PROGRESS IN MEDICAL SCIENCES, 2023 VOL 7, NO. 4, PAGE 1 – 3 DOI: doi.org/10.47363/PMS/2023(7)191

CASE REPORT

ට Open Access

A Rare Complication of Hepatitis A in Child with Pleural Effusion: A Case Report from Nepal

Shailendra Kumar Yadav^{1*} and Pratibha Yadav²

¹Manipal College of Medical Sciences, Teaching Hospital, Pokhara, 33700, Nepal

²Department of Pediatrics, Dhulikhel Teaching Hospital, 45200, Nepal

ABSTRACT

Introduction: Hepatitis A is an inflammation of the liver caused by hepatitis A virus (HAV). HAV is usually transmitted via the fecal-oral route (person-to-person contact or consumption of contaminated food or water). HAV is common in developing countries. HAV was diagnosed on the basis of laboratory investigations with a typical clinical presentation. HAV infection in children is usually a minor and self-limiting infection that requires no specific therapy unless acute liver failure or other complications are present. Extrahepatic manifestations of HAV including pleural effusion, acute myocarditis, and renal dysfunction, are rare. The incidence of HAV has declined substantially since the implementation of vaccinations.

Case Presentation: A 5-years old boy, previously well, presented with a cough for 10 days, abdominal pain, and fever for the on and off types.

Case Discussion: After obtaining medical history and physical examination, the child was hemodynamically stable, with mild hepatomegaly and bilateral decreased breath sounds. Ultrasonography revealed moderate bilateral pleural effusion. Based on the investigation and clinical findings, a diagnosis was made, and supportive management was performed. Liver enzyme levels were corrected within three weeks and the pleural effusion disappeared after four weeks.

Conclusion: Pleural effusion is a rare extrahepatic complication of acute hepatitis A that spontaneously resolves. This study is important because it reduces unnecessary invasive procedures such as pleural tapping and patient transfer to a tertiary center for further management. Therefore, the management of pleural effusion in children with jaundice should be considered in the differential diagnosis of Hepatitis A.

Introduction

HIGHLIGHTS

- Pleural effusion is a very rare manifestation of Hepatitis A.
- Clinical features with microbiological tests are necessary to diagnose.
- Supportive management is required to prevent relapse and further complications.
- Extrahepatic manifestations include evanescent rash, arthralgias, and other conditions related to immune complex disease and vasculitis.

Hepatitis A virus (HAV) is a single-stranded RNA virus belonging to picornavirus that exists in an enveloped form [1]. The virus is nonenveloped via a novel mechanism and is assembled differently than other picornaviruses. HAV and HEV mostly affect young children and young adults, respectively, and are endemic in many developing countries in Asia and Africa, whereas HBV and HCV infections are mainly reported in adults and sporadically found in developed nations [2]. Despite its high prevalence in developing countries, it remains underdiagnosed and is often missed by primary care providers in rural areas. Infants aged 6-11 months should also be vaccinated against Hepatitis A. Unvaccinated travelers who are over 40 years old, immunocompromised, or have chronic medical conditions planning to depart to a risk area in less than two weeks should receive the initial dose of vaccine and immunoglobulin at the same appointment. Acute liver failure is a rare manifestation of HAV, occurring in approximately 1 in every 300 cases and requiring liver transplantation sometimes [3]. Patients often present with nausea, vomiting, and fever with or without icterus. The uncommon manifestations of HAV in children include thrombocytopenia, ascites, gallbladder wall thickening, pleural effusion, acute renal failure, acute glomerulonephritis, and acute pancreatitis [4].

Herein, we present the case of a 5-year-old boy with hepatitis A infection who presented with pleural effusion without any other lung disease.

Case Presentation

Five years child presented to the outpatient setting in the hospital with complaints of cough for 10 days, which was insidious and was not associated with diurnal or nocturnal variation associated

Contact: Shailendra Kumar Yadav, Manipal College of Medical Sciences, Teaching Hospital, Pokhara, 33700, Nepal.

© 2023 The Authors. This is an open access article under the terms of the Creative Commons Attribution NonCommercial ShareAlike 4.0 (https:// creativecommons.org/licenses/by-nc-sa/4.0/).

ARTICLE HISTORY

Received July 24, 2023 Accepted July 31, 2023 Published August 07, 2023

KEYWORDS: Children, Extrahepatic Complications, Hepatitis A, Pleural Effusion.



Citation: Shailendra Kumar Yadav, Pratibha Yadav (2023) A Rare Complication of Hepatitis A in Child with Pleural Effusion: A Case Report from Nepal. Progress in Medical Sciences. PMS-1085.

with fever of the on and off type. The patient had a history of insidious abdominal pain associated with abdominal distension. There was no history of yellowish discoloration of the eye or skin, bleeding disorder, jaundice, or changes in urine or stool color. He had no history of contact with a child or sources of infection. He had previously been a good child and had been taking antibiotics and cough suppressants from a local pharmacy.

On examination, the child appeared well and playful. His vital signs were blood pressure 100/ 70 mmHg, pulse rate 90/minute, respiratory rate 20/minute, and afebrile status. Percussion, bilateral dullness over the lower lung field, and bilateral auscultation decreased breath sounds. An abdominal examination revealed mild discomfort and distension. The liver was enlarged. Thoracic Ultrasonography revealed bilateral pleural effusions [Figure1].



Figure 1: Thoracic Ultrasound image showing bilateral pleural effusion

Laboratory investigations for hepatitis were negative, and the hepatitis A antibody immunoglobulin M was reactive. All other parameters were normal. Bacterial cultures were negative.

The child was managed conservatively with antipyretics and intravenous fluid. Counseling was done regarding a balanced diet and hydration. After three weeks repeat ultrasound was done which showed a resolution of pleural effusion. The child remained hemodynamically stable throughout the duration of the illness. The child was sent to his home after supportive management and in following after 3 weeks, there was no hepatomegaly, he was improving and there were no fresh issues.

Discussion

Although the incidence of hepatitis A virus (HAV) infection has decreased with the advent of routine childhood immunization, HAV infection remains a frequently reported disease in developing nations. Hepatitis A infection in children is usually asymptomatic, subclinical (there is evidence of elevated liver enzymes in the laboratory), and symptomatic but without evidence of jaundice. Nonspecific symptoms include fever, malaise, anorexia, vomiting, nausea, abdominal pain or discomfort, and diarrhea. In childcare settings, the spread of HAV usually occurs before the index case is recognized.

Immunological IgM, IgG, and IgA antibiotics directed against epitopes on HAV particles were induced, indicating evidence of infection. Additionally, the total IgM levels are often elevated in patients with acute Hepatitis A infection [5]. The virus is stable at low pH and moderate temperature but is inactivated by high temperatures, chlorine, and formalin [6]. The incubation period for HAV is 15-50. HAV RNA can be detected in stools at least one week before the onset of microbiological evidence of hepatitis, and it can be detected at least 33 days after the onset of the disease. In neonates and younger children, HAV RNA can be detected in stool for several months [7,8].

The clinical features of hepatitis occur in approximately 30 percent of infected children younger than six years, some of whom become jaundiced. When it occurs, jaundice usually lasts for less than two weeks. The conjugated bilirubin and aminotransferase levels returned to normal within 2-3 months [9].

The general measures of prevention of HAV, Since HAV is transmitted predominantly by the fecal-oral route, prevention can be aided by improved sanitary conditions, adherence to sanitary practices (eg, handwashing), heating foods appropriately, and avoidance of water and foods from endemic areas. Handwashing is highly effective in preventing the transmission of the virus because HAV can survive for up to four hours on the fingertips. The Hepatitis A vaccine is administered in a two-dose schedule and is recommended for all children at one year of age (i.e. 12 to 23 months) and as a catch-up vaccine for all children and adolescents aged 2-18 years who have not previously received the vaccine [10]. The primary tool for protection against hepatitis A prior to exposure is vaccination, which is superior to immunoglobulins with respect to achievable antibody concentrations and immune response durability. Post-exposure prophylaxis for individuals exposed to HAV consists of hepatitis A vaccine and/or immunoglobulin, depending on the patient's characteristics. Children should not return to school or daycare until one week after the onset of illness [11].

Supportive treatment is the mainstay of HAV therapy. No particular diet had a major effect on the outcome of patients with acute hepatitis A infection. As a result, no specific diet is recommended unless the patient has severely compromised hepatic function (i.e., acute liver failure). Notably, the synthetic function of the liver was not affected, which is why the patient recovered completely.

Acute liver failure is rare, occurring in less than 1 percent of cases. The mortality rate of HAV infection varies with age. In 2001, the case fatality rate was 0.3 percent in children aged < 14 years, and 0.1 percent in adolescents and young adults (15-39 years) [12,13]. Other extrahepatic manifestations, such as arthritis and cutaneous vasculitis have been associated with cryoglobulinemia and are rare [14].

Generally, the complications of hepatitis A infection are transient, self-resolving, and do not require surgical intervention. Our case draws attention to how hepatitis A infection could be complicated by extrahepatic manifestations and presents a success story of its conservative management in a secondary care setting [15].

Conclusion

A rare case of childhood hepatitis A complicated by extrahepatic manifestations was identified and conservatively managed. This case study has important implications for primary care practice. Physicians at this level should be aware of the extrahepatic manifestations of childhood hepatitis A to avoid unnecessary interventions such as pleural taps and referrals to tertiary care centers. In patients with symptoms of acute hepatic damage **Citation:** Shailendra Kumar Yadav, Pratibha Yadav (2023) A Rare Complication of Hepatitis A in Child with Pleural Effusion: A Case Report from Nepal. Progress in Medical Sciences. PMS-1085.

and pleural effusion, even in the absence of jaundice, hepatitis A infection should be considered. However, other bacterial causes should also be ruled out in developing countries. Pleural effusion is a benign and early extrahepatic complication of acute anicteric hepatitis A that spontaneously resolves.

Ethical Approval

This study was not applicable for ethical approval.

Consent

Written informed consent was obtained from the patient's parents for the publication of this case report and accompanying images. A copy of the written consent form is available for review by the Editor-in-Chief of the journal upon request.

Research Registration Number

- 1. Name of the registry: N/A (It is a case report)
- 2. Unique Identifying number or registration ID: N/A

3. Hyperlink to your specific registration (must be publicly accessible and will be checked): N/A

Sources of Funding

There has been no financial support for this work that could have influenced its outcome.

Conflicts of Interest Disclosure

All authors declared no conflict of interest.

Provenance and Peer Review

Not commissioned, externally peer-reviewed.

References

- [1] Wang X, Ren J, Gao Q, Hu Z, Sun Y, et al. Hepatitis A virus and the origins of picornaviruses. Nature 2015; 517: 85-88.
- [2] Gupta BP, Lama TK, Adhikari A, Srestha A, Rauniyar R, et al. First report of hepatitis E virus viremia in healthy blood donors from Nepal. VirusDis 2016; 27: 324-326.
- [3] Abutaleb A, Kottilil S. Hepatitis A: Epidemiology, Natural History, Unusual Clinical Manifestations, and Prevention. Gastroenterol Clin North Am 2020: 49: 191-199.
- [4] Kumar K J, Kumar HCK, Manjunath VG, Anitha C, Mamatha S et al. "Hepatitis A in children-clinical course, complications and laboratory profile." The Indian J Pediatrics 81 (2014): 15-19.
- [5] Stapleton JT. Host immune response to hepatitis A virus. J Infect Dis 1995; 171: S9-14.
- [6] Melnick JL. Properties and classification of hepatitis A virus. Vaccine 1992; 10: S24-26.
- [7] Pinto MA, Marchevsky RS, Baptista ML, de Lima MA, Pelajo-Machado M, et al. "Experimental hepatitis A virus (HAV) infection in Callithrix jacchus: Early detection of HAV antigen and viral fate." Experimental and Toxicologic Pathology 2002; 53: 413-420.
- [8] Rosenblum LS, Villarino ME, Nainan OV, Melish ME, Hadler SC, et al. Hepatitis A outbreak in a neonatal intensive care unit: risk factors for transmission and evidence of prolonged

viral excretion among preterm infants. J Infect Dis 1991; 164: 476-482.

- [9] Tong MJ, el-Farra NS, Grew MI. Clinical manifestations of hepatitis A: recent experience in a community teaching hospital. J Infect Dis 1995; 171: S15-S18.
- [10] Nelson NP, Weng MK, Hofmeister MG, Moore KL, Doshani M, et al. Prevention of Hepatitis A Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices, 2020. MMWR Recomm Rep 2020; 69: 1-38.
- [11] Rosenblum LS, Villarino ME, Nainan OV, Melish ME, Hadler SC, et al. Hepatitis A outbreak in a neonatal intensive care unit: risk factors for transmission and evidence of prolonged viral excretion among preterm infants. J Infect Dis 1991; 164:476-482.
- [12] Jeong, Sook-Hyang, Hyo-Suk Lee. "Hepatitis A: clinical manifestations and management." Intervirology 201; 53:15-19.
- [13] Franco E, Meleleo C, Serino L, Sorbara D, Zaratti L, et al. Hepatitis A: Epidemiology and prevention in developing countries. World J Hepatol 2012; 4:68-73.
- [14] Schiff Eugene R. "Atypical clinical manifestations of hepatitis A." Vaccine 1992; 10: S18-S20.
- [15] Nainan OV, Xia G, Vaughan G, Margolis HS. "Diagnosis of hepatitis A virus infection: a molecular approach." Clinical microbiology reviews 2006; 19: 63-79.