

# Acute Hepatitis Secondary to Ceftriaxone in the Setting of Pyelonephritis Caused by Atypical Bacteria

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## Background:

- Drug induced liver injury (DILI) incidence ~19/100,000 → 11% of all acute liver failure<sup>1</sup>
  - Cephalosporins are rare cause of DILI
  - Ceftriaxone has known hepatotoxicity risks including biliary sludge or stone formation in up to 46% and, more rarely, cholestatic hepatitis.
    - Etiologies: Binding Ca<sup>2+</sup> → insoluble crystals. Immune mediated hepatocellular injury.
    - Cross-reactivity between PCN and cephalosporins is low: 0.3-2.5%<sup>2</sup>
- *C. trachomatis*, an intracellular, non-nitrogen fixing bacteria
  - Not classically associated with UTIs – usually cervicitis or PID → perihepatitis
  - 25% women with obstructive pyelonephritis had *C. trachomatis* as only identified organism<sup>3</sup>

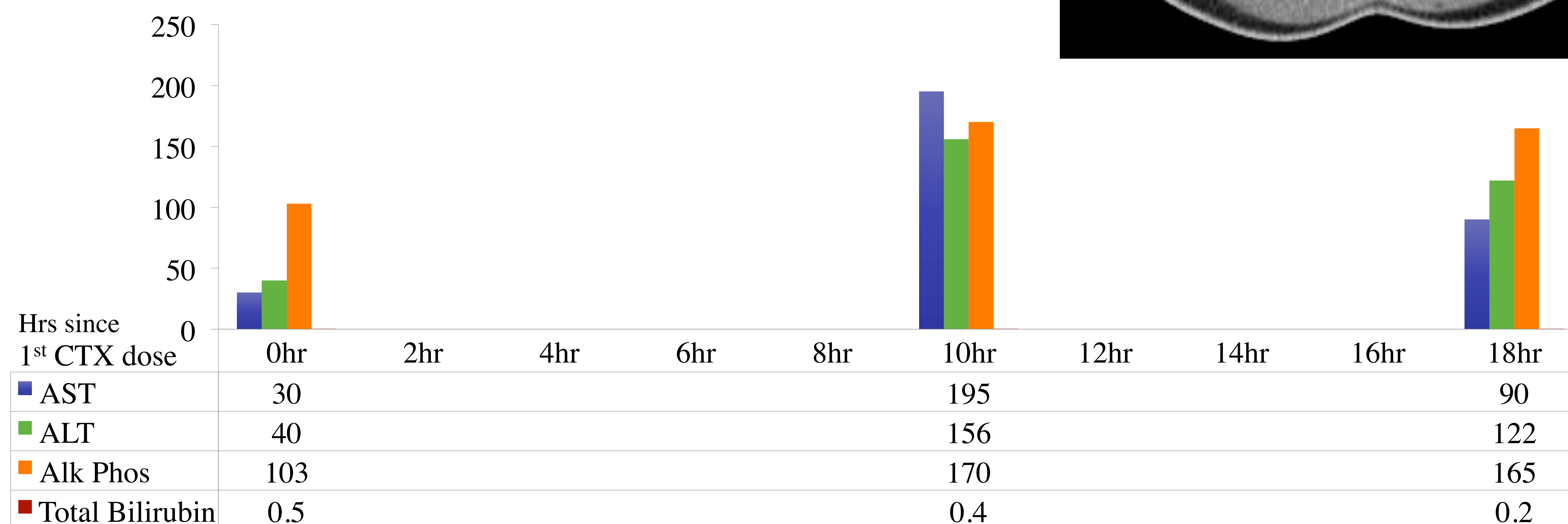


## Case:

20 y.o. woman with a 1-week history of progressive bilateral flank pain, fevers, nausea, anorexia.

- Endorsed several uncomplicated UTIs
- Sexually active with 1 partner, no protection
- Denied vaginal discharge, dyspareunia

Allergy to PCN: hives & difficulty breathing in childhood



- Bilateral CVA tenderness
- No abdominal tenderness
- UA: LCE+, 16 WBC, nitrite negative, few bacteria. Negative gram stain

- Bilateral CVA tenderness
- RUQ rebound tenderness
- + Murphy's sign
- CT abd: bilateral renal stranding, periportal edema, pericholecystic fluid
- Abd US: diffuse severe gallbladder wall thickening, pericholecystic fluid, - cholelithiasis.
- HIDA scan: normal biliary tree filling.

- Bilateral CVA tenderness
- No abdominal tenderness
- Hepatitis panel negative
- Urine Cx: no growth
- After discharge: Urine *C. trachomatis* PCR +

## Diagnoses: 1) Bilateral pyelonephritis due to *C. trachomatis* 2) Ceftriaxone-induced acute liver injury

### Diagnostic uncertainty:

- Ceftriaxone induced liver injury: is cross-reactivity with PCN/hypersensitivity associated with this observed liver injury?
- Was the *C. trachomatis* the etiology of this patient's pyelonephritis? Was there co-occurring pelvic inflammatory disease?

### Learning points

- A pelvic exam would have provided diagnostic value.
- Consider DILI in patients with acute-onset findings of hepatitis or cholestasis who present with non-hepatobiliary signs and symptoms.
- Final microbiology results may be surprising and require modification to therapy.

### Reference:

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2. Campagna, James D., et al. "The use of cephalosporins in penicillin-allergic patients: a literature review." The Journal of emergency medicine 42.5 (2012): 612-620.
3. Dimitrakov, J., et al. "PCR studies on the presence of Chlamydia trachomatis in the upper urinary tract of patients with obstructive pyelonephritis." Folia medica 40.3 (1998): 24-28.