Case Report

A CASE OF HEPATITIS A VIRUS INFECTION WITH PREDOMINANTLY TUBULAR NEPHROPATHY

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T. Erkan, M.D.* / T. Kutlu, M.D.** / F. Çullu, M.D.** / G.T. Tümay, M.D.***

* *Professor, Sub-department of Gastroenterology, Department of Pediatrics, Cerrahpaşa Faculty of Medicine, Istanbul University, Istanbul, Turkey.*
** *Associate Professor, Sub-department of Gastroenterology, Department of Pediatrics, Cerrahpaşa Faculty of Medicine, Istanbul University, Istanbul, Turkey.*
*** *Assistant Professor, Sub-department of Gastroenterology, Department of Pediatrics, Cerrahpaşa Faculty of Medicine, Istanbul University, Istanbul, Turkey.*

ABSTRACT

A 7,5 year old girl developed hepatitis A infection with proteinuria, glucosuria and aminoaciduria. Proteinuria and glucosuria resolved after one week of hospitalization but the aminoaciduria persisted for a month. The tubulopathy existed only during the acute phase of hepatitis A, disappeared with the resolution of infection and did not repeat during a two year follow-up period.

Key Words: Hepatitis A, tubulopathy, child.

INTRODUCTION

Hepatitis A, transmitted predominantly fecal-orally, rarely parenterally, is an infection having a worldwide distribution (1-3).

Although extrahepatic manifestations of hepatitis A infection are uncommon, meningoencephalitis in at least two cases (4,5), sinusal bradicardia in 15% of cases (6), arthralgia (6,7), and acute renal failure (8,9) had been previously noted.

We aimed to present this case because, to our knowledge tubulopathy with hepatitis A infection in children has not been documented.

CASE REPORT

A 7,5-years-old girl was hospitalized in April 1996 with a history of vomiting, diarrhea and extremity pain of 10 days duration. There was no operation or blood transfusion history, Parental consanguinity was denied and no metabolic or hereditary disorders were defined in the family. She had a twelve year old brother and a ten year old sister who were healthy.

On physical examination she was anicteric. She had height at 50th percentile and weight at 25-50th percentile. Abdominal examination revealed a mild hepatomegaly of 2 cm on the right lobe. Her blood pressure was 90 mmHg.

Initial laboratory tests results included the following: hemoglobin 12,2 gr/dL, hematocrit 36%, white blood cell count 15 800 / mm3 (80% polymorphonuclear leucocytes), platelet 336 000 / mm3, erythrocyte mean corpuscular volume 82 fL, erythrocyte sedimentation rate 37 mm/h. Aspartate aminotransferase was 80 U/L (normal 15 to 18 U/L), alanine aminotransferase was 505 U/L (normal 17 to 22 U/L). Alkaline phosphatase and γ- glutamyl transferase concentrations were normal. The protrombine time was, 13,4 seconds (activity 78%). Serum total protein was 5,9 gr/dL, albumin: 3,4 gr/dL, IgG: 859 mg/dL (normal 1000-1700), IgA:54 mg/dL (normal 200-250), IgM:214 mg/dL (normal 100-150). The serum electrolytes, urea, creatinine, copper, ceruloplasmin, α1 antitrypsin, plasma phosphate concentration and the blood gas results were normal.

The urinalysis showed density: 1015, pH:6, proteinuria 3+, glucosuria 2+ and sediment was normal.

The 24 hour urinary examination revealed 1917 mgr protein (270 mg/dL), 105 mg/dL creatinine (protein/creatinine ratio = 2,57), 20 mg/dL copper and generalised aminoaciduria. Hyperphosphaturia was not detected. Serum aminoacid chromatography results were normal.

The serology for HBsAg, anti-HBcAg, anti-HBs and anti-HCV were negative and for anti-HAV IgM was positive.

Ophthalmologic examination was noted to be normal. Abdominal ultrasound demonstrated only hepatomegaly.

During the acute stage of the hepatitis illness, any medication was not given to the patient. The laboratory evaluations after 2 weeks revealed only aspartate aminotransferase slightly elevated (29 U/L) and generalised aminoaciduria in 24 hour urinary aminoacid chromatography which recovered completely at the first month examination. Glucosuria and proteinuria did not persist after one week of hospitalization.

DISCUSSION

The diagnosis of acute hepatitis A was established by elevation of liver enzymes to 20 times of normal and positive serology for anti-HAV IgM. The proteinuria, glucosuria and generalised aminoaciduria without hyperphosphaturia suggested incomplete Fanconi syndrome and led us to investigate further. A major cause of tubular dysfunction is heavy metal intoxication. However, no toxication history could be obtained despite detailed questioning. Therefore, further analysis of blood levels of heavy metals was not done. The absence of growth retardation and the normal ophthalmologic examination ruled out the inherited disorders such as cystinosis in which Fanconi syndrome develops. The normal result of ceruloplasmin, the absence of Kayser-Fleisher ring and the normal 24 hour urinary copper excretion ruled out the diagnosis of Wilson disease. The liver enzymes returned to normal within 2 weeks and the generalised aminoaciduria disappeared 1 month after initial hospitilization.

Nonfulminant hepatitis A infection has rarely been associated with nephropathy of which, microscopic hematuria and minimal proteinuria are seen most commonly (9). Acute renal failure has also been reported with hepatitis A (8,9). Probably, deposition of virus by viremic spread explains its extrahepatic presence in other organs such as kidney. The virally induced injury, either direct or mediated by immune complexes may be responsible for the renal failure.

The absence of hematuria and another pathology in urine sediment, the presence of glucosuria, aminoaciduria and the moderate degree of proteinuria made us think that this probably was due to a tubular problem. She did not present oliguria or anuria. The degree of proteinuria which was some what higher than expected for a tubular defect suggested slightly developed glomerular problem. But the protein/creatinine ratio below 3,5 did not suggest a nephrotic syndrome, also it is not possible to observe glucosuria during early states of glomerular diseases like focal and/or segmental glomerulosclerosis. During the acute phase, she did not receive any medication, that may affect the presented clinical and biochemical picture. We did not think to perform a renal biopsy, because the general status of the patient was good and the duration of the disease was short.

To our knowledge, renal tubulopathy associated with hepatitis A infection has never been reported. We do not have adequate information regarding the prehospitalisation renal function of the patient. However, we believe that the tubulopathy existing during the acute phase hepatitis A infection was due to the infection process itself since it disappeared with the resolution of infection and did not repeat during a two year of follow-up period.

REFERENCES

1. *Fishman LN, Jonas MM, Lavine JE. Update on viral hepatitis in children. Pediatr Clin North Am 1996;43:57-74.*
2. *Steffen R, Kane MA, Shapino CN, et al. Epidemiology and prevention of hepatitis A in travelers. JAMA 1994;272:885-889.*
3. *Noble RC, Kane MA, Reeves SA, et al. Post transfusion hepatitis in a neonatal intensive care unit. JAMA 1984;252:2711-2715.*
4. *Hammond GW, Macdougall BK, Plummer F, Sekla LH. Encephalitis during the prodromal stage of acute hepatitis A. Can Med Assoc J 1982;126:269-270.*
5. *Bromberg K, Newhall DN, Peter G. Hepatitis A and meningoencephalitis. JAMA 1982;247:815.*
6. *Forbes A. Williams R. Changing epidemiology and clinical aspects of hepatitis A. Br Med Bull 1990;46:303-318.*
7. *Lemon SM. Type A viral hepatitis: New developments in an old disease. N Eng J Med 1985;313:1059-1067.*
8. *Corpechot C, Cadranel JF, Hoang C, et al. Hepatite virale A cholestatique de l'adulte. Gastroenterol Clin Biol 1994;18:743-750.*
9. *Faust RL, Pimstone N. Acute renal failure associated with nonfulminant hepatitis A viral infection. Am J Gastroenterol 1996;91:369-372.*