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Research Article

Henoch Schonlein Purpura in Children: Clinical Profile and Renal Involvement

Authors
Geetha Peethambaran[1], Thekkile Gangadharan Sindhu[2*], Renjima Gangadharan[3], Cherian Nambudakath[4]
[1]Additional Professor, Department of Paediatrics, Government Medical College Manjeri
[2]Associate Professor, Department of Paediatrics, Government Medical College Kozhikode, Kozhikode
[3]Assistant Surgeon, Kerala Govt. Health Service Department
[4]Professor Department of Paediatrics, KMCT Medical College, Kozhikode
*Corresponding Author
Dr T G Sindhu
Associate Professor, Department of Paediatrics, Government Medical College Kozhikode, Kozhikode, Kerala, India 673008
Phone No: 9846102548, 04952354633, Email: *tgsind@gmail.com, sindhuclt@yahoo.co.in*

Abstract
Introduction: *Henoch Schonlein Purpura (HSP) is the most common systemic vasculitis in children. The objectives of the present study were to describe the clinical profile, complications and management modalities of children with HSP in North Kerala and also to follow them up for a minimum period of six months after diagnosis with special emphasis on renal involvement*
Materials and Methods: *It is a hospital based descriptive follow-up study conducted at a major tertiary care teaching hospital under government sector in North Kerala. 64 children less than 12 years diagnosed to have HSP according to the European League against Rheumatism criteria were included. The clinical features, laboratory investigations, management and complications of the disease were studied, and all children were followed up for a minimum period of six months. Descriptive statistics was used to analyse the results.*
Results: *The mean age was 7.84± 2.69 years with a male female ratio of 1.06:1. The predominant clinical features of HSP were cutaneous purpura (100%), arthritis (82.8%), abdominal symptoms (70.3%), and renal involvement (23.5%).Six children developed renal involvement two weeks after the onset of rash. 15 children (23.5%) had recurrence during the initial six months. 23 (%)children were treated with steroids*
Conclusions: *Equal sex predilection and relatively lower incidence of renal involvement were seen in the present study. Follow up for more time is needed to identify more incidence of renal involvement. Treatment with steroids did not alter the occurrence of renal involvement or recurrence in this study*
Keywords: *HSP, children, clinical features, renal involvement, follow up.*

Introduction

Henoch–Schönlein Purpura (HSP)is the most common vasculitis of childhood. The incidence of HSP is 14-20 per 100000 children per year. About 90% of cases occur in children[1,2]. This IgA mediated small vessel autoimmune disease is

characterized by non thrombocytopenic palpable purpura, arthritis and arthralgias, abdominal pain, gastrointestinal haemorrhage, and renal manifestations. The presence of palpable purpura is essential for diagnosis[3]. Renal manifestations occur in up to 50% of children with HSP, manifesting as haematuria, proteinuria, hypertension, frank nephritis, nephrotic syndrome and acute or chronic renal failure[2]. Renal involvement occurs in 85% of cases within four weeks of onset of the disease, in 91% of cases within six weeks, and in 97% of cases within six months. Permanent renal damage never occurs after normal urinalysis in first six months. So, it is recommended that children with HSP should be followed up for a minimum of 6 months to detect renal involvement [2,4,]

There is very little information available about the clinical features and complications of HSP from North Kerala. There is also scarcity of follow up data of HSP from South India.

This study is an attempt to describe the clinical profile of HSP and the course of the disease in the initial six months in children admitted in our institute.

Methods

This hospital based descriptive follow-up study was conducted at a major tertiary care teaching hospital under government sector in North Kerala. All children diagnosed as HSP, according to the 2010 European League Against Rheumatism criteria, admitted at various wards in the Department of Paediatrics, during the period of December 2012 to June 2014 were included in the study[3]. A detailed clinical evaluation including history and examination was carried out for all patients. These children were followed up monthly for a minimum period of six months to detect renal involvement and other complications Renal involvement was defined as haematuria on microscopy greater than 5 RBCs per high power field, red cell casts and/or proteinuria ≥ 2+ by heat and acetic acid test or 24-hour urine protein >4mg/m^2/hour and/ or blood pressure greater than 95th percentile for age and gender[1].

Laboratory investigations included complete blood count, ESR, urinalysis, 24-hour urine protein estimation, blood urea, serum creatinine and ASO titre. In children with renal involvement serum C3 and ANA tests were done. Skin biopsy was done in those children with atypical features. Skin biopsy from the lesion was subjected to light microscopy and direct immune fluorescence studies. Renal biopsy was done in children with persistent significant urinary abnormalities. The children were treated according to the severity of the disease with supportive management with or without steroids. Nephrology opinion was obtained for children with renal involvement. All of them were followed by monthly for 6 months after diagnosis. During follow up visits, blood pressure measurement, urine examination and renal function tests were done for all children.

Written informed consent was obtained from all cases. Ethical clearance was obtained from the institutional ethics committee.

Statistical analysis was performed using descriptive statistics (frequency), Pearson chi square test and student t test. A *P* value of less than 0.05 was considered as statistically significant. Statistical package of social science software was used for statistical analysis.

Results

Sixty-four children satisfied the inclusion criteria. All of them were followed up for a minimum period of six months. The mean age of onset of disease was 7.84± 2.69 (range 3-12 years). Out of the 64 cases, 43 (67.2%) were above six years of age. Males and females were almost equally affected with a male female ratio of 1.06:1.The youngest child was 3 years old

The duration of illness before diagnosis ranged from 1 day to 180 days with a mean of 8.6 days. Though palpable purpura was present in all the cases, it was the first symptom only in 40.6% of cases. Others had fever (n=18;28.2%), abdominal pain (n=7;10.7%) and joint pain (n=13;20.2%) as

first symptom. Varying combinations of involvement of skin, joint, abdomen andthe kidneys were seen during the disease course. (Table- 1)

Purpura, being the essential criteria was present in all children (100%). Apart from palpable purpura, four children had vesicular lesions, one child had haemorrhagic bullae (Figure-1) and another child had target lesions. In addition to the involvement of lower limbs, the purpura was also present in the upper limb (31;48.4%), abdomen (7;10.9%) and face (9;9.4%). Subcutaneous oedema involving the scalp, scrotum and dorsum of hands and feet was present in 38 cases (59.4%) and was seen in all age groups.

Fifty -three children (82.8%) had arthritis or arthralgia. (Figure 2) Large joints of the lower limb such as ankle (40;75.4%) and knee (35;66%) were most commonly affected. Other joints involved include elbow (19;35.8%), wrist (10;18,9%), small joints of the hand (3;5.7%), hip (2;3.8%) and shoulder (1;1.9%). None of the children developed deformities.

Forty-five children (70.3%) had abdominal manifestations. Abdominal pain and vomiting were the major symptoms. (Table No 2).34% (n= 22) of children had some form of gastrointestinal bleeding. None of them needed laparotomy.

Renal involvement was seen in 15 cases (23.5%). Major renal involvement (nephritis) was seen only in two children. Isolated hypertension (6) and minor urinary abnormalities (microscopic haematuria alone- 4, microscopic haematuria with proteinuria - 3)were more common than nephritis. Out of the two children with nephritis, one child had features of nephritis at the onset of illness and urinary abnormalities normalized over two months, whereas the other child developed nephritis two months after the onset of purpura. He had impaired renal function and his renal biopsy showed mesangioproliferative glomerulonephritis with IgA deposits. He had recurrent episodes of gross haematuria often associated with purpuric rash. He was treated with prednisolone and mycophenolate mofetil initially and later with telmisartan. He had persistent urinary abnormalities at 6 months but recovered from illness by one year. Of the seven children with transient minor urinary abnormalities (microscopic haematuria alone or with proteinuria) none progressed to nephritic or nephrotic syndrome. Six children had isolated hypertension and it resolved by 1-6 weeks. Most of the children had normal urinalysis at the onset of illness. Only three children had haematuria at the onset of purpura. Rest of them developed haematuria later (2 weeks to 4 months after the onset of rash). Serum C3 was normal in all children with renal involvement.

Fever at the onset of disease was present in 32 (50%) of children. Two of them had acute epididymorchitis and four had headache.

Anaemia was present in 24(37.5%) cases. Haemoglobin values ranged from 10g/dl to 14.6 g/dl with a mean of 11.886 ±1.10 g/dl. Leucocytosis was found in 33(51.5%) cases. There was a statistically significant relation between severe abdominal symptoms and leucocytosis ($P<$ 0.02). But any association between the other lab parameters and systemic manifestations could not be found. Thrombocytosis was present in 37 children (57.8%). Seven children had an ASO value above 333units. Beta haemolytic streptococcus was isolated from throat swab in one case. Renal function tests were deranged in one child with nephritis at the onset, which normalized over a period of 2 months. Blood urea and serum creatinine values were normal in all other cases, at diagnosis. On follow up one child developed features of nephritis and impaired renal functions. All other children had normal renal function test values on follow up. SGPT values were normal in all cases.

Abdominal USG was done in 29 children out of which 11 were abnormal. Most of them were nonspecific like mesenteric lymphadenitis and hepatomegaly. But one each had features of intussusception, minimal ascites, epididymoorchitis and increased renal echoes.

CT abdomen was done in 2 cases. One of them was the child with intussusception and CT abdomen showed mesenteric ischemia. In the 2nd case the report was focal areas of small bowel wall thickening associated with mild diffuse increased density of mesenteric fat and free peritoneal fluid consistent with abdominal manifestation of Henoch Schonlein purpura.

Skin biopsy was done in 23 (36%) cases. On light microscopic examination all the 23 biopsy specimens showed leucocytoclastic vasculitis. Direct immunofluorescence study was done in six specimens. Of this, one showed IgA deposits and another showed C3 granular wall deposits. Direct immunofluorescence was negative in the remaining four cases.

All children received supportive care which included paracetamol, NSAIDs (n=3), vitamin C, antibiotics, proton pump inhibitors and H2 blockers. Nifedipine, telmisartan and MMF were used to treat the children with renal involvement. Twenty-three children with severe abdominal symptoms like abdominal tenderness and gastrointestinal bleeding were treated with steroids for two to three weeks. Eleven children received intravenous dexamethasone and one child received IV methyl prednisolone initially. All the 23 children received oral prednisolone. One child with nephritis also received prednisolone

Duration of illness ranged from 4 days to 60 days. Mean duration of illness was 16.75 ± 10.04 days. There was no significant difference (p = 0.06) in the mean duration of illness of children who received steroids (19.1 days) and did not receive steroids (14.93 days).

15 children (23.4%) had recurrence. Recurrences were milder than the first episode. Majority had only palpable purpura. (table No 3). Thirteen children had recurrence once, one had recurrence twice, and one had recurrence three times. Majority (11;73%) had recurrence within 2 months of onset of illness. 26% of children who were treated with steroids during the initial illness developed recurrence later. 22% of children who did not receive steroids had recurrence. There was no statistically significant association between steroid treatment and recurrence.

Renal involvement was more common in younger children, boys and children with severe abdominal symptoms, but none of these were not statistically significant. (Table no 4)

Table 1 Major system involvement in HSP

System involved	Number of cases (n=64)	Percentage (%)
Purpura alone	1	1.6
Joint + purpura	15	23.4
Abdominal +purpura	8	12.5
Renal + purpura	1	1.6
Joint + Renal + purpura	2	3.1
Abdominal+ Joint+ purpura	25	39
Abdominal + Renal +purpura	1	1.6
Abdominal+ Joint+ renal + purpura	11	17.2

Table 2 Abdominal manifestations

Abdominal Manifestations	Number* (n=45)	Percentage (%)
Abdominal pain	45	100
Vomiting	27	60
Melena	11	24.4
Hematemesis	6	13.3
Bleeding per rectum	5	11.1
Hepatomegaly	9	20
Splenomegaly	4	8.9
Intussusception	1	2.2
*multiple responses		

Table 3 Symptoms during recurrence

Symptom during recurrence	No of cases (n=15)
Purpura alone	8
Joint + purpura	2
Abdominal symptoms +purpura	2
Renal + purpura	1
Abdominal+ Joint+ renal + purpura	1
Abdominal+ Joint+ purpura	1

Table -4 Risk factor and renal involvement

Factor	Risk category	With renal involvement (n=15)	Without renal involvement (n=49)	*P* value	significance
Age	<6 years	7	14	0.14	Absent
	≥6 years	8	35		
Gender	Male	10	23	0.18	Absent
	Female	5	26		
Severe abdominal symptoms	Present	7	16	0.25	Absent
	Absent	8	33		
Joint involvement	Present	13	40	0.65	Absent
	Absent	2	9		
Duration of illness	Mean value	15.47	17.1	0.59	Absent
Steroid treatment	Given	6	17	0.78	Absent
	Not given	9	32		
Hb value	Mean Hb	11.92	11.89	0.88	Absent
Total count	Mean TC	14328	13442	0.8	Absent
Platelet count	Mean platelet count	4.55 lakhs	4.62 lakhs	0.89	Absent
ESR	Mean ESR	46.27	51.16	0.481	Absent

Figure No1 Haemorrhagic bullae in an eight-year-old boy

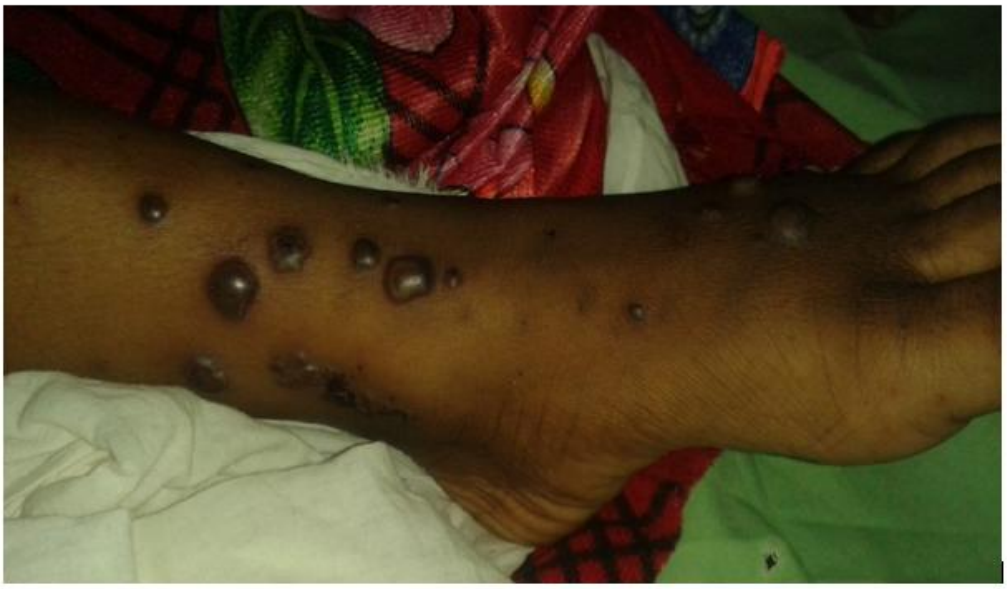
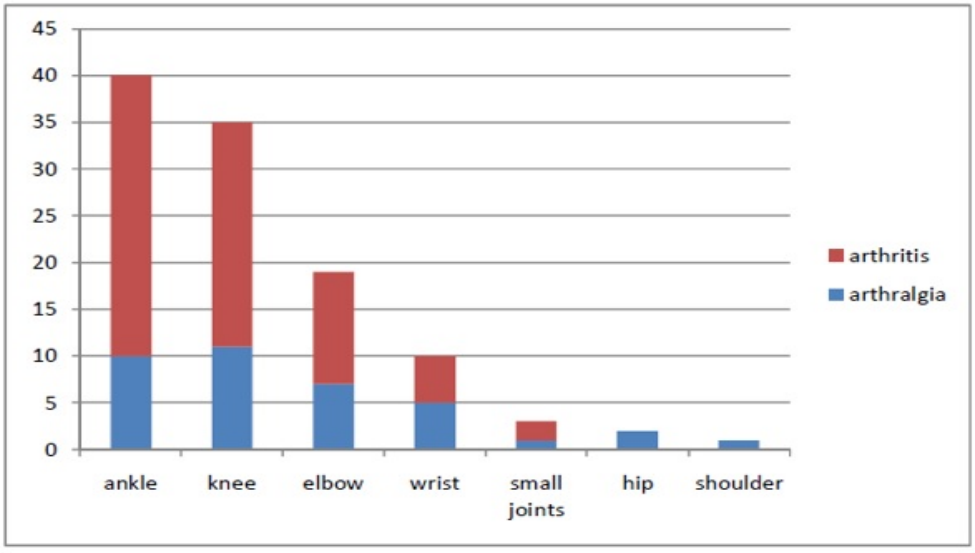


Figure No 2 Joint Involvement n = 53



Discussion

The mean age of onset of symptoms was 7.84 years which is comparable to other studies[5-8].Most of the studies of HSP all over the world had showed male predominance [7-9]. There was near equal sex predilection in our study (1.06:1).Abbas et al from south India and Anil et al from Turkey also has noted similar sex ratio[5,11]. The reason for this difference in the male female ratio is not very clear. It could be due to the equal importance given to girls and boys in this part of the country or may be due to the regional differences.

Half of the children had fever as a prodromal syndrome which is well described in literature [12].

In the present study, the incidence of joint involvement was 82.8%. The high incidence of joint involvement was comparable with western studies like Saulsbury et and Abbas et al.But the incidence of joint involvement in studies by Lata et al (60%) and Bagga et al (47%)were low[8,10].The most common joint involved was ankle joint followed by knee and elbow joint which is like the study by Abbas et al. In our study, the incidence of gastrointestinal involvement was 70.3%. This observation is comparable with both Indian and western studies [6,10].

Renal involvement was relatively less.(23.5%) when compared to other Indian studies [8,10,13,14]. Lower occurrence of renal involvement is described by Abbas et al from South India and Sarkar et al from EasternIndia [5,15] Abbas et al study did not mention about follow up. So, there is a chance of missing of cases of late renal involvement which can occur up to 6 months. Even with a regular follow up for 6 months the incidence of renal involvement was lower in our series. In six children haematuria was detected during the follow up visits and it points towards the importance of close follow up for renal involvement.

According to the literature renal involvement in Henoch Schonlein purpura is associated with several risk factors, such as older age at onset, severe abdominal symptoms, persistent purpura and recurrent purpura[1,16]. In the present study renal involvement had no relationship with age at onset, gender, duration of illness, arthritis, severity of abdominal symptoms and recurrence of purpura. This might be due to the less number of children with renal involvement and short duration of follow up

Evans et al has reported correlation between thrombocytosis and severity of the disease [17]. There was statistically significant correlation between leucocytosis and severity of abdominal symptoms. But an association between the other lab parameters and systemic manifestations could not be found in the present study.

Several studies have evaluated the role of corticosteroids in preventing nephropathy[18,19]. In the present study, treatment with corticosteroids did not show a statistically significant difference in renal involvement, recurrence of purpuraor the duration of illness.

The only neurological manifestation observed in the study was head ache (n=4). Seizures, intracranial haemorrhage and Guillain Barre syndrome though reported in literature were not observed [1].Rare manifestations of Henoch Schonlein purpura reported in the literature like haemorrhagic bullae, arthritis of small joints of the hand, intussusception, epididymo- orchitis and ascites were seen in the study [20].

In this study 23.4% children had experienced recurrence of symptoms during the initial 6 months. This is more compared to that reported by Lardhi (7.7%) and Anil et al (5.2%) [7,11].

Conclusions

Equal sex predilection and relatively lower incidence of renal involvement is in this study from North Kerala. Follow up for more time is needed to identify more incidence of renal involvement. Corticosteroid treatment did not alter the occurrence of renal involvement. The short-term prognosis of HSP is good after a follow up of 6 months.

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References

1. Paul Brogan and Aravind Bagga. Leucocytoclastic vasculitis. In: Ross E. Petty et al. editor. Textbook of Paediatric Rheumatology. 7th edition. Saunders Philadelphia. 2016; 452-459.
2. Stacy P, Ardoin and Edward Fels. Vasculitis syndromes. In: Kliegman RM, et al editors. Nelson Textbook of Paediatrics, 20th edition. Saunders Philadelphia. 2016: 1215-1217.
3. Ozen S et al. The EULAR/PRINTO/PRES criteria for Henoch Schonlein purpura. Ann Rheum Dis.2010; 798-806
4. H. Narchi, Risk of long term renal impairment and duration of follow up recommended for Henoch-Schönlein purpura with normal or minimal urinary findings : a systematic review, Arch. Dis. Child. 90 (2005) 916–920.
5. Abbas S, Geetha S, Deepthi RV, Kamar J, Uthup S. Clinical profile and outcome of Henoch Schonlein purpura in a tertiary care hospital in South India. Int J Contemp Pediatr 2017; 4:822-6.
6. Albaramki J.Henoch-Schonlein purpura in childhood a fifteen-year experience at a tertiary hospital. J Med Liban. 2016 Jan-Mar;64(1):13-7.
7. Lardhi AA Henoch-Schonlein purpura in children from the eastern province of Saudi Arabia Saudi Med J. 2012 Sep;33(9):973-8.
8. Bagga A, Kabra SK, Srivastava RN, Bhunyan UN. Henoch Schonlein purpura in North Indian children. Indian Pediatrics 1991; 28:1153 -1157.
9. Saulsbury FT. Henoch-Schönlein purpura in children: report of 100 patients and review of the literature. Medicine. 1999; 78:395-409.
10. Lata Kumar, Surjit Singh, et al. Henoch Schonlein Purpura: The Chandigarh experience. Indian Pediatrics 1998; 35: 19-25.
11. Anil M, Aksu N, Kara OD, Bal A, Anil AB, Yavascan O et al. Henoch-Schonlein purpura in children from western Turkey: a retrospective analysis of 430 cases. Turk J Pediatr
12. Ballinger S: Henoch-Sch6nlein purpura. Curr Opin Rheumatol 15: 591-594. 2003
13. Grover N, Sankhyan N, Bisht JP. A five year review of clinical profile in Henoch Schonlein purpura. Journal of Nepal Medical Association 2007;46: 62 – 65.
14. Bagai A, Albert S, Shenoi SD. Evaluation and therapeutic outcome of palpable purpura. Indian Journal of Dermatology Venereology Leprology2001; 67:320-323.
15. Sarkar S, Mondel R, Nandi M, Ghosh A. Trends of childhood vasculitis inEastern India. Indian Pediatrics 2011; 48:814.
16. Stewart M, Savage JM, Bell B et al. Long term renal prognosis of Henoch Schonlein purpura in an unselected childhood population. Eur Journal of Pediatrics.1988; 147:1113- 1115
17. Evans Jones LG, Glough JV. Thrombocytosis in Henoch Schonlein purpura. Clin lab Hematology 1990; 12: 137- 139.
18. Mollica F, Li Volti S, Garazzo R, Rusio G. Effectiveness of early prednisone treatment in preventing the development of nephropathy in anaphylactoid purpura. Eur J Ped 1992; 151:140-144.
19. Den Boer SL, Pasmans S, Wulffraat NM, Ramakers-Van Woerden NL, Bousema MTBullous lesions in Henoch Schönlein Purpura as indication to start systemic

prednisone.Acta Paediatr. 2010 May;99(5):781-783

20. Trapani S, Mariotti P, Resti M, Nappini L, de Martino M, Falcini F Severe hemorrhagic bullous lesions in Henoch Schonlein purpura: three pediatric cases and review of the literature. Rheumatol Int. 2010 Aug;30(10):1355-9.