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Fatal Case of TTP in Patient with Underlying Pulmonary Aspergillosis

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FATAL CASE OF THROMBOTIC THROMBOCYTOPENIC PURPURA WITH UNDERLYING INVASIVE ASPERGILLOSIS

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PRESENTATION

- A 70-year-old Caucasian male with history of end stage renal disease status-post kidney transplant in 2015 was admitted to the intensive care unit for encephalopathy of unknown etiology and jaundice.
- Home immunosuppressant include tacrolimus, mycophenolate mofetil, and prednisone.
- He was diagnosed with severe sepsis secondary to pneumonia, severe thrombocytopenia, acute kidney injury, transaminitis, hyperbilirubinemia and hyperammonemia
- Patient was started on broad-spectrum antibiotics, high dose methylprednisolone, and lactulose; tacrolimus was held.
- Day one:** Patient was noted to have severe anuric renal failure and emergent hemodialysis was initiated.
- Platelet count and hemoglobin continued to decrease requiring packed red blood cells and platelet transfusion.
- Patient had an incalculable LDH, and severely low haptoglobin.
- Peripheral smear revealed schistocytes and nucleated RBCs.

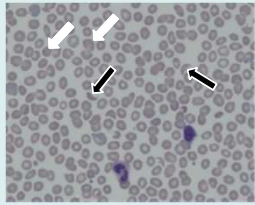


Figure 1: Peripheral smear showing scant thrombocytes, schistocytes (black arrow) and nucleated red blood cells (white arrow)

- Thrombotic thrombocytopenic purpura (TTP) was diagnosed and plasmapheresis was initiated.

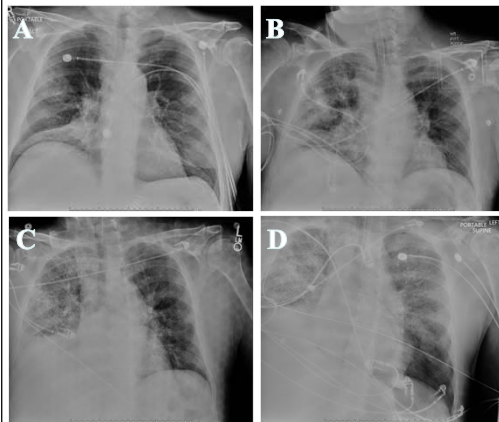


Figure 2: Daily chest x-ray comparison and progression of right lower lobe localized infiltrate (A) to diffuse bilateral infiltrates (D)

PRESENTATION (CONT.)

- Day two:** With progressive hypoxemic respiratory failure patient was intubated.
- PaO₂:FiO₂ of 158, suggesting moderate acute respiratory distress syndrome (ARDS).
- Day three:** Patient underwent bronchoscopy (PaO₂:FiO₂ <100); preliminary gram stain & cultures were negative.
- LDH remained incalculable.
- Day four:** Patient suffered a hypoxemic cardiac arrest, and family opted for comfort care measures.
- 2 days post-mortem the fungal culture and histopathology from the bronchoscopy was positive for aspergillus species.

DISCUSSION

- The most common cause of morbidity and mortality in renal transplant patients are infections and their sequelae, including TTP¹.
- TTP is a rare syndrome characterized by microangiopathic hemolytic anemia, thrombocytopenia, fever, central nervous system abnormalities, and renal impairment².
- There are some case series and meta-analyses in literature tacrolimus-induced TTP
- These has been described as a toxic-dose related mechanism; it is gradual in onset with progressive renal failure within weeks to months^{2,3}.

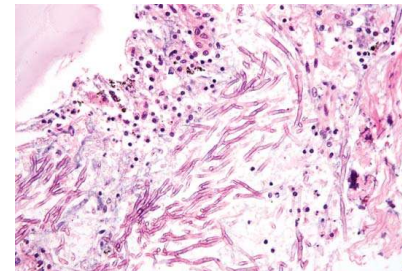


Figure 3: Pulmonary Aspergillosis

- Aspergillosis is normal pulmonary flora, but can present as a pathologic infection in immunocompromised patients⁴.
- Invasive aspergillosis have been observed in 1.5% of the transplanted renal cases with only 0.4% presenting more than six months following the transplant⁴.
- ARDS with underlying invasive pulmonary aspergillosis is rare but associated with a higher mortality rate⁵.

DISCUSSION (CONT.)

- The untreated invasive aspergillosis in our patient may have lead to ARDS and resistant TTP with subsequent mortality.
- The underlying invasive aspergillosis was most likely present prior to hospitalization and potentially may have been the inciting trigger leading to TTP.
- In our extensive literary search, there has been only one reported case of underlying invasive aspergillosis in a patient with TTP⁶.

CONCLUSION

- Aspergillosis is a rare entity in patients with non-pulmonary organ transplant but can be fatal if it goes undetected.
- It is important to investigate any and all potential underlying etiologies in patients presenting with TTP.
- We would like to ask the medical community to consider fungal entities early in immunocompromised patients who are refractory to antibiotic therapy.

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