

Case Report

Simultaneous presentation of post infectious glomerulonephritis and acute rheumatic fever in an eight year old girl child

Jayasurya Suresh^{1*}, Nidheesh Chandran R.²

¹Department of Pediatrics, Providence Hospital, Alappuzha, Kerala, India

²Department of General Medicine, Mysore Medical College, Mysore, Karnataka, India

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*Correspondence:

Dr. Jayasurya Suresh,

E-mail: drjayasuryasuresh@gmail.com

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ABSTRACT

An 8-year-old female child presented with simultaneous symptoms of post infectious glomerulonephritis and acute rheumatic fever. The child was treated with penicillin V, Aspirin and she responded well to the treatment. However, this co presentation of acute rheumatic fever and post infectious glomerulonephritis in a child is rare and hence authors report the case. This sequela of streptococcal autoimmunity are considered to be pathogenetically distinct.

Keywords: Acute rheumatic fever, Childhood rheumatic fever, Post infectious glomerulonephritis

INTRODUCTION

There is a high global burden of group A streptococcal (GAS) associated diseases like acute rheumatic fever and post streptococcal glomerulonephritis in high prevalence countries and hence needs to be addressed.¹ These diseases are autoimmune manifestations due to GAS infection and hence evidence of prior infection by GAS needs to be sought.

The clinical features of post infectious glomerulonephritis (PIGN) has a wide range of variations ranging from being an asymptomatic condition to grave complications like rapidly progressive glomerulonephritis.² PIGN is usually a self-limiting disease.²

Acute rheumatic fever is an inflammatory reaction which involves musculoskeletal system, cardiovascular system, and central nervous system.³ Of these clinical manifestations, the cardiac manifestations are most alarming, as the children can get complications like heart failure or valvular insufficiency.³

GAS infections can be a triggering factor for these autoimmune diseases.⁴ Acute rheumatic fever and PIGN share the same injury site, specific endothelial cells in the target organ, heart and kidney respectively.⁵ But, the coincident presentation of both diseases is rare due to different underlying causal pathophysiology.⁵

CASE REPORT

A 8 year old girl child presented with history of fever for 15 days, pain and swelling over left wrist and hand with restriction of mobility of hands and fingers which started from day 3 of fever. There was also history of pain over bilateral lower limbs involving knee joints. There was associated history bilateral feet swelling and decreased urine output with passage of red colored urine. Child had a vague throat pain three weeks prior to symptoms.

On examination

Cervical lymph nodes present bilateral pitting pedal edema present. Blood pressure above 95th centile for age, cardiovascular examination- Grade 3 ejection systolic

murmur in mitral area. Perabdominal examination was normal.

- Urine Microscopy: Plenty of dysmorphic Red blood cells (RBC)/high power field. Urine albumin- 1+.
- Chest X-ray: No cardiomegaly.
- Echocardiography: Anterior mitral leaflet prolapses with moderate Mitral regurgitation; mild Aortic regurgitation and trivial Tricuspid regurgitation;

Right ventricular systolic pressure = 32 mm Hg. Good biventricular function.

- Electrocardiogram (ECG): PR interval: 0.1 seconds.
- Erythrocyte sedimentation rate (ESR): 90 mm/hour.
- Anti-streptolysin O (ASLO): positive.
- C reactive protein (CRP): positive.
- Serum C3 - low.

DISCUSSION

The co-presentation of acute rheumatic fever and PSGN is rare due to the different pathophysiology but the causative organism for both is GAS.⁵ Here in the index case, the child was found to have a co-presentation of the both entities. Even though it is a very rare presentation, there have been few case reports of similar presentations around the globe.⁵⁻⁷ This case study is having more clinical significance as this comes from a developing country with high prevalence of rheumatic fever.

Here in the index case, the child presented with high grade fever and red coloured urine with pain and swelling over hands and feet. At admission child had blood pressure in the hypertensive range. Urine microscopy showed plenty of dysmorphic RBCs with urine albumin 1+. Furthermore, serum C3 was low, hence postinfectious glomerulonephritis was considered and penicillin V was started. Echocardiography suggested of anterior mitral leaflet prolapse with moderate mitral regurgitation and mild aortic regurgitation. Hence, she satisfied 2 major criteria (arthritis and carditis) along with minor criteria (fever with elevated ESR and CRP).

Hence Acute Rheumatic Fever was also considered a possibility and aspirin was started. ASLO was also positive in this case. Hence this case is a rare co-existence of acute rheumatic fever and PSGN but the child completely recovered with treatment with aspirin, penicillin and enalapril. After two months the child was

followed up, repeat echo and urine examination was normal and the child was completely asymptomatic.

CONCLUSION

Even though, a co-presentation of acute rheumatic fever and PIGN is rare, physicians should be aware that such a condition can co-exist in very rare situations. There should be high index of suspicion for the same in patients from high prevalent countries.

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REFERENCES

1. Martin WJ, Steer AC, Smeesters PR, Martin WJ, Steer AC, Smeesters PR, Keeble J, Inouye M, Carapetis J, et al. Post-infectious group A streptococcal autoimmune syndromes and the heart. *Autoimmun Rev.* 2015;14(8):710-25.
2. Balasubramanian R, Marks SD. Post-infectious glomerulonephritis. *Paediatr Int Child Health.* 2017;37(4):240-247.
3. Khanna K, Liu DR. Acute Rheumatic Fever: An Evidence-Based Approach to Diagnosis and Initial Management. *Pediatr Emerg Med Pract.* 2016;13(8):1-23.
4. Walker MJ, Barnett TC, McArthur JD, Cole JN, Gillen CM, Henningham A, et al. Disease manifestations and pathogenic mechanisms of group A Streptococcus. *Clin Microbiol Rev.* 2014 Apr 1;27(2):264-301.
5. Viliija C, Paulius K, Karolis A, Augustina J. Acute poststreptococcal glomerulonephritis and acute rheumatic fever: An uncommon coincidence. *Ann Pediatr Cardiol.* 2016;9(3):268-9.
6. Nakaayaca AV, Ralph AP, Majoni WS, Kangaharan N. Case Report: Concurrent Rheumatic Fever and Acute Post-Streptococcal Glomerulonephritis in a High-Burden Setting. *Am J Trop Med Hyg.* 2019;101(5):1054-7.
7. Imanaka H, Eto S, Takei S, Yoshinaga M, Hokonohara M, Miyata K. Acute rheumatic fever and poststreptococcal acute glomerulonephritis caused by T serotype 12 Streptococcus. *Acta Paediatr Jpn.* 1995;37(3):381-3.

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