients younger than 6 yr also showed urticarial rash or edema of scalp and extremities. Henoch-Schonlein nephritis (HSN) and abdominal symptoms were more common in older cases. The manifestations of HSN were asymptomatic hematuria and/or proteinuria (n = 15), acute nephritic syndrome (n = 6), and nephrotic syndrome (n = 3). The severity of clinical manifestations correlated with the renal pathologic findings. On follow up, 29% cases showed renal impairment. The prognosis was poor in patients with the acute nephritic or nephrotic syndrome and crescents in more than 50% glomeruli. Combination of clinical data and renal biopsy findings are important in assessing the long-term outcome in cases with HSN.

Key words: *Purpuric nephritis, Henoch-Schonlein purpura.*

Henoch-Schonlein purpura is characterized by skin rash, arthralgias, abdominal pain and renal involvement (Henoch-Schonlein nephritis). While the rash is classically purpuric(1), in younger children it may be urticarial or present as edema involving scalp, face or extremities; hence the term Henoch-Schonlein syndrome (HSS)(2,3).

HSS is the most common cause of systemic vasculitis in children, all over the world(1,4-8). However the condition is less common in certain races or ethnic groups(1,9). The low incidence of HSS may be due to an altered immunologic susceptibility or reflect a failure of diagnosis because of skin color. Scrutiny of data from India shows that while systemic lupus erythematousus and juvenile chronic arthritis are commonly diagnosed(10,11), HSS is relatively rare(12,13). We report the clinical features and renal biopsy findings in 47 hospitalized cases of HSS.

Material and Methods

All cases of HSS admitted to the Pediatric Department of the All India Institute of Medical Sciences, New Delhi between January, 1973 and December, 1989 were studied. A case was defined as one with a vasculitic or purpuric rash most prominent on the buttocks or lower legs, and with at least one of the following: (*i*) hematuria and/or proteinuria, (*ii*) abdominal pain

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Received for publication October 16, 1990; Accepted February 5, 1991

and (*iii*) arthralgia. Two cases with soft tissue edema of the face with hematuria and abdominal pain were also included.

Hematuria was defined as more than 10 RBC/HPF in centrifuged urine; proteinuria; urine protein excretion greater than 4 mg/m^2/h or a positive dipstick test. Standard definitions were used for the acute nephritic syndrome, nephrotic syndrome and renal impairment(5,8). Laboratory investigations included urinalysis, blood counts, serum biochemistry, ASO, IgA and complement(C3). Twenty four-hour urine was collected for protein and creatinine estimation.

Percutaneous kidney biopsy was done initially in all cases with urinary abnormalities; subsequently it was limited to those with the acute nephritic or nephrotic syndrome(13,14). The pathologic changes on light microscopy were graded according to the classification of the International Study of Kidney Diseases in Children(8,14): *Grade I:* minor glomerular abnormalities; *Grade II:* focal or diffuse mesangial proliferation; *Grade III:* as II but with crescents/segmental lesions (sclerosis, necrosis) in less than 50% glomeruli; *Grade IV:* as III but with crescents/segmental lesions in 50-75% glomeruli; *Grade V:* as III but with crescents/segmental lesions in more than 75% glomeruli.

Results

Forty seven cases were diagnosed as having HSS; 34 were boys and 13 girls. The mean age at presentation was 8.5 ± 2.8 yr (range 3-12 yr). The mean duration of symptoms prior to diagnosis was 37 ± 70 days (range 3 days-2yr). The presenting manifestations included skin rash (29 cases, 62%), joint pain involving knees and ankles (10 cases, 21%) and colicky abdominal pain (8 cases, 17%).

A purpuric rash, either at the onset or later in the course of the disease, was seen in 45 cases (*Table I*). Ten cases, below 6 yr, had edema of the face, scalp or extremities. The swelling was tender and associated with purpura in eight. Gastrointestinal symptoms (32 patients) included abdominal pain (n=30), malena (n=12), vomiting (n=4), and intussusception (n=1). Abdominal pain was more common in patients with renal involvement (79%). Arthralgias, involving large joints were seen in half the cases; testicular pain and swelling was noticed in 3 boys. Henoch-Schonlein nephritis (HSN) was detected in

TABLE I–*Clinical features of Henoch-Schonlein Syndrome in Various Series*

Clinical features	Present study (n =47)	Allen(1) (n = 131)	Sterky(4) (n = 224)	Chen(8) (n = 101)
Age range	3-12 yr	6 mo-16 yr	2-5 yr	3-17 yr
Mean age at onset (yr)	8.5	4	3.5	8.6
Male : Female	2.6 : 1	2 : 1	1.6 : 1	1.2 : 1
Purpuric rash (%)	95.7	100	100	100
Abdominal pain (%)	63.8	66	77	80
Joint swelling/pain (%)	46.8	68	38	60
Henoch-Schonlein nephritis	51.1	40	22	35
Testicular pain (%)	8.8	1.5	–	–

24 patients. The mean age at onset in these cases was 9.2 ± 2.5 yr. HSN and abdominal pain were significantly common ($p < 0.01$) over the age of 6 yr. while localized soft tissue edema and urticaria were frequent in younger patients (*Table II*).

The manifestations of HSN were asymptomatic hematuria and proteinuria (n=10) acute nephritic syndrome (n=6), nephrotic syndrome (n=3), isolated hematuria (n=4), and proteinuria (n=1). Eight cases (3 with nephrotic and 5 with acute nephritic syndrome) had moderate to severe hypertension and reduced creatinine clearance (below 50 ml/min/1.73 m^2).

Kidney biopsy was done in all patients with nephritic or nephrotic syndrome and 7 with asymptomatic hematuria and proteinuria. Their clinical features and biopsy findings are shown in *Table III*. Seven cases with the nephritic or nephrotic syndrome showed epithelial crescents involving more than 50% glomeruli (Gr IV, V). Most patients with asymptomatic hematuria and proteinuria had either normal (Gr I) or mild mesangial proliferation (Gr II) on renal biopsy. Immunofluorescence examination showed the presence of IgA and C3 in the mesangium and capillary wall.

The serum IgA was elevated in 4 of 11 and ASO titre greater than 300 Todd units in 5 of 15 cases of HSS.

Treatment: Supportive care was provided to all cases. A 2-3 week course of oral prednisolone was useful in alleviating abdominal pain. Six cases of nephritic

TABLE II—*Clinical Features of Henoch-Schonlein Syndrome in Relation to Age at Onset*

Clinical features	Less than 6 yr		More than 6 yr		'p'*
	(n =16)	(%)	(n = 31)	(%)	
Henoch-Schonlein nephritis	4	25.0	20	64.5	<0.01
Abdominal pain	4	25.0	26	83.8	<0.01
Joint pain	6	37.5	16	51.6	0.1
Edema scalp, limbs	10	62.5	0	0	<0.001

* χ^2 test with Yates' correction.

TABLE III—*Renal Histological Grades in Relation to Clinical Manifestations*

Clinical features	Minimal Gr I	Mes Prolif* Gr II	Crescents <50% Gr III	Crescents 50-75% Gr IV	Crescents >75% Gr V
Nephritic syndrome (n = 6)	0	0	1	3	2
Nephrotic syndrome (n = 3)	0	1	0	1	1
Hematuria and proteinuria (n =7)	1	5	1	0	0
Total (n = 16)	1	6	2	4	3

* Mes Prolif: Mesangial proliferation.

syndrome with more than 30% crescents on kidney biopsy, received a combination of prednisolone, cyclophosphamide, dipyridamole and acetylsalicylic acid (quadruple therapy) for a period of 3-4 months. One patient with 56% cellular crescents was treated with 5 intravenous doses of 'pulse' dexamethasone followed by alternate day oral prednisolone for 6 months. No specific treatment was given to the rest.

Fourteen cases with HSN were followed-up for 3 to 36 months. Three cases of acute nephritic syndrome and 1 of nephrotic syndrome (3 Gr IV, 1 Gr V histological changes) continued to have renal impairment (creatinine clearance below 50 ml/min/1.73 m^2) and hypertension. One patient of acute nephritic syndrome with 93% cellular crescents treated with quadruple therapy, showed improvement in renal functions (creatinine clearance 85 ml/min/1.73 m^2) and normal blood pressure; a repeat biopsy 6 months later revealed global sclerosis in 60% of the glomeruli. Eight patients with asymptomatic hematuria and proteinuria and 1 with isolated hematuria (5 Gr II, 1 each Gr I and III, 2 unbiopsied) had normal renal functions.

Discussion

The chief clinical features of HSS were purpuric rash (96%), abdominal pain (64%), arthralgias (47%) and HSN (51%). Abdominal pain or joint involvement preceded the rash in more than one third cases. These observations are comparable to those reported in other series (*Table I*). Though rash is present in all cases of HSS, it is the first manifestation in only 50%, and need not always be purpuric(2-4).

Henoch-Schonlein nephritis (HSN) is potentially the most serious and the only feature of HSS likely to become chronic. The incidence of HSN ranges between 20 and 50%(1,4-8,14). It is higher in older children, those with recurrent purpura and severe gastrointestinal manifestations(1,5,14,15). In majority of patients, urinary abnormalities follow the onset of the typical rash within 1-3 months. Half of our cases showed evidence of renal involvement. The most frequent manifestation was hematuria and/or proteinuria (63%); 37% cases had acute nephritic or nephrotic syndrome. We observed a fairly good correlation between severity of clinical manifestations and morphological grades of HSN on renal biopsy. While cases with asymptomatic hematuria usually had minor pathological changes, those with acute nephritic or nephrotic syndrome showed crescents involving more than 50% glomeruli. Similar correlation between the renal manifestations and histologic findings, have been previously reported(5,7,8,13).

Chronic renal failure may eventually develop in 2-24% cases of HSN(1,4-8,14,15). In this study, 29% (4 of 14 patients) had varying degrees of renal failure. Since we studied only hospitalised cases, the prognosis was relatively unfavourable. Those with asymptomatic hematuria or proteinuria and minor pathological changes (Gr I, II) had a satisfactory outcome. A clinical presentation with acute nephritic or nephrotic syndrome and crescents in more than 50% glomeruli (Gr IV, V) was associated with renal impairment and hypertension at follow up. It is therefore, necessary to combine clinical data and renal pathologic findings in determining prognosis and need for follow-up in cases of HSN(5-8,13-15).

Treatment with corticosteroids leads to relief of joint pain, abdominal colic and gastrointestinal hemorrhage. Patients

having crescentic glomerulonephritis and declining renal function may be treated initially with 3-4 intravenous 'pulses' of methylprednisolone followed by oral steroids and cyclophosphamide(15,16). Occasionally some patients treated with rifampicin show remission of proteinuria and decrease in IgA deposits(17). However, the role of these drugs in altering the course of glomerulonephritis(15,16) and preventing renal impairment is doubtful.

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