Respiratory Syncytial Virus Associated Hepatitis In Pregnancy

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Objectives

- To discuss Respiratory Syncytial Virus (RSV) and how it normally manifests in adults.
- To describe a unique case involving hepatitis in the setting of RSV infection.
- To discuss treatment options and long-term outlook in patients with RSV Hepatitis.

Introduction

- RSV predominantly affects children and typically manifests as an upper respiratory tract infection.
- Primary RSV infection in immunosuppressed adults may increase risks of disseminated infection manifesting as RSV hepatitis.
- RSV hepatitis may present with fever, abdominal pain, nausea, vomiting, jaundice, coagulopathy, and elevation of transaminases.

Case Description

- A 29-year-old woman with 10 weeks of pregnancy, history of anemia and vitamin B12 deficiency was admitted for fatigue, intractable nausea, vomiting, and poor oral intake.
- She denied respiratory symptoms. She was taking prenatal multivitamins but denied starting new medications or supplements.
- At presentation, her vital signs and clinical exam were unremarkable with the uterine fundus palpable just above the pubic bone.

Case Description/Methods

- Initial laboratory workup revealed elevated liver enzymes with AST 497 U/L, ALT 712 U/L, normal total bilirubin and ALP.
- Abdominal ultrasound (US) demonstrated cholelithiasis without evidence of cholecystitis or common bile duct dilation.
- Subsequent workup including an acute hepatitis panel; CMV & EBV serology; stool H. pylori testing; and an autoimmune workup was negative. HSV IgM serology was indeterminant.
- A respiratory viral molecular panel by PCR was positive for RSV.
- Abdominal US with doppler showed normal hepatic and portal vessel blood flow and magnetic resonance cholangiopancreatography was negative for choledocholithiasis.
- She was treated supportively with intravenous fluids, antiemetics and close fetal monitoring.
- Her liver enzymes peaked on hospital day 4 with AST 863 U/L, ALT 1214 U/L, total bilirubin 1.1 mg/dL.
- By hospital day 5, her symptoms improved, and she was discharged.
- At 5 week follow up, AST and ALT improved to 62 U/L and 82 U/L, respectively.
- Her elective laparoscopic cholecystectomy was deferred until after delivery due to symptom resolution and absence of acute cholecystitis.

Results

Laboratory Test	Reference Range & Units	Results
Liver function tests		
Alanine aminotransferase (ALT)	0 - 34 U/L	990 (H)
Aspartate aminotransferase (AST)	15-46 U/L	750 (H)
Alkaline phosphatase (ALP)	38 - 126 U/L	89 (N)
Total bilirubin	0.2 - 1.3 mg/dL	1.4 (H)
Total Protein	6.3 - 8.2 g/dL	6.4 (N)
Albumin	3.5 - 5.0 g/dL	3.6 (N)
Coagulation Studies		
Prothrombin time	9.0 - 12.0	10.9 (N)
INR	0.9 - 1.1	1.0 (N)
Viral serologies		
Hepatitis A, IgM	Non-reactive	Non-reactive
Hepatitis B, core IgM	Non-reactive	Non-reactive
Hepatitis B, surface Ag	Non-reactive	Non-reactive
Hepatitis C Ab	Non-reactive	Non-reactive
Hepatitis E Ab	Non-reactive	Non-reactive
HIV 1 and 2 Ab/Ag	Non-reactive	Non-reactive
Herpes simplex virus 1 and 2 IgM	<=0.89	0.96 (intermediate)
CMV quantitative PCR	Non-reactive	Not detected
Epstein Barr virus, IgM	Not detected	Not detected
Influenza A, Ag	Not detected	Not detected
Influenza B, Ag	Not detected	Not detected
Respiratory Syncytial Virus PCR	Not detected	**Detected**
Autoimmune liver disease panel		
Liver-Kidney Microsome-1 Ab IgG (Anti-LMK)	0.0 - 24.9 U	0.8 (N)
Antinuclear Ab (ANA) titer	<1:80	<1:80 (N)
Anti-smooth muscle Ab (ASMA)	0 - 19 Units	6 (N)
Antimitochondrial Ab (AMA)	0.0 - 24.9 Units	2.4 (N)
Miscellaneous		
Rapid plasma regain (RPR)	Negative	Negative
Total Creatinine Kinase (CK)	30 - 170 U/L	<20 (L)
H. pylori antigen	Negative	Negative

Ab: Antibody; Ag: Antigen; H: High; N: Normal; L: Low.

Discussion

- Disseminated RSV is a rare manifestation in immunocompromised individuals, including pregnant females.
- The clinical presentation of RSV hepatitis may be atypical, creating diagnostic challenges.
- Liver biopsy is rarely required to establish the diagnosis [1].
- RSV hepatitis is typically self-limited and can be treated with supportive care as antiviral agents have no proven efficacy [2].
- A high index of suspicion is required for early identification of RSV hepatitis as timely supportive care may prevent progression to acute liver failure.

Conclusions

- Disseminated RSV can lead to severe hepatitis in rare cases.
- Diagnosis involves ruling out many other more common causes of hepatitis.
- Treatment entails supportive therapy; however, in certain circumstances when patients develop fulminant liver failure, liver transplant may be needed to prevent death [3].

Contact

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References

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