

Question 5 – Week of March 17

A 5-year-old boy visited the local county fair. Within the next two days he develops watery diarrhea and abdominal pain, followed a day later by bloody diarrhea and fever. He is diagnosed with colitis due to enterohemorrhagic *Escherichia coli*. This infection has all of the following features EXCEPT:

- A. The colitis is caused by invasion of the epithelial cells.
- B. It requires special medium in order to culture the organism.
- C. Outbreaks are associated with ingestion of ground beef, unpasteurized dairy products or fecal contamination of water systems.
- D. It may result in hemolytic uremic syndrome or thrombotic thrombocytopenic purpura.
- E. It is sensitive to TMP-SMX, ampicillin, tetracycline or norfloxacin.

Answer: A

The clinical symptoms with enterohemorrhagic *Escherichia coli* are due to the production of a Shiga like toxin. Intestinal uptake of these toxins may lead to the systemic complications including HUS and TTP. Special media is required to grow the sorbitol-negative colonies. Cattle appear to be a reservoir of infection and outbreaks have been reported from infected municipal water systems. While the organism is usually sensitive to the aforementioned antibiotics, they are not recommended for this infection as antimicrobial agents have not been shown to modify the course of illness.

References:

1. Ashkenazi S. Role of bacterial cytotoxins in hemolytic uremic syndrome and thrombotic, thrombocytopenic purpura. *Annu Rev Med* 1993;44:11.
2. Su C, Brandt LJ. *Escherichia coli* 0157:H7 infection in humans. *Ann Intern Med* 1995;123:698-714.