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Nitrofurantoin Induced Lung Toxicity: A Rare Adverse Effect

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Nitrofurantoin Induced Lung Toxicity: A Rare Adverse Effect

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Introduction

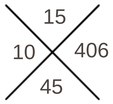
- Nitrofurantoin is a commonly used antibiotic, primarily for the use of uncomplicated urinary tract infections (UTI's) and prophylaxis for recurrent UTI's.
- Nitrofurantoin lung toxicity can occur with short or long term exposure, and can manifest as acute or chronic lung toxicity.
- Females are more likely to be affected than males. Lung toxicity secondary to nitrofurantoin occurs in 1 in 5000 patients initially exposed to the drug.
- The majority of patients who experience nitrofurantoin induced lung toxicity have acute reactions 80% vs 20% with chronic.

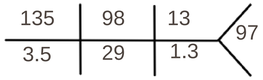
Case Presentation

65 year old female with a past medical history of hyperlipidemia and recurrent UTI's on nitrofurantoin, presented to the ER with the chief complaint of worsening cough. Her cough was dry, nonproductive, and associated with exertional dyspnea, pleuritic chest pain and post tussive emesis. It started about 1 month prior to admission.

- **Home meds:**
  - Nitrofurantoin 100 mg
  - Atorvastatin 20 Daily
  - Sertraline 15 mg Daily
- **Social Hx:** Previous smoker, quit more than 15 years ago. Denies previous sick contacts or recent travel.
- **Physical Exam:**
  - Vitals: Afebrile, HR 102 bpm RR 18 BP 102/56 O2 90% on RA
  - General: Comfortable, no acute distress, AxO x3
  - Respiratory: Diminished air entry in bilateral bases, with left sided rhonchi, no wheezing.
  - CVS: regular, S1, S2, no murmurs, rubs, gallops; no JVD
  - Extremities: No edema

Labs & Imaging





- Trops negative x 3
- BNP – 678
- ANA – weakly positive
- Anti RNP – weakly positive
- Resp panel – negative
- Legionella, Mycoplasma, Strep Ag - negative
- ABGs
  - D1: 7.40/53/66 on BiPAP 100% FiO2
  - D3: 7.37/48/60 on BiPAP 100% FiO2
  - D6: 7.47/49/110 on NRB
  - D9: 7.27/69/ 130 just prior to intubation

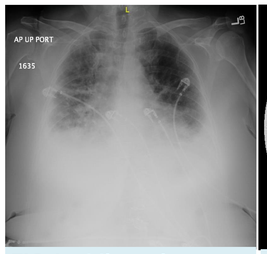


FIG 1 – bilateral airspace disease

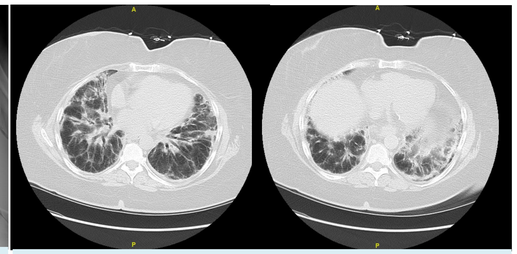


FIG 2 – bilateral airspace disease with bilateral groundglass opacities.

Hospital Course

Day 1-2	Day 3-4	Day 6-7	Day 9	Day 14
• Hypoxic respiratory failure due to b/l PNA • Desaturating, in resp distress, required BiPAP overnight, resp status stable	• Worsening resp status • Desaturating on BiPAP • Upgraded to ICU	• Autoimmune/vasculitic workup not significant • Patient reluctant about intubation • Started on Steroids	• Patient agreed to intubation, currently in ARDS	• Resp status has not improved, multi organ failure • Terminally extubated, CMO

Discussion

- Nitrofurantoin lung toxicity should be suspected in those with recent exposure – whether acute or chronic, in the context of new respiratory symptoms unexplained by infection.
- Our patient underwent extensive workup, with input from infectious disease, pulmonology and rheumatology, with the ultimate diagnosis being nitrofurantoin induced lung toxicity. Due to the frequency of nitrofurantoin use in many of our patients, it is important to identify this adverse effect given that we do not have any guidelines regarding the identification and treatment of this disease.
- As with many other drug induced toxicities and adverse effects, stopping the offending agent may help improve outcomes, and potentially spare the patient hospitalization, intubation or death. It is important to recognize this adverse effect in the inpatient and outpatient settings and to spread awareness and educate our fellow colleagues.

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