Severe H5N1 disease in humans

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Project ECHO®

Disclosures

No financial disclosures

A ‘hypothetical’ case

Presenting publicly available information

Patient information

- Previously healthy teenager

Co-morbidities:

Maybe some mild asthma, untreated

Obesity

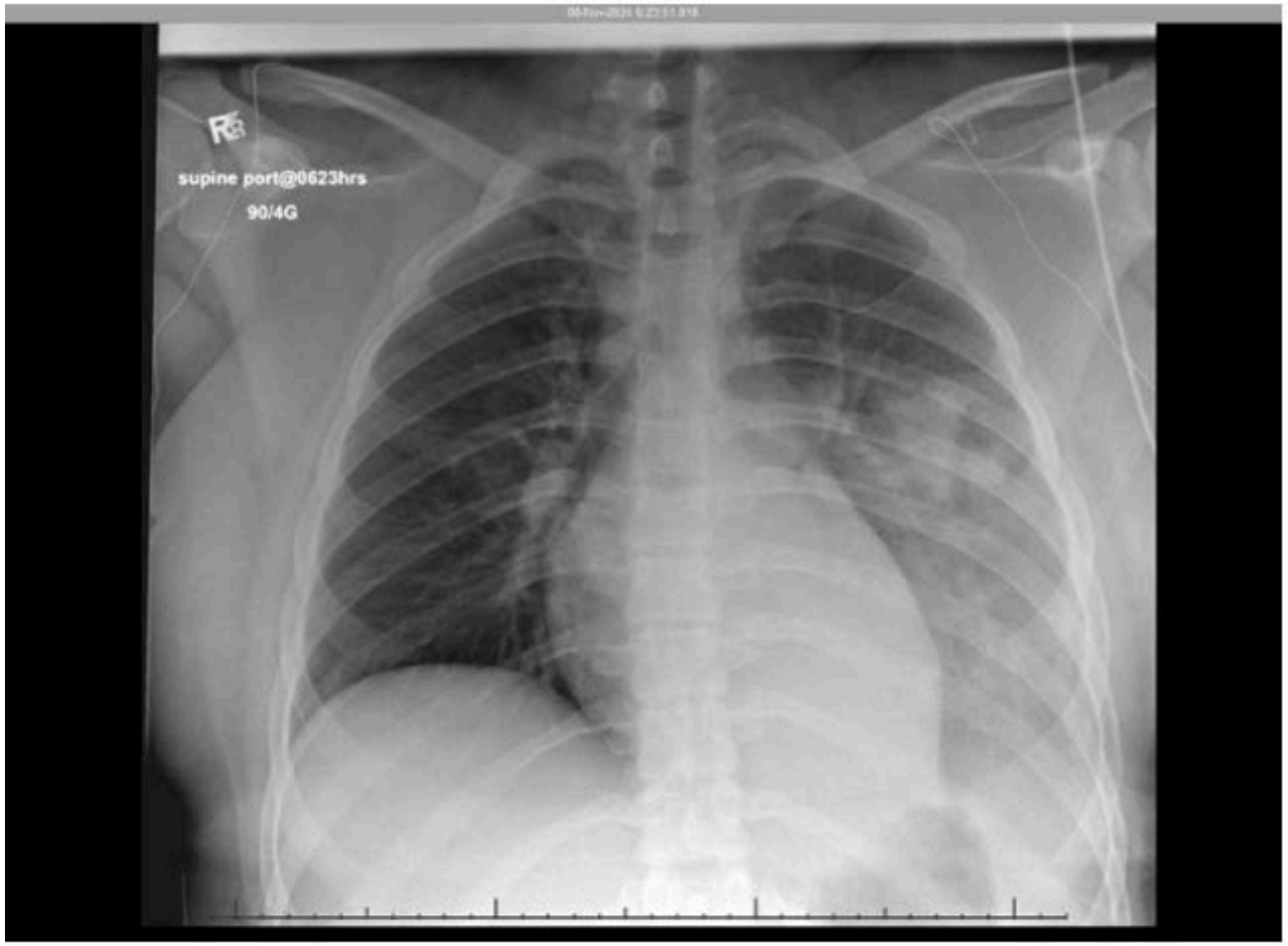
On no medications at home

Patient information

- Presents with a few day history of malaise, fever, discharged home with supportive care
- Developed some conjunctivitis, vomiting/diarrhea, with some difficulty breathing

Patient information

Initial CXR



Patient information

Unremarkable electrolytes

Creatinine elevated at 93 (1.05 mg/dL)

CRP 199

WBC 0.7 (ANC 0.5)

Patient information

Transferred to Intensive care unit, requiring non-invasive respiratory support

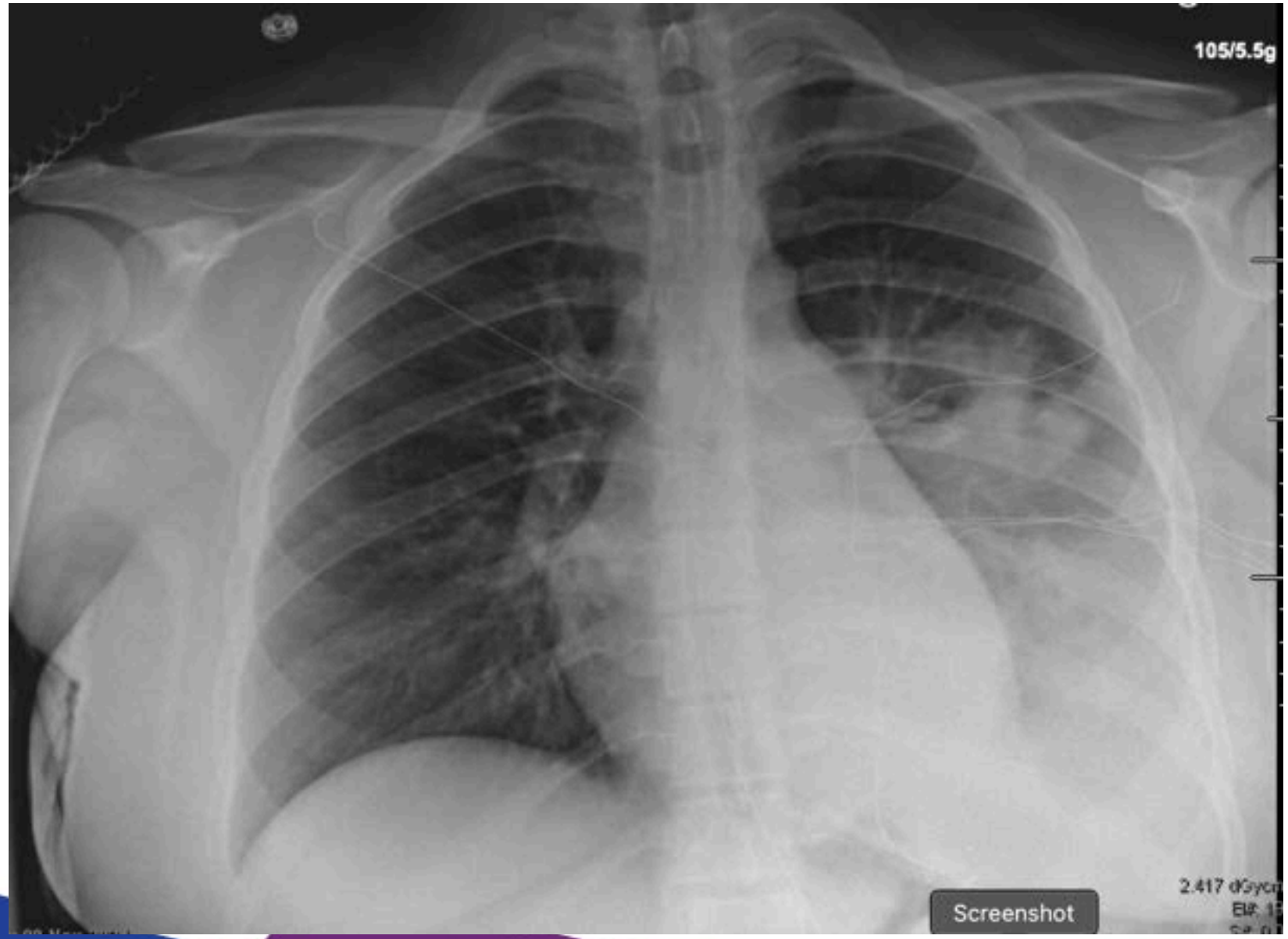
NP swab – positive for flu A (negative for A(H1) and A(H3) by BioFire)

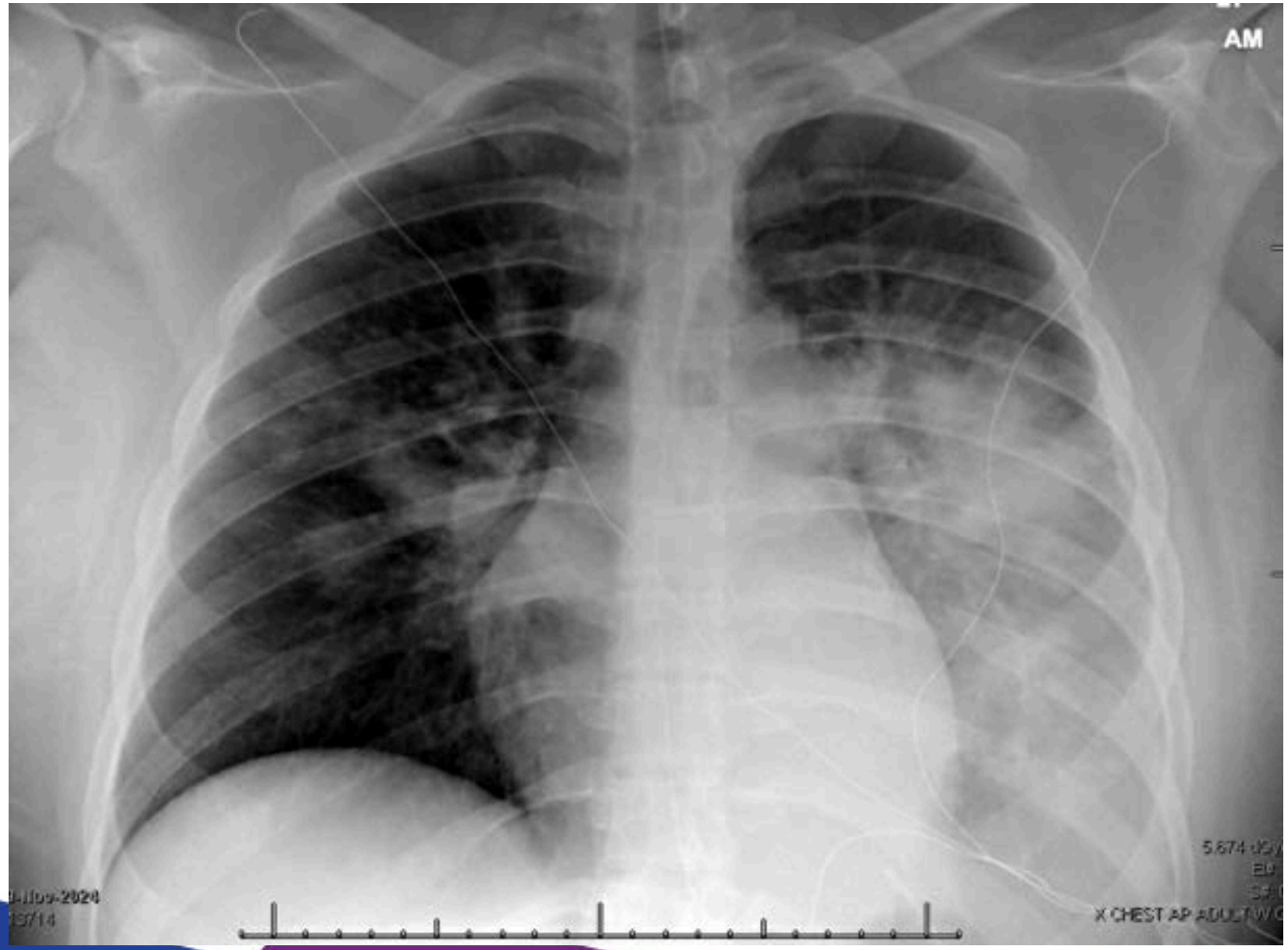
Initiated on oseltamivir

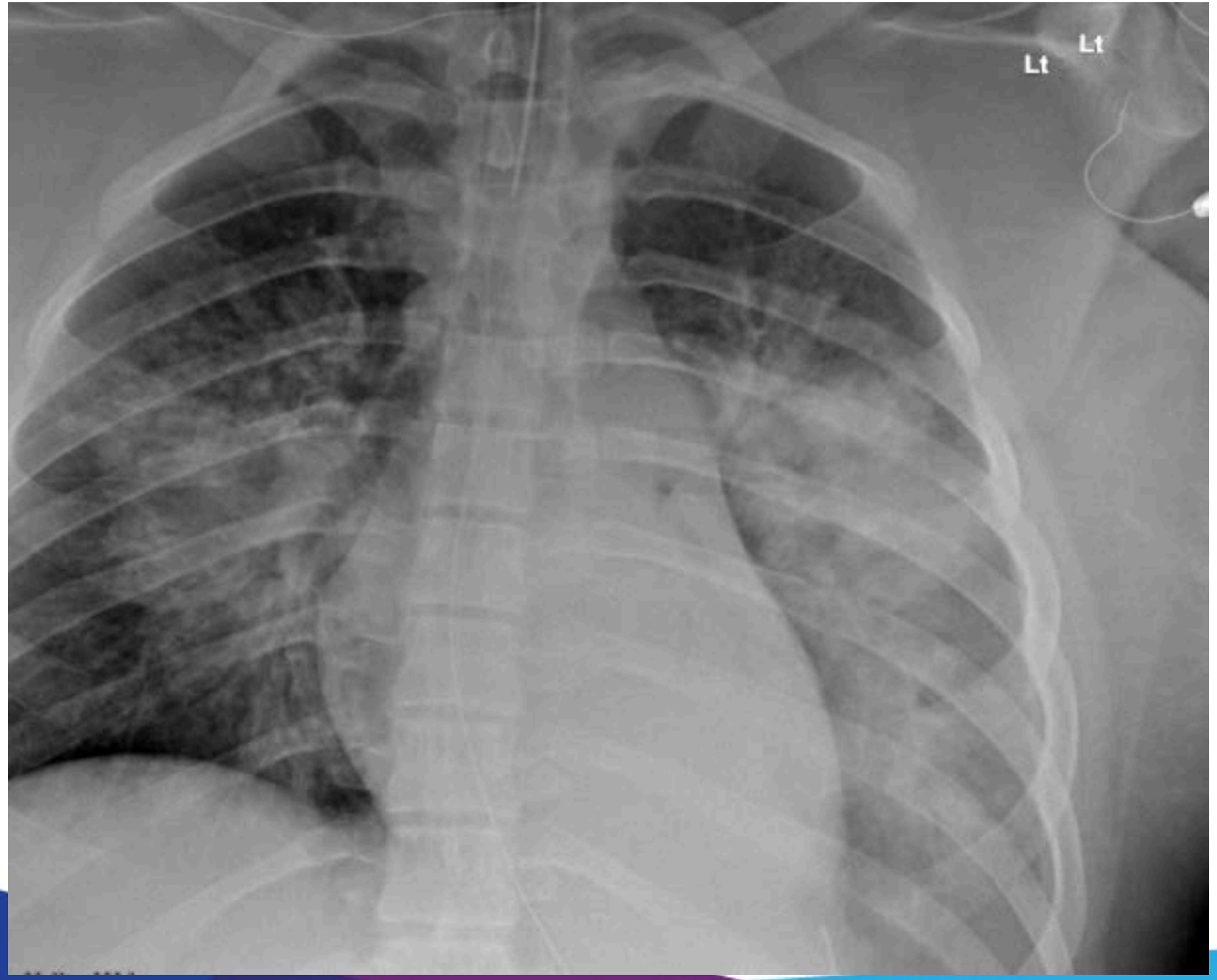
Patient information

Worsened, requiring intubation

Difficulty maintaining adequate oxygenation, electively cannulated onto VV-ECMO


105/5.5g
Screenshot


AM
X CHEST AP ADULT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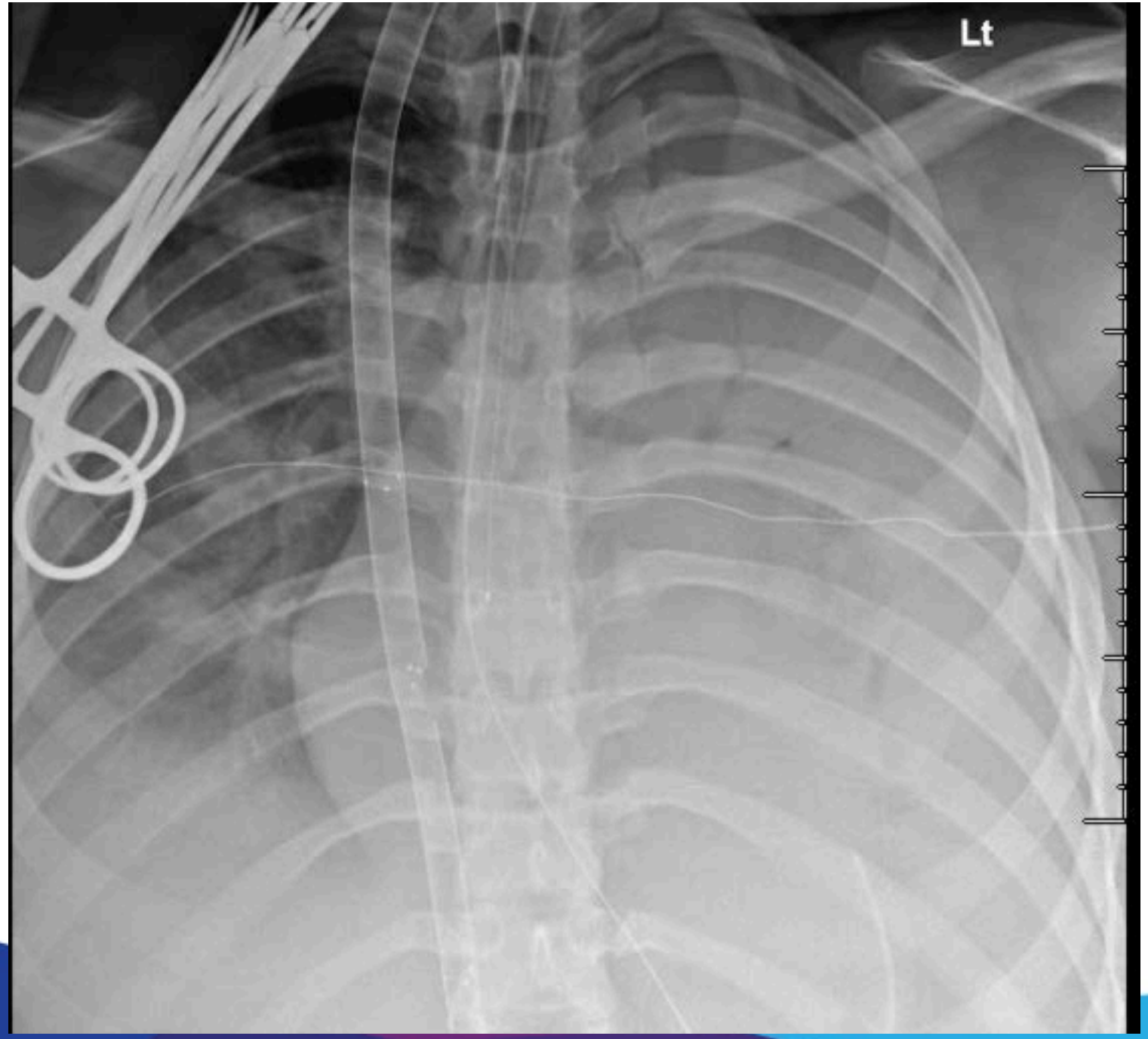
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Anti-infectives

- Oseltamivir
- Baloxavir
- Amantadine

- Short course of antibacterials, negative cultures throughout

Table 1. Results of Virologic Testing of Clinical Specimens from a Patient with Influenza A(H5N1) Virus Infection, November 2024.

Specimen Type (Collection Date)	Influenza A RT-PCR Result*	Influenza A Cycle Threshold	Markers of Reduced Susceptibility†	Susceptibility to Antivirals by NA-Star‡
Blood samples				
Serum (November 9)	Positive	26.3	Not assessed	Not assessed
Serum (November 12)	Indeterminate	35.1	Not assessed	Not assessed
Serum (November 14)	Indeterminate	39.0	Not assessed	Not assessed
Serum (November 16)	Negative		Not assessed	Not assessed
Initial respiratory specimens				
Nasopharyngeal swab (November 7)	Positive		Not assessed	Susceptible
Nasopharyngeal swab (November 8)	Positive	27.1	None	Susceptible
Nasopharyngeal swab (November 8)	Positive	27.3	None	Susceptible
Tracheal aspirate (November 9)	Positive	17.4	None	Susceptible
Serial respiratory specimens				
Tracheal aspirate (November 12)	Positive	17.6	None	Susceptible
Tracheal aspirate (November 14)	Positive	24.5	None	Not assessed
Tracheal aspirate (November 16)	Positive	27.1	Not assessed	Not assessed
Tracheal aspirate (November 18)	Positive	27.8	None	Not assessed
Tracheal aspirate (November 20)	Positive	27.1	Not assessed	Not assessed
Tracheal aspirate (November 22)	Positive	31.5	Not assessed	Not assessed
Tracheal aspirate (November 24)	Positive	33.0	Not assessed	Not assessed
Tracheal aspirate (November 26)	Positive	31.1	Not assessed	Not assessed
Tracheal aspirate (November 28)	Positive	39.9	Not assessed	Not assessed

* Specimens were tested with an influenza A virus–specific reverse-transcriptase–polymerase-chain-reaction (RT-PCR) assay.
† Specimens were analyzed for viral sequence markers associated with reduced susceptibility to antiviral agents.
‡ The NA-Star influenza neuraminidase inhibitor resistance detection kit was used to test for susceptibility to oseltamivir and zanamivir.

Patient information

VV ECMO: 2 weeks

IMV: 21 days

Dialysis: 30 days

CNS status: No evidence of neurologic disease

Key Takeaways

1. Seasonal vs Avian – clinical differences
2. How/whether to immunomodulate
3. Role of antivirals
4. Risk factors for severe disease
5. Viral kinetics