

A 2-year-old child is brought to the office due to vomiting. He is recovering from an upper respiratory infection, which was treated by his mother with over-the-counter aspirin. On examination he is irritable, lethargic, agitated and uncooperative. His height, weight and head circumference are at the 50th percentile. The pupils are equal and have a sluggish reaction to light. The sclera is non-icteric. The neck is supple and without adenopathy. The abdomen is flat, with normal bowel sounds. The lab findings are as follows:

Serum bilirubin	Normal
Serum AST and ALT	Increased
Serum ammonia	Increased
Prothrombin time	Prolonged

A CT scan of the brain shows cerebral edema. CSF analysis is normal, except for increased pressure. What is the most likely diagnosis?

- ☐ A. Aseptic meningitis
- ☐ B. Reye syndrome
- ☐ C. Carnitine deficiency
- ☐ D. Sepsis
- ☐ E. Viral encephalitis

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- ☐ A. Aseptic meningitis [1%]
- ☒ B. **Reye syndrome** [96%]
- ☐ C. Carnitine deficiency [1%]
- ☐ D. Sepsis [0%]
- ☐ E. Viral encephalitis [1%]

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Explanation:

User Id: [REDACTED]

Reye syndrome is a rare illness seen exclusively in children less than 15 years old who were treated with salicylates for a viral infection. The common presentation is as mentioned above: vomiting, agitation, and irrational behavior, progressing to lethargy, stupor, and restlessness. Convulsions may occur. Characteristic laboratory findings include hyperammonemia, normal or slightly elevated levels of bilirubin and alkaline phosphatase, prolonged prothrombin time, hypoglycemia, and moderate to severe elevations in AST, ALT, and lactate dehydrogenase levels. Biopsy of the liver, kidneys and brain reveals microvesicular steatosis. Treatment is supportive.

(Choice A) Even though bacterial/viral meningitis can present with mental changes, the absence of neck rigidity and the normal CSF study makes this diagnosis unlikely. Aseptic meningitis alone will not have elevated liver enzymes.

- ☐ C. Carnitine deficiency [1%]
- ☐ D. Sepsis [0%]
- ☐ E. Viral encephalitis [1%]

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Reye syndrome is a rare illness seen exclusively in children less than 15 years old who were treated with salicylates for a viral infection. The common presentation is as mentioned above: vomiting, agitation, and irrational behavior, progressing to lethargy, stupor, and restlessness. Convulsions may occur. Characteristic laboratory findings include hyperammonemia, normal or slightly elevated levels of bilirubin and alkaline phosphatase, prolonged prothrombin time, hypoglycemia, and moderate to severe elevations in AST, ALT, and lactate dehydrogenase levels. Biopsy of the liver, kidneys and brain reveals microvesicular steatosis. Treatment is supportive.

(Choice A) Even though bacterial/viral meningitis can present with mental changes, the absence of neck rigidity and the normal CSF study makes this diagnosis unlikely. Aseptic meningitis alone will not have elevated liver enzymes.

(Choice C) Systemic carnitine deficiency (SCD) is an inherited defect in fatty acid oxidation. The clinical picture of SCD is somewhat similar to that of Reye Syndrome (i.e., hypoglycemia, hyperammonemia, hypoprothrombinemia, and acute episodes of encephalopathy); however, in the former, the acyl-carnitine levels are elevated, whereas these are normal in the latter. In this case, the classic presentation following a viral illness and aspirin ingestion makes Reye syndrome the most likely diagnosis.

(Choice D) Sepsis in children can present with variable symptoms such as nonspecific mental changes, irritability, and lethargy. Even though they can present with a normal body temperature, they are usually much sicker than the above described patient, and signs of diminished perfusion such as delayed capillary refill, weak peripheral pulses, and cool extremities are usually present. Tachypnea and tachycardia are common signs of sepsis.

Educational Objective:

Salicylates are contraindicated in young children with viral infections. Recognize the clinical presentation of Reye syndrome.

Time Spent: 2 seconds

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