

# Citywide Infectious Disease Conference

March 27<sup>th</sup>, 2018



Cooper Medical School  
of Rowan University



Cooper

University Hospital

# Case 1: How did that get there?

**Presented by**  
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# History of the Present Illness

- 40's year old Hispanic male presents for evaluation of back pain
- Localized to midline upper back, stabbing in nature, 10/10 in severity, and non-radiating
- Sx started 1 month ago and acutely worsened over prior 2 weeks
- Denies: Injuries/trauma, headache, visual changes, fever, chills, sore throat, neck pain, chest pain, shortness of breath, abdominal pain, nausea, vomiting, diarrhea, dysuria, weakness, tingling, paresthesias, or rash

# Medical and Social History

- **PMH: NIDDM**
- **PSH: Breast lumpectomy**
- **Medications: Metformin**
- **Allergies: NKDA**
- **Family Hx: Sister w/breast cancer**
- **Social History: Single, works at warehouse. Previously dated an IV drug user for 15 years but in that time, never used IV drugs. Engages in polysubstance abuse (intranasal cocaine and marijuana), alcohol abuse, and is tobacco dependent.**

# Vitals and Physical Exam

- Vitals: BP 133/83, HR 88, Temp 97.7°F/36.5°C, RR 27, SpO2 97%, Weight: 90.7 kg, Height 1.651.
- General: Well developed Hispanic male. Appears in mild distress from pain when moving around his room.
- Musculoskeletal: Muscle strength is 5/5. Tenderness along the thoracic spine region. No deformity or swelling.
- Exam Otherwise unremarkable- no rashes, abdominal tenderness or neurological abnormalities

# Investigative studies

~~14.7  
12.86 489  
44.5~~

136	97	14	96
4.0	23	0.76	

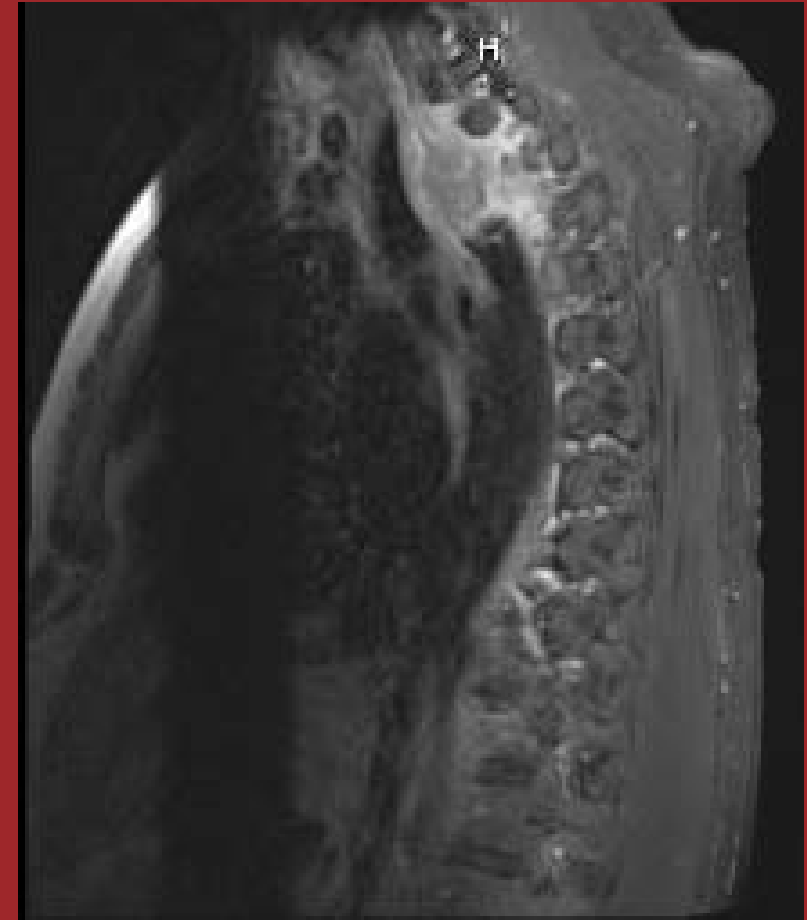
66% N, 24% L, 6.5% M,  
2.3% Eo

AST 15  
ALT 20  
Alb 4.2  
Protein 8.1

AlkP 85  
Tbili <0.2  
Dbili <0.2

U/A:  
Negative INR 1.1

# Investigative studies



MRI imaging

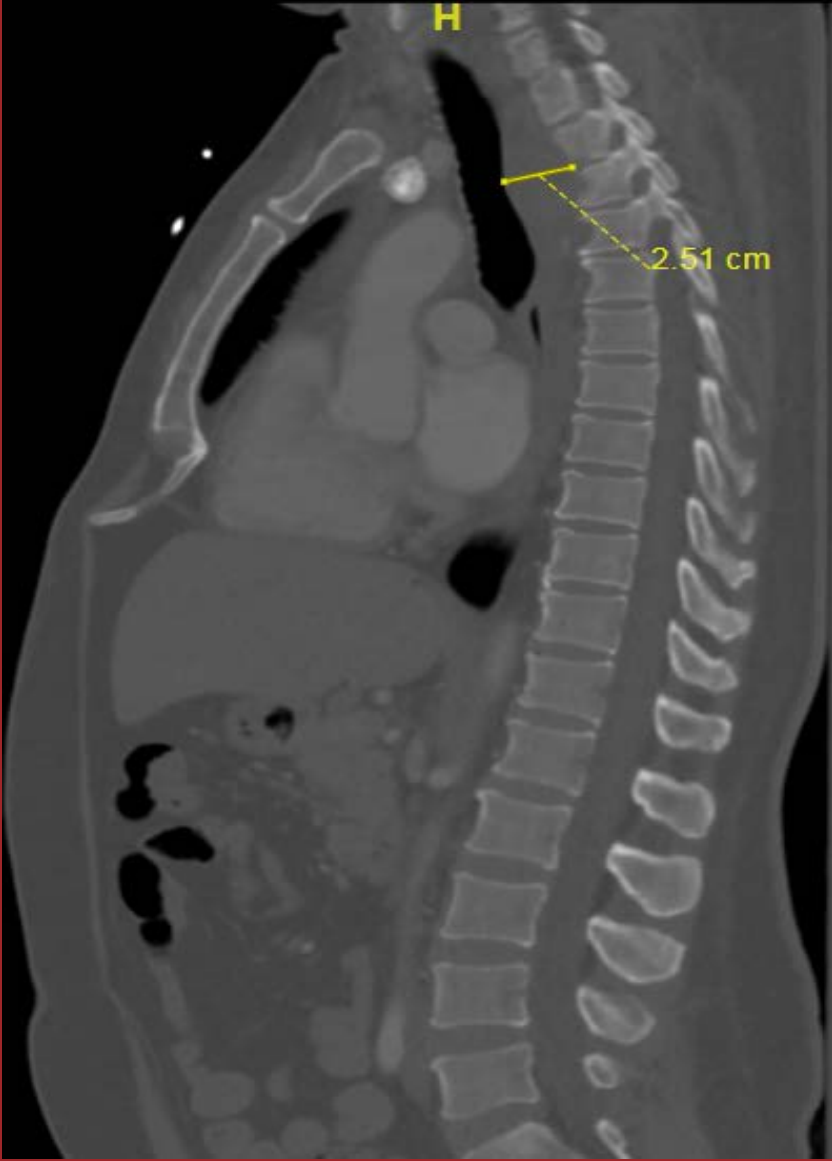
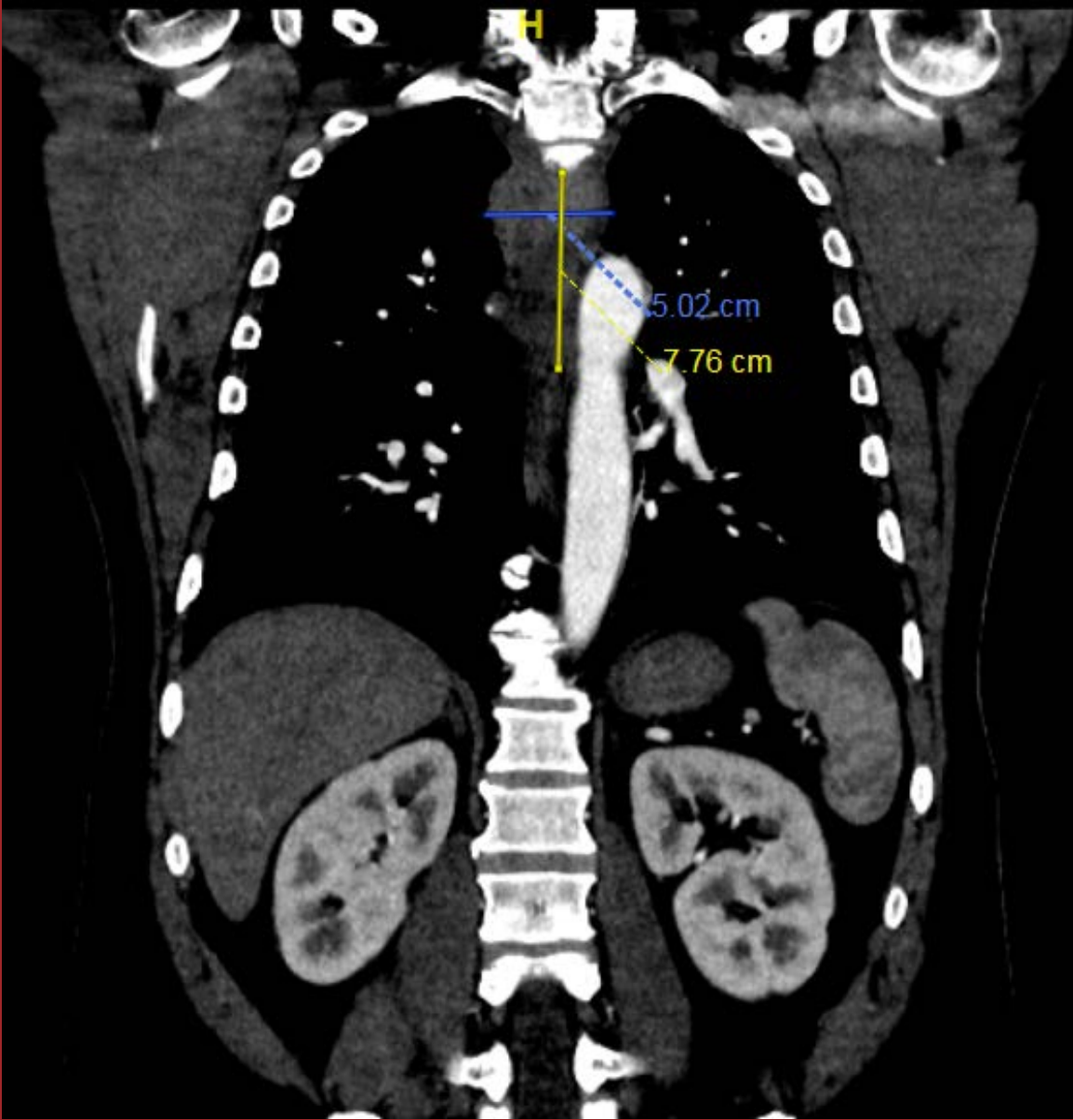
# Investigative studies

**CTA of chest:** 2.5 x 5.0 x 7.7 cm soft tissue mass within upper mediastinum posterior to the esophagus and trachea, which displaces both structures off of the spine. Involvement of T2 and T3 vertebral bodies with lytic erosions at the inferior endplate of T2 and superior endplate of T3.





# Investigative studies



# Investigative studies

## CTA Abdomen and Pelvis:

5.8 x 4.6 x 4.8 cm circumscribed low-attenuation structure in the right side of the pelvis which appears to be extraperitoneal, possibly a lymphocele



# In review

- 40's year old Hispanic male with well controlled NIDDM presents with one month of progressive midline thoracic back pain that acutely worsens over 2 weeks
- No trauma/Injury
- Not an IV drug user
- No neurological deficit
- Hemodynamically stable
- Minimal leukocytosis
- Imaging reveals 2.5 x 5.0 x 7.7 cm soft tissue mass within upper mediastinum posterior to the esophagus and trachea, displacing both structures off of the spine. The inferior endplate of T2 and superior endplate of T3 also have lytic lesions.



*Le Penseur in the Musée Rodin in Paris*

# Hospital Course

- Additional History from ID Evaluation:
  - Patient recalled that two mo. prior to onset of back pain, he experienced GI symptoms including frequent non-bloody diarrhea and abdominal discomfort, lasting for 4 days. He did not seek medical attention.
  - One mo. later, he again had one week of non-bloody diarrhea.
  - When questioned about the possible source of infection, he relayed concern about consuming undercooked chicken both times.

# Hospital Course

- Blood culture x 2: NGTD - Final
- FNA of the “mass” performed
- Tissue culture T2-T3 Aspiration: *Salmonella species* from enriched broth only
  - Sensitive to Ampicillin ( $\leq 2$ ), Ceftriaxone ( $\leq 0.5$ ), Ciprofloxacin (no MIC reported), TMP-Sulfa ( $\leq 0.5/9.5$ )
- AFB culture T2-T3 Aspiration - No AFB– Final
- Anaerobic culture T2-T3 Aspiration - No growth – Final

# Hospital Course

- ID recommended IR drainage of right lower quadrant fluid collection and starting ceftriaxone 2 gram IV daily
- HIV testing was negative
- Stool cultures were negative
- Cultures/cytology from right lower quadrant fluid were negative
- CT surgery requested EGD which revealed no sign of malignancy
- The Salmonella isolate was identified by NJ Dept. of Health as ***Salmonella enteritidis***



# Hospital Course

- Further Management:
- Discussion between ID, CT surgery, and Neurosurgery – A conservative approach was pursued where the patient received 6 weeks of ceftriaxone with close follow up and repeat imaging as he did not demonstrate neurological deficits.





# Discussion

- *Salmonella* is a genus of the family of *Enterobacteriaceae* and is separated into two species – *S. enterica* which contains six subspecies (I, II, IIIa, IIIb, IV, and VI) and *S. bongori* (formerly subspecies V).
  - These 7 subspecies can be further divided into 2,500 serotypes.
- *Salmonella* septicemia most commonly occurs in the very young and elderly.
- According to the CDC, infection by *Salmonella spp* accounts for 1.2 million illnesses each year in the US , resulting in more than 23,000 hospitalizations and 450 deaths [1].
- In 2016, the rate of documented infection related to *Salmonella* in the United States was 16.3 new cases per 100,000 [2] and 13.1 per 100,000 in New Jersey

# Discussion



**Motile gram-negative non-lactose fermenting facultative anaerobe. Invades mucosa in ileocecal region. Possess endotoxin in cell wall. Is sensitive to stomach acid and thus a large infectious dose is needed.**

# Discussion

- Salmonellosis can present in four different clinical forms – gastroenteritis (the most common), enteric fever, bacteremia with or without metastatic disease, and asymptomatic chronic carrier state [3].
- Of the extra-intestinal manifestations, a rare complication is osteomyelitis .
  - Most patients with Salmonella osteomyelitis are either immunocompromised, have a hemoglobinopathy such as Sickle Cell Disease or Thalassemia, or have traveled to an endemic area ← **Our patient had none of these risk factors**
- Of patients tracked by FoodNet infected with Salmonella in 2012, *Salmonella enteritidis* was the most common subtype followed by *Typhimurium* and then *Newport* [4].

# Discussion

- In the mid 1970s, increasing antibiotic resistance was noted among *Salmonella* isolates [5].
- A recent report evaluated antibiotic resistance in *Salmonella* in 19,401 isolates submitted to the National Antimicrobial Resistance Monitoring System (NARMS) between 2004-2012.
  - o Resistance was detected in 2,320 (12%) of isolates
    - o 3.1% were ampicillin resistant
    - o 2.4% were ciprofloxacin resistant
    - o 0.2% were ceftriaxone resistant and ciprofloxacin non-susceptible [6].
- Resistance rates are higher outside of the US

# References

1. Salmonella. (2018, March 06). Retrieved March 23, 2018, from <https://www.cdc.gov/salmonella/index.html>
2. Salmonella rate U.S. by state 2017 | Statistic. Retrieved March 23, 2018, from <https://www.statista.com/statistics/379025/us-salmonella-rate-by-state>.
3. McAnearney S, McCall D. Salmonella Osteomyelitis. *The Ulster Medical Journal*. 2015;84(3):171-172.
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5. Cohen, Jeffrey I., et al. “Extra-Intestinal Manifestations of Salmonella Infections.” *Medicine*, vol. 66, no. 5, 1987, pp. 349–388.
6. Medalla, Felicita, et al. “Estimated Incidence of Antimicrobial Drug–Resistant Nontyphoidal Salmonella Infections, United States, 2004–2012.” *Emerging Infectious Diseases*, vol. 23, no. 1, 2016, pp. 29–37.

**Thank You!**