

A Case of Severe Pulmonary Blastomycosis in an Immunocompetent 39-year old male

B Edwards MD¹, C Woodall MD¹, K Happel MD²

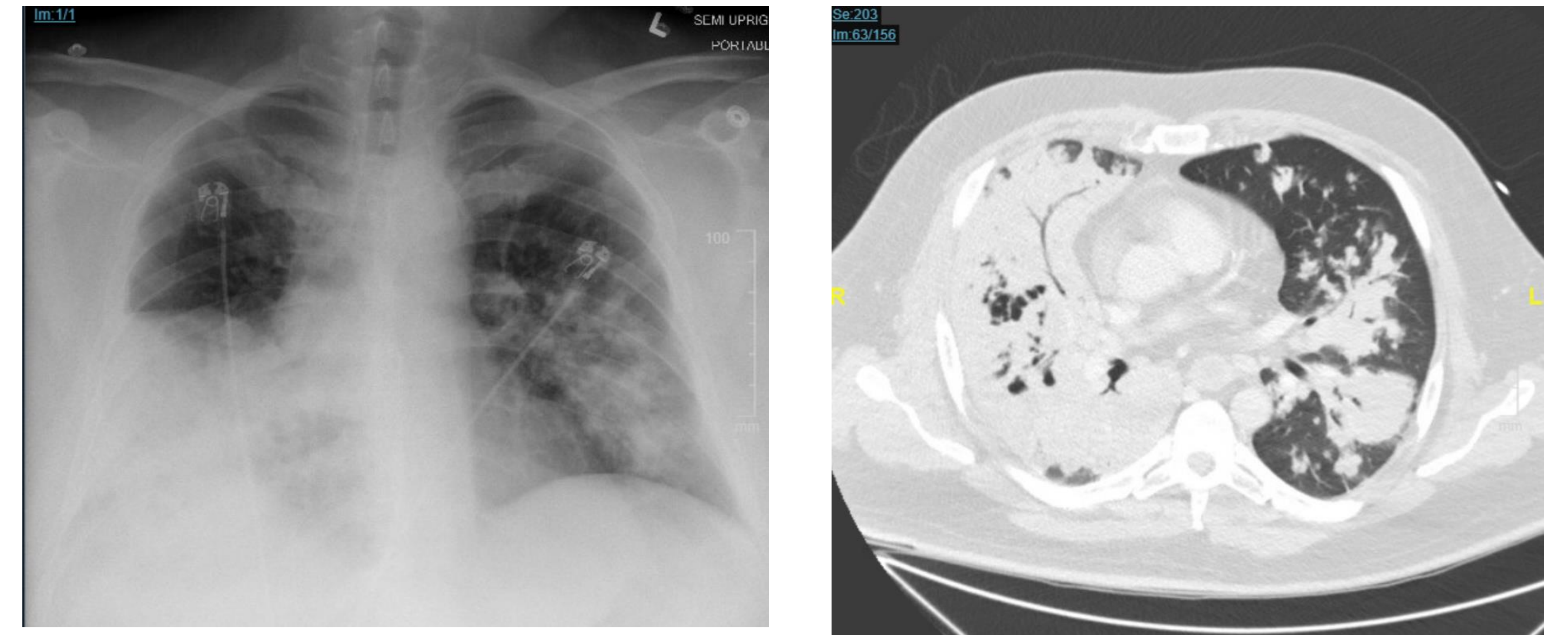
¹Department of Medicine, LSU Health Sciences Center, New Orleans, LA
²Section of Pulmonary / Critical Care, LSU Health Sciences Center, New Orleans, LA

Introduction

Blastomyces is fungus that is found in moist soils, primarily in the Great Lakes area, Mississippi and Ohio river valleys, and southeastern US. Spores can be inhaled and can cause disease, with severity ranging from asymptomatic to life-threatening. It most commonly causes pulmonary disease, though it can disseminate hematogenously to affect organs such as skin, bones, and nervous system. It is most common in adult males, likely due to exposures.

Case Presentation

Case: A 39-year-old Caucasian male with no prior medical history presented to an outside hospital with weakness, fatigue, fevers, and nonproductive cough for 3 weeks unresponsive to azithromycin prescribed to him. He was admitted and subsequently worsened despite treatment with IV levofloxacin, then vancomycin and meropenem. CT of his chest showed a multilobar pneumonia with multifocal cavitation, mediastinal and hilar adenopathy, trace pleural effusion, and splenomegaly. Blood and sputum cultures were negative. Due to increasing oxygen requirements, patient was transferred to our facility. On admission patient had a temp of 103.1, HR 119, RR 30, BP 149/88, and O2 Sat 96% on 4L of oxygen. On initial exam he was noted to have bilateral crackles. Labs were notable for a WBC of 10.9, sodium of 129, normal LFTs, and a lactic acid of 2.9. Patient was started on empiric vancomycin and Unasyn without improvement. Additional history was obtained that he had visited northern Wisconsin on a hunting trip the month prior to admission. Further investigation into the area's social media revealed high rate of blastomycosis infections, with several other hunters sick with similar presentations. Liposomal amphotericin B was then started empirically given the exposure and disease severity. Blastomyces antigen, and Blastomyces antibody were collected and subsequently positive. Fungal sputum cultures revealed Blastomyces on microscopy and culture. Liposomal amphotericin was continued throughout his hospitalization. His course was complicated by high oxygen requirements as well as duodenal perforation believed secondary to heavy NSAID use prior to admit. Surgical pathology was negative for fungal elements. He rapidly improved clinically on amphotericin and was eventually weaned off oxygen. He finished his 14-day course of liposomal amphotericin and was discharged on itraconazole for 6-12 months, depending on clinical response.



Patient's chest X-ray and CT

Discussion

Careful review of travel and work history is important in individuals who fail to respond to appropriate antibiotic therapy, as this patient had received. Blastomycosis can resemble other pulmonary diseases such as bacterial or mycobacterial pneumonia. Presentations can range from asymptomatic to typical community-acquired pneumonia, and chronic infections can present as mass-like lesions or cavitary lesions. Imaging can show patchy infiltrates, consolidations, and/or air bronchograms. Blastomycosis diagnosis requires visualization of the fungus on histopathology and/or growth in culture. Culture is the most sensitive method and growth typically takes 5-10 days but may take several weeks. Sputum cytology and antigen testing allow for more rapid identification. Itraconazole is used for treatment in most cases, and amphotericin B is used in severe or disseminated cases. Early diagnosis and appropriate treatment can prevent dissemination. This case demonstrates severe pulmonary blastomycosis in an otherwise healthy, immune competent host who presented as severe community acquired pneumonia failing appropriate treatment.

References

Miceli A, Krishnamurthy K. Blastomycosis. [Updated 2022 Aug 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441987/>
Linder KA, Kauffman CA, Miceli MH. Blastomycosis: A Review of Mycological and Clinical Aspects. J Fungi (Basel). 2023 Jan 14;9(1):117. doi: 10.3390/jof9010117. PMID: 36675937; PMCID: PMC9863754.



A Case of Severe Pulmonary Blastomycosis in an Immunocompetent 39-year old male

B Edwards MD¹, C Woodall MD¹, K Happel MD²

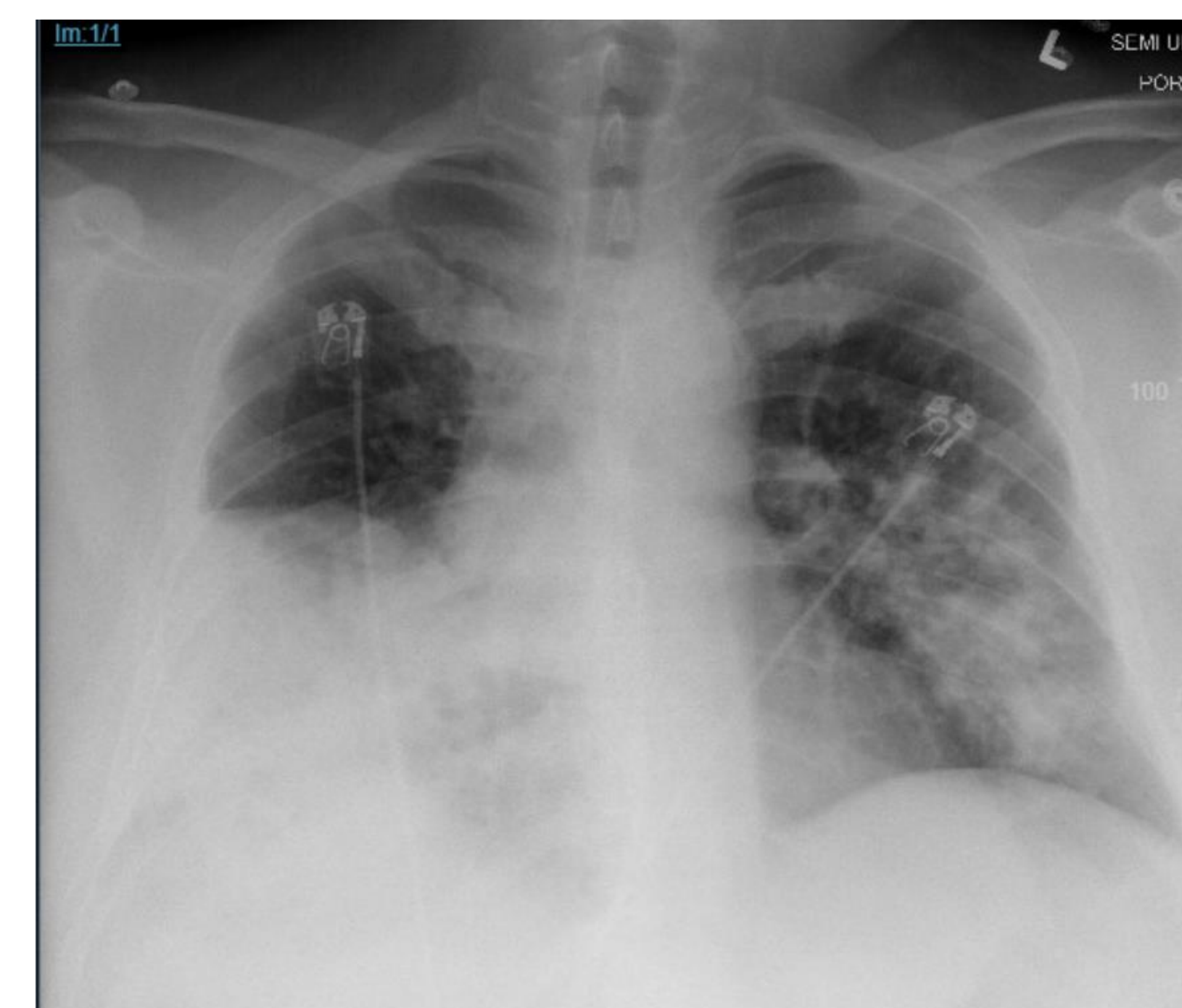
¹Department of Medicine, LSU Health Sciences Center, New Orleans, LA
²Section of Pulmonary / Critical Care, LSU Health Sciences Center, New Orleans, LA

Introduction

Blastomycosis is found in moist soils, primarily in the Great Lakes area, Mississippi and Ohio river valleys, and southeastern US. Spores can be inhaled and can cause disease, with severity ranging from asymptomatic to life-threatening. It most commonly causes pulmonary disease, though it can disseminate hematogenously to affect organs such as skin, bones, and nervous system. It is most common in adult males, likely due to exposures.

Case Presentation

Case: A 39-year-old Caucasian male with no prior medical history presented to an outside hospital with weakness, fatigue, fevers, and nonproductive cough for 3 weeks unresponsive to azithromycin prescribed to him. He was admitted and subsequently worsened despite treatment with IV levofloxacin, then vancomycin and meropenem. CT of his chest showed a multilobar pneumonia with multifocal cavitation, mediastinal and hilar adenopathy, trace pleural effusion, and splenomegaly. Blood and sputum cultures were negative. Due to increasing oxygen requirements, patient was transferred to our facility. On admission patient had a temp of 103.1, HR 119, RR 30, BP 149/88, and O2 Sat 96% on 4L of oxygen. On initial exam he was noted to have bilateral crackles. Labs were notable for a WBC of 10.9, sodium of 129, normal LFTs, and a lactic acid of 2.9. Patient was started on empiric vancomycin and Unasyn without improvement. Additional history was obtained that he had visited northern Wisconsin on a hunting trip the month prior to admission. Further investigation into the area's social media revealed high rate of blastomycosis infections, with several other hunters sick with similar presentations. Liposomal amphotericin B was then started empirically given the exposure and disease severity. Blastomyces antigen, and Blastomyces antibody were collected and subsequently positive. Fungal sputum cultures revealed Blastomyces on microscopy and culture. Liposomal amphotericin was continued throughout his hospitalization. His course was complicated by high oxygen requirements as well as duodenal perforation believed secondary to heavy NSAID use prior to admit. Surgical pathology was negative for fungal elements. He rapidly improved clinically on amphotericin and was eventually weaned off oxygen. He finished his 14-day course of liposomal amphotericin and was discharged on itraconazole for 6-12 months, depending on clinical response.



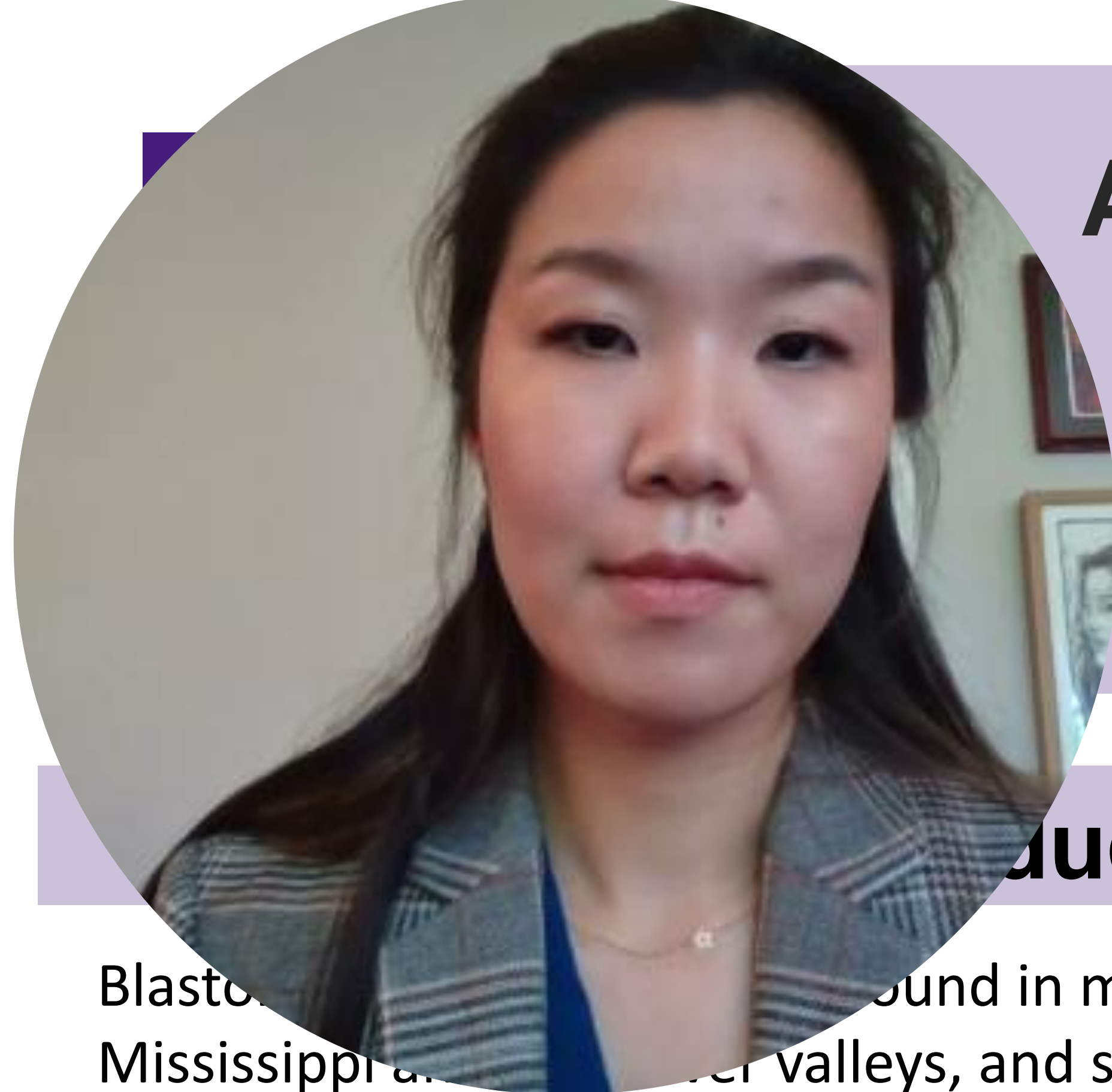
Patient's chest X-ray and CT

Discussion

Careful review of travel and work history is important in individuals who fail to respond to appropriate antibiotic therapy, as this patient had received. Blastomycosis can resemble other pulmonary diseases such as bacterial or mycobacterial pneumonia. Presentations can range from asymptomatic to typical community-acquired pneumonia, and chronic infections can present as mass-like lesions or cavitary lesions. Imaging can show patchy infiltrates, consolidations, and/or air bronchograms. Blastomycosis diagnosis requires visualization of the fungus on histopathology and/or growth in culture. Culture is the most sensitive method and growth typically takes 5-10 days but may take several weeks. Sputum cytology and antigen testing allow for more rapid identification. Itraconazole is used for treatment in most cases, and amphotericin B is used in severe or disseminated cases. Early diagnosis and appropriate treatment can prevent dissemination. This case demonstrates severe pulmonary blastomycosis in an otherwise healthy, immune competent host who presented as severe community acquired pneumonia failing appropriate treatment.

References

Miceli A, Krishnamurthy K. Blastomycosis. [Updated 2022 Aug 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441987/>
Linder KA, Kauffman CA, Miceli MH. Blastomycosis: A Review of Mycological and Clinical Aspects. J Fungi (Basel). 2023 Jan 14;9(1):117. doi: 10.3390/jof9010117. PMID: 36675937; PMCID: PMC9863754.



A Case of Severe Pulmonary Blastomycosis in an Immunocompetent 39-year old male

B Edwards MD¹, C Woodall MD¹, K Happel MD²

¹Department of Medicine, LSU Health Sciences Center, New Orleans, LA

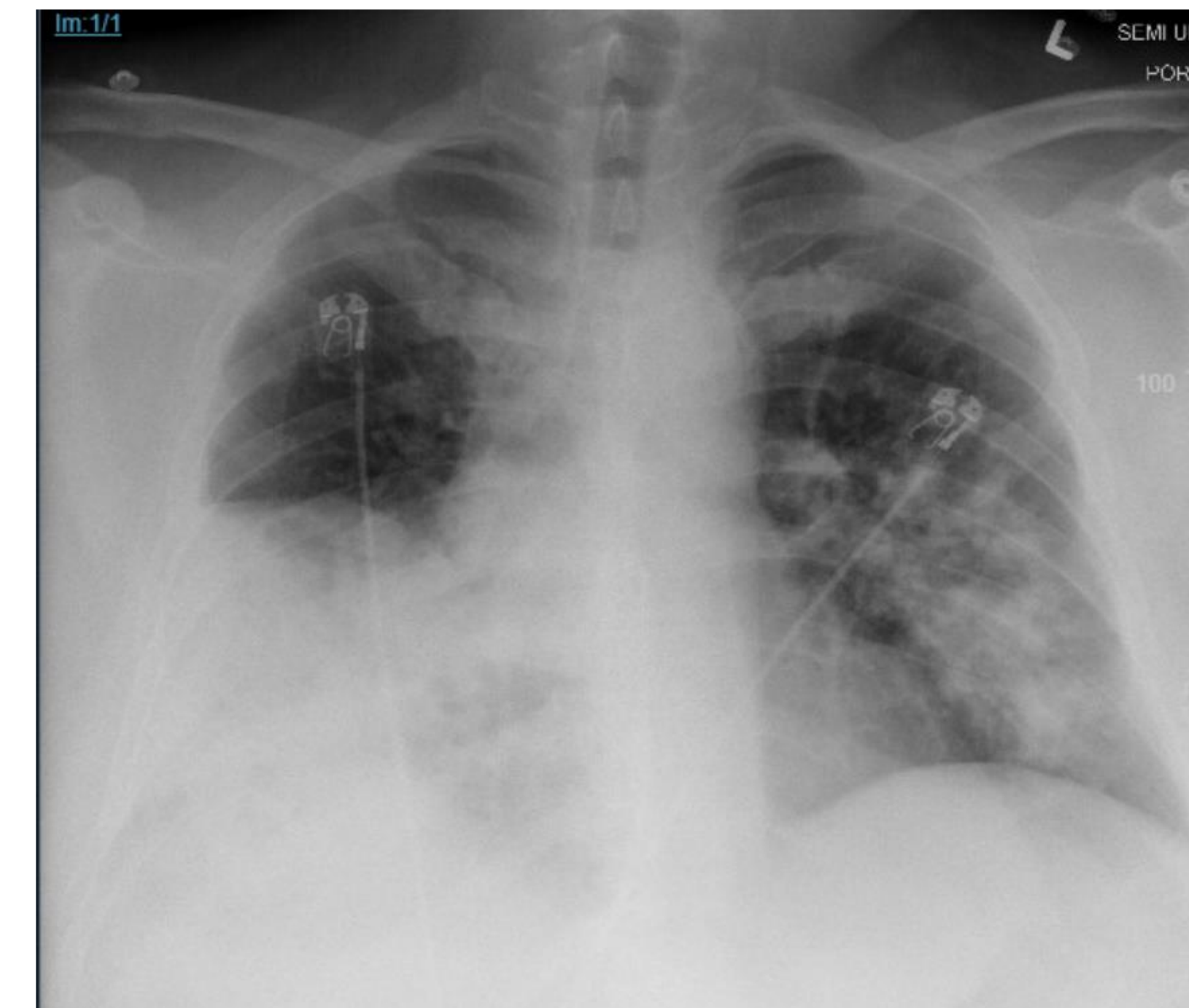
²Section of Pulmonary / Critical Care, LSU Health Sciences Center, New Orleans, LA

Introduction

Blastomycosis is found in moist soils, primarily in the Great Lakes area, Mississippi and other river valleys, and southeastern US. Spores can be inhaled and can cause disease, with severity ranging from asymptomatic to life-threatening. It most commonly causes pulmonary disease, though it can disseminate hematogenously to affect organs such as skin, bones, and nervous system. It is most common in adult males, likely due to exposures.

Case Presentation

Case: A 39-year-old Caucasian male with no prior medical history presented to an outside hospital with weakness, fatigue, fevers, and nonproductive cough for 3 weeks unresponsive to azithromycin prescribed to him. He was admitted and subsequently worsened despite treatment with IV levofloxacin, then vancomycin and meropenem. CT of his chest showed a multilobar pneumonia with multifocal cavitation, mediastinal and hilar adenopathy, trace pleural effusion, and splenomegaly. Blood and sputum cultures were negative. Due to increasing oxygen requirements, patient was transferred to our facility. On admission patient had a temp of 103.1, HR 119, RR 30, BP 149/88, and O2 Sat 96% on 4L of oxygen. On initial exam he was noted to have bilateral crackles. Labs were notable for a WBC of 10.9, sodium of 129, normal LFTs, and a lactic acid of 2.9. Patient was started on empiric vancomycin and Unasyn without improvement. Additional history was obtained that he had visited northern Wisconsin on a hunting trip the month prior to admission. Further investigation into the area's social media revealed high rate of blastomycosis infections, with several other hunters sick with similar presentations. Liposomal amphotericin B was then started empirically given the exposure and disease severity. Blastomyces antigen, and Blastomyces antibody were collected and subsequently positive. Fungal sputum cultures revealed Blastomyces on microscopy and culture. Liposomal amphotericin was continued throughout his hospitalization. His course was complicated by high oxygen requirements as well as duodenal perforation believed secondary to heavy NSAID use prior to admit. Surgical pathology was negative for fungal elements. He rapidly improved clinically on amphotericin and was eventually weaned off oxygen. He finished his 14-day course of liposomal amphotericin and was discharged on itraconazole for 6-12 months, depending on clinical response.



Patient's chest X-ray and CT

Discussion

Careful review of travel and work history is important in individuals who fail to respond to appropriate antibiotic therapy, as this patient had received. Blastomycosis can resemble other pulmonary diseases such as bacterial or mycobacterial pneumonia. Presentations can range from asymptomatic to typical community-acquired pneumonia, and chronic infections can present as mass-like lesions or cavitary lesions. Imaging can show patchy infiltrates, consolidations, and/or air bronchograms. Blastomycosis diagnosis requires visualization of the fungus on histopathology and/or growth in culture. Culture is the most sensitive method and growth typically takes 5-10 days but may take several weeks. Sputum cytology and antigen testing allow for more rapid identification. Itraconazole is used for treatment in most cases, and amphotericin B is used in severe or disseminated cases. Early diagnosis and appropriate treatment can prevent dissemination. This case demonstrates severe pulmonary blastomycosis in an otherwise healthy, immune competent host who presented as severe community acquired pneumonia failing appropriate treatment.

References

- Miceli A, Krishnamurthy K. Blastomycosis. [Updated 2022 Aug 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441987/>
- Linder KA, Kauffman CA, Miceli MH. Blastomycosis: A Review of Mycological and Clinical Aspects. J Fungi (Basel). 2023 Jan 14;9(1):117. doi: 10.3390/jof9010117. PMID: 36675937; PMCID: PMC9863754.



A Case of Severe Pulmonary Blastomycosis in an Immunocompetent 39-year old male

B Edwards MD¹, C Woodall MD¹, K Happel MD²

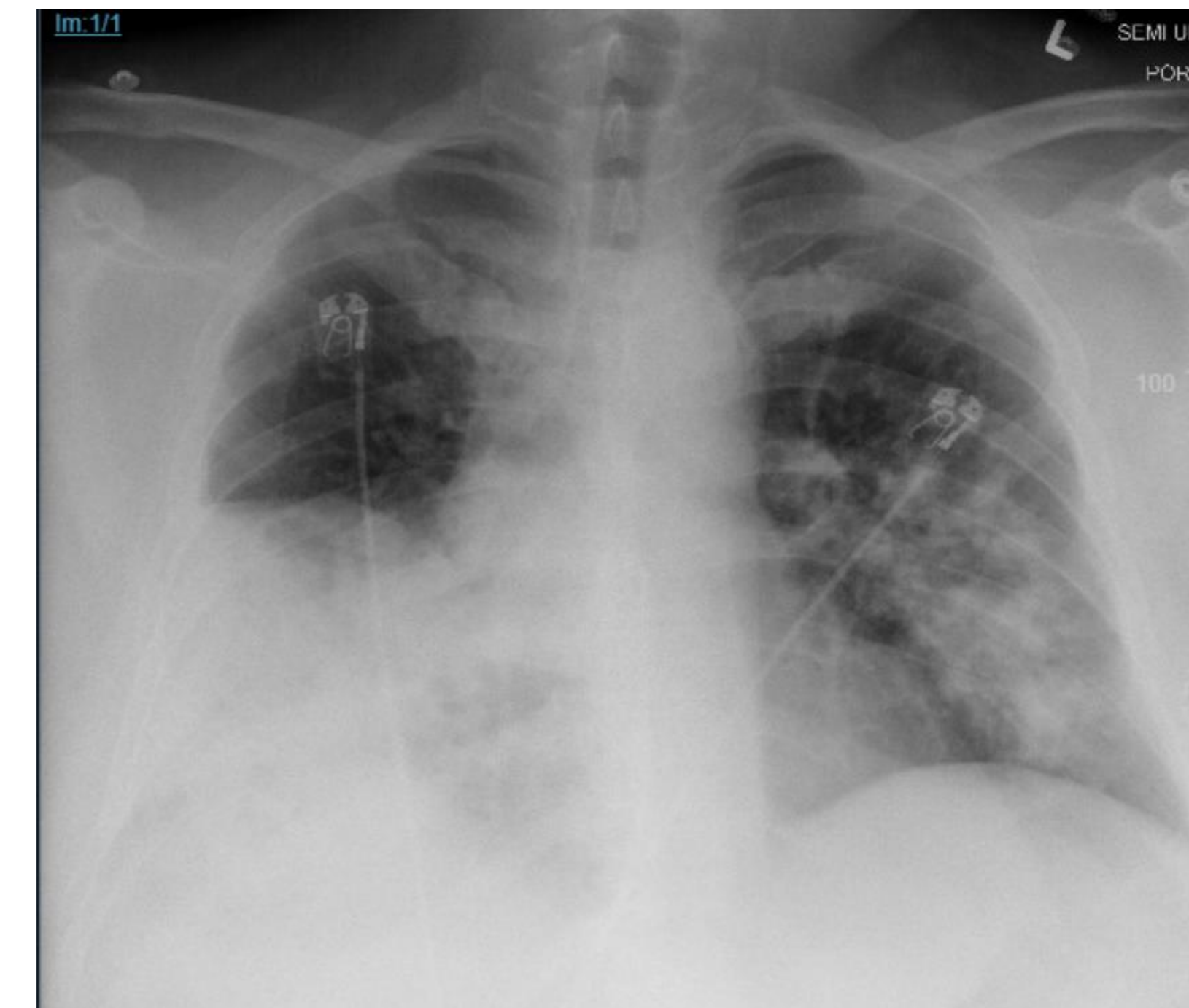
¹Department of Medicine, LSU Health Sciences Center, New Orleans, LA
²Section of Pulmonary / Critical Care, LSU Health Sciences Center, New Orleans, LA

Introduction

Blastomycosis is a fungus found in moist soils, primarily in the Great Lakes area, Mississippi and Ohio river valleys, and southeastern US. Spores can be inhaled and can cause disease, with severity ranging from asymptomatic to life-threatening. It most commonly causes pulmonary disease, though it can disseminate hematogenously to affect organs such as skin, bones, and nervous system. It is most common in adult males, likely due to exposures.

Case Presentation

Case: A 39-year-old Caucasian male with no prior medical history presented to an outside hospital with weakness, fatigue, fevers, and nonproductive cough for 3 weeks unresponsive to azithromycin prescribed to him. He was admitted and subsequently worsened despite treatment with IV levofloxacin, then vancomycin and meropenem. CT of his chest showed a multilobar pneumonia with multifocal cavitation, mediastinal and hilar adenopathy, trace pleural effusion, and splenomegaly. Blood and sputum cultures were negative. Due to increasing oxygen requirements, patient was transferred to our facility. On admission patient had a temp of 103.1, HR 119, RR 30, BP 149/88, and O2 Sat 96% on 4L of oxygen. On initial exam he was noted to have bilateral crackles. Labs were notable for a WBC of 10.9, sodium of 129, normal LFTs, and a lactic acid of 2.9. Patient was started on empiric vancomycin and Unasyn without improvement. Additional history was obtained that he had visited northern Wisconsin on a hunting trip the month prior to admission. Further investigation into the area's social media revealed high rate of blastomycosis infections, with several other hunters sick with similar presentations. Liposomal amphotericin B was then started empirically given the exposure and disease severity. Blastomyces antigen, and Blastomyces antibody were collected and subsequently positive. Fungal sputum cultures revealed Blastomyces on microscopy and culture. Liposomal amphotericin was continued throughout his hospitalization. His course was complicated by high oxygen requirements as well as duodenal perforation believed secondary to heavy NSAID use prior to admit. Surgical pathology was negative for fungal elements. He rapidly improved clinically on amphotericin and was eventually weaned off oxygen. He finished his 14-day course of liposomal amphotericin and was discharged on itraconazole for 6-12 months, depending on clinical response.



Patient's chest X-ray and CT

Discussion

Careful review of travel and work history is important in individuals who fail to respond to appropriate antibiotic therapy, as this patient had received. Blastomycosis can resemble other pulmonary diseases such as bacterial or mycobacterial pneumonia. Presentations can range from asymptomatic to typical community-acquired pneumonia, and chronic infections can present as mass-like lesions or cavitary lesions. Imaging can show patchy infiltrates, consolidations, and/or air bronchograms. Blastomycosis diagnosis requires visualization of the fungus on histopathology and/or growth in culture. Culture is the most sensitive method and growth typically takes 5-10 days but may take several weeks. Sputum cytology and antigen testing allow for more rapid identification. Itraconazole is used for treatment in most cases, and amphotericin B is used in severe or disseminated cases. Early diagnosis and appropriate treatment can prevent dissemination. This case demonstrates severe pulmonary blastomycosis in an otherwise healthy, immune competent host who presented as severe community acquired pneumonia failing appropriate treatment.

References

- Miceli A, Krishnamurthy K. Blastomycosis. [Updated 2022 Aug 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441987/>
- Linder KA, Kauffman CA, Miceli MH. Blastomycosis: A Review of Mycological and Clinical Aspects. J Fungi (Basel). 2023 Jan 14;9(1):117. doi: 10.3390/jof9010117. PMID: 36675937; PMCID: PMC9863754.



A Case of Severe Pulmonary Blastomycosis in an Immunocompetent 39-year old male

B Edwards MD¹, C Woodall MD¹, K Happel MD²

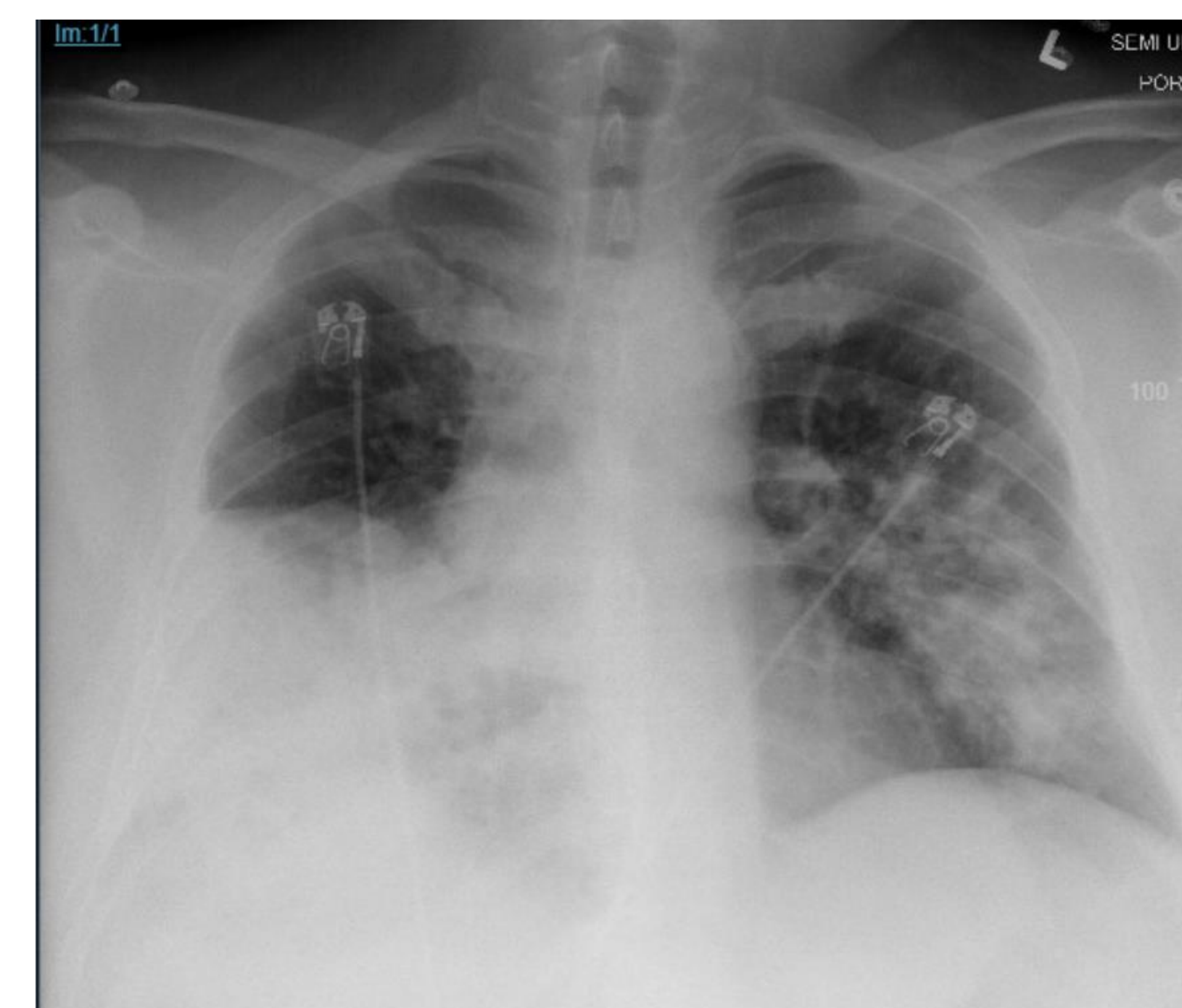
¹Department of Medicine, LSU Health Sciences Center, New Orleans, LA
²Section of Pulmonary / Critical Care, LSU Health Sciences Center, New Orleans, LA

Introduction

Blastomyces is fungus that is found in moist soils, primarily in the Great Lakes area, Mississippi and Ohio river valleys, and southeastern US. Spores can be inhaled and can cause disease, with severity ranging from asymptomatic to life-threatening. It most commonly causes pulmonary disease, though it can disseminate hematogenously to affect organs such as skin, bones, and nervous system. It is most common in adult males, likely due to exposures.

Case Presentation

Case: A 39-year-old Caucasian male with no prior medical history presented to an outside hospital with weakness, fatigue, fevers, and nonproductive cough for 3 weeks unresponsive to azithromycin prescribed to him. He was admitted and subsequently worsened despite treatment with IV levofloxacin, then vancomycin and meropenem. CT of his chest showed a multilobar pneumonia with multifocal cavitation, mediastinal and hilar adenopathy, trace pleural effusion, and splenomegaly. Blood and sputum cultures were negative. Due to increasing oxygen requirements, patient was transferred to our facility. On admission patient had a temp of 103.1, HR 119, RR 30, BP 149/88, and O2 Sat 96% on 4L of oxygen. On initial exam he was noted to have bilateral crackles. Labs were notable for a WBC of 10.9, sodium of 129, normal LFTs, and a lactic acid of 2.9. Patient was started on empiric vancomycin and Unasyn without improvement. Additional history was obtained that he had visited northern Wisconsin on a hunting trip the month prior to admission. Further investigation into the area's social media revealed high rate of blastomycosis infections, with several other hunters sick with similar presentations. Liposomal amphotericin B was then started empirically given the exposure and disease severity. Blastomyces antigen, and Blastomyces antibody were collected and subsequently positive. Fungal sputum cultures revealed Blastomyces on microscopy and culture. Liposomal amphotericin was continued throughout his hospitalization. His course was complicated by high oxygen requirements as well as duodenal perforation believed secondary to heavy NSAID use prior to admit. Surgical pathology was negative for fungal elements. He rapidly improved clinically on amphotericin and was eventually weaned off oxygen. He finished his 14-day course of liposomal amphotericin and was discharged on itraconazole for 6-12 months, depending on clinical response.



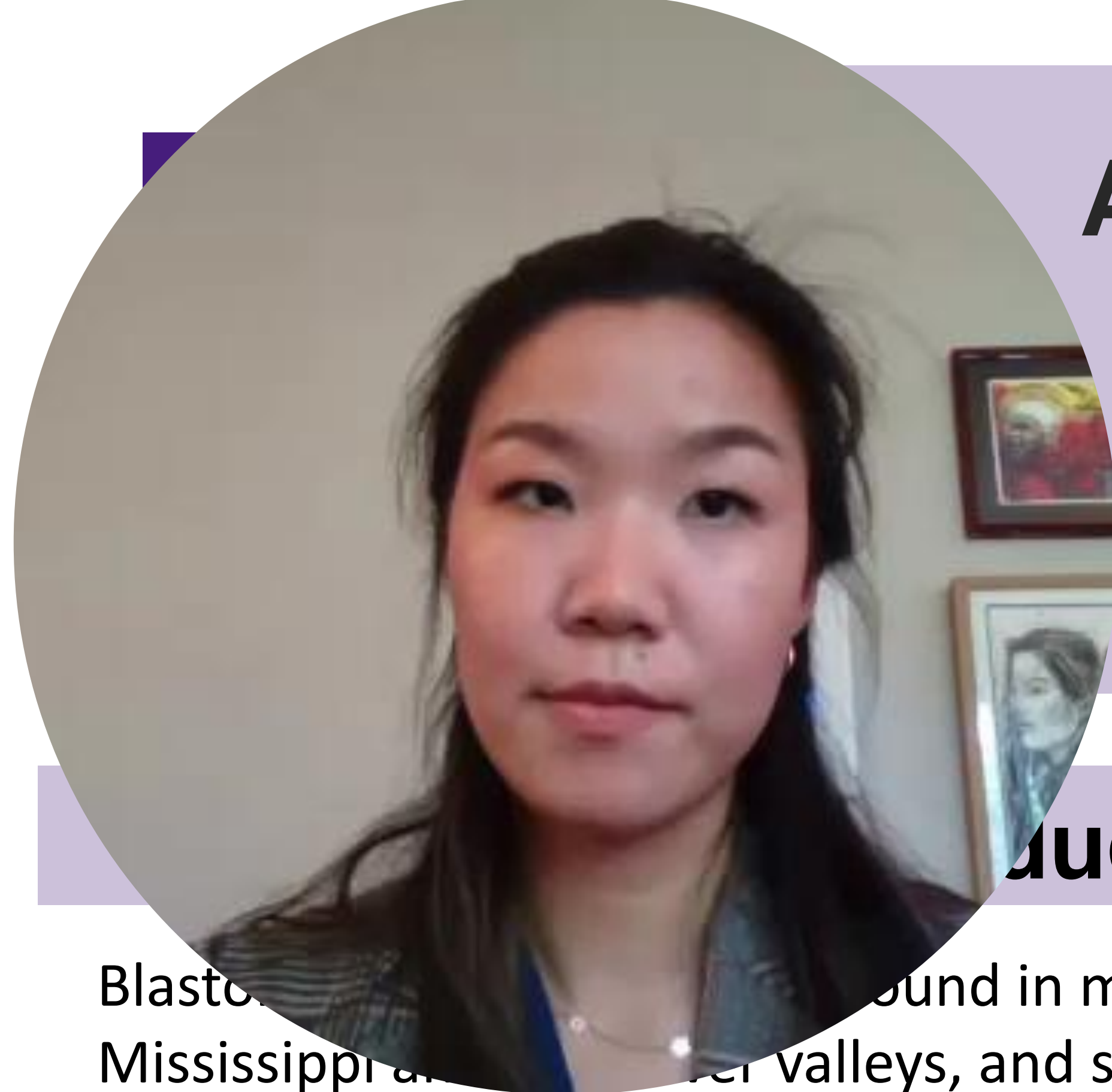
Patient's chest X-ray and CT

Discussion

Careful review of travel and work history is important in individuals who fail to respond to appropriate antibiotic therapy, as this patient had received. Blastomycosis can resemble other pulmonary diseases such as bacterial or mycobacterial pneumonia. Presentations can range from asymptomatic to typical community-acquired pneumonia, and chronic infections can present as mass-like lesions or cavitary lesions. Imaging can show patchy infiltrates, consolidations, and/or air bronchograms. Blastomycosis diagnosis requires visualization of the fungus on histopathology and/or growth in culture. Culture is the most sensitive method and growth typically takes 5-10 days but may take several weeks. Sputum cytology and antigen testing allow for more rapid identification. Itraconazole is used for treatment in most cases, and amphotericin B is used in severe or disseminated cases. Early diagnosis and appropriate treatment can prevent dissemination. This case demonstrates severe pulmonary blastomycosis in an otherwise healthy, immune competent host who presented as severe community acquired pneumonia failing appropriate treatment.

References

- Miceli A, Krishnamurthy K. Blastomycosis. [Updated 2022 Aug 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441987/>
- Linder KA, Kauffman CA, Miceli MH. Blastomycosis: A Review of Mycological and Clinical Aspects. J Fungi (Basel). 2023 Jan 14;9(1):117. doi: 10.3390/jof9010117. PMID: 36675937; PMCID: PMC9863754.



A Case of Severe Pulmonary Blastomycosis in an Immunocompetent 39-year old male

B Edwards MD¹, C Woodall MD¹, K Happel MD²

¹Department of Medicine, LSU Health Sciences Center, New Orleans, LA

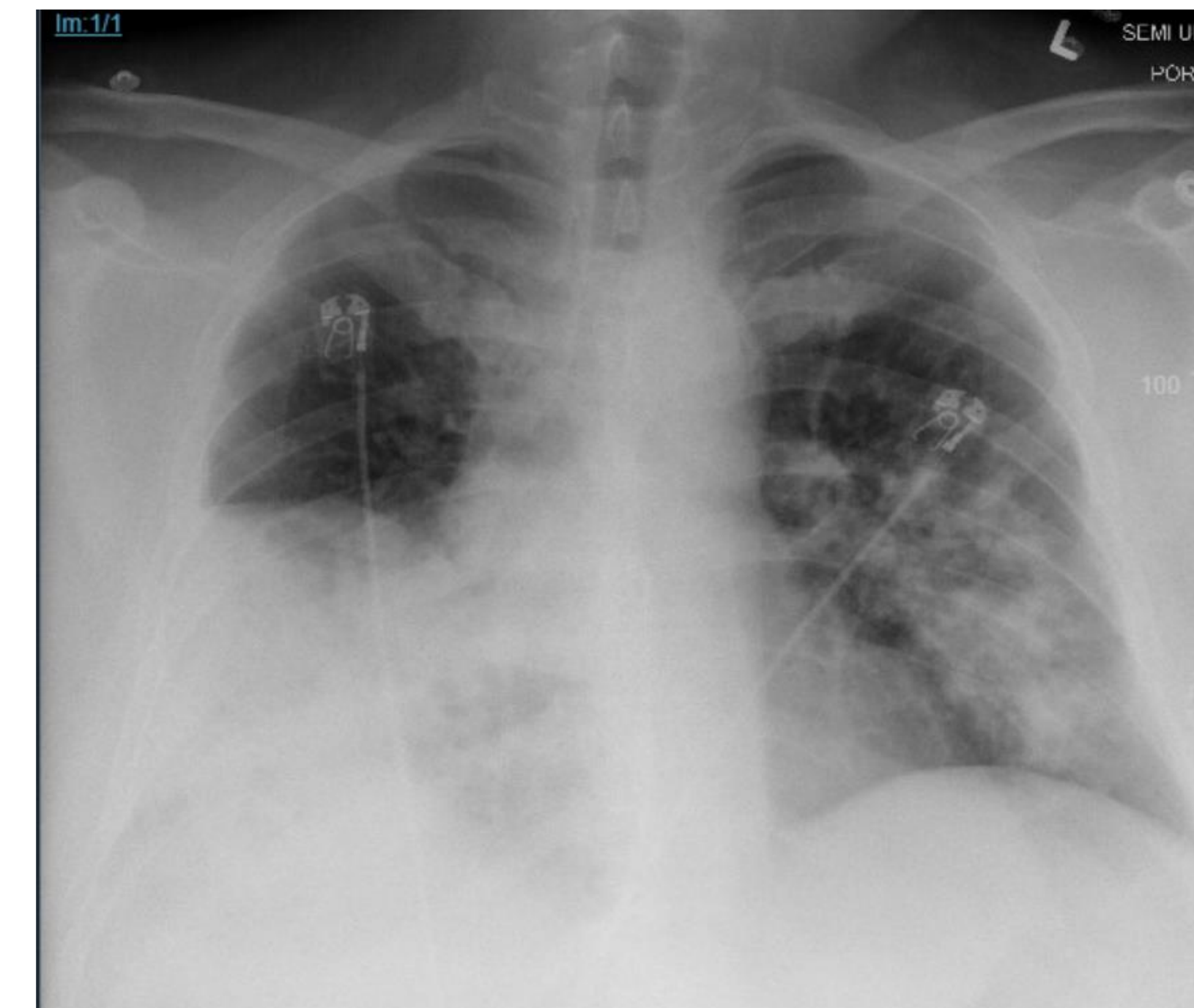
²Section of Pulmonary / Critical Care, LSU Health Sciences Center, New Orleans, LA

Introduction

Blastomycosis is found in moist soils, primarily in the Great Lakes area, Mississippi and river valleys, and southeastern US. Spores can be inhaled and can cause disease, with severity ranging from asymptomatic to life-threatening. It most commonly causes pulmonary disease, though it can disseminate hematogenously to affect organs such as skin, bones, and nervous system. It is most common in adult males, likely due to exposures.

Case Presentation

Case: A 39-year-old Caucasian male with no prior medical history presented to an outside hospital with weakness, fatigue, fevers, and nonproductive cough for 3 weeks unresponsive to azithromycin prescribed to him. He was admitted and subsequently worsened despite treatment with IV levofloxacin, then vancomycin and meropenem. CT of his chest showed a multilobar pneumonia with multifocal cavitation, mediastinal and hilar adenopathy, trace pleural effusion, and splenomegaly. Blood and sputum cultures were negative. Due to increasing oxygen requirements, patient was transferred to our facility. On admission patient had a temp of 103.1, HR 119, RR 30, BP 149/88, and O2 Sat 96% on 4L of oxygen. On initial exam he was noted to have bilateral crackles. Labs were notable for a WBC of 10.9, sodium of 129, normal LFTs, and a lactic acid of 2.9. Patient was started on empiric vancomycin and Unasyn without improvement. Additional history was obtained that he had visited northern Wisconsin on a hunting trip the month prior to admission. Further investigation into the area's social media revealed high rate of blastomycosis infections, with several other hunters sick with similar presentations. Liposomal amphotericin B was then started empirically given the exposure and disease severity. Blastomyces antigen, and Blastomyces antibody were collected and subsequently positive. Fungal sputum cultures revealed Blastomyces on microscopy and culture. Liposomal amphotericin was continued throughout his hospitalization. His course was complicated by high oxygen requirements as well as duodenal perforation believed secondary to heavy NSAID use prior to admit. Surgical pathology was negative for fungal elements. He rapidly improved clinically on amphotericin and was eventually weaned off oxygen. He finished his 14-day course of liposomal amphotericin and was discharged on itraconazole for 6-12 months, depending on clinical response.



Patient's chest X-ray and CT

Discussion

Careful review of travel and work history is important in individuals who fail to respond to appropriate antibiotic therapy, as this patient had received. Blastomycosis can resemble other pulmonary diseases such as bacterial or mycobacterial pneumonia. Presentations can range from asymptomatic to typical community-acquired pneumonia, and chronic infections can present as mass-like lesions or cavitary lesions. Imaging can show patchy infiltrates, consolidations, and/or air bronchograms. Blastomycosis diagnosis requires visualization of the fungus on histopathology and/or growth in culture. Culture is the most sensitive method and growth typically takes 5-10 days but may take several weeks. Sputum cytology and antigen testing allow for more rapid identification. Itraconazole is used for treatment in most cases, and amphotericin B is used in severe or disseminated cases. Early diagnosis and appropriate treatment can prevent dissemination. This case demonstrates severe pulmonary blastomycosis in an otherwise healthy, immune competent host who presented as severe community acquired pneumonia failing appropriate treatment.

References

- Miceli A, Krishnamurthy K. Blastomycosis. [Updated 2022 Aug 21]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441987/>
- Linder KA, Kauffman CA, Miceli MH. Blastomycosis: A Review of Mycological and Clinical Aspects. J Fungi (Basel). 2023 Jan 14;9(1):117. doi: 10.3390/jof9010117. PMID: 36675937; PMCID: PMC9863754.