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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.

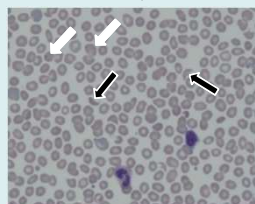


Figure 1: Peripheral smear showing scant thrombocytes, schistocytes (black arrow) and nucleated red blood cells (white arrow)

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

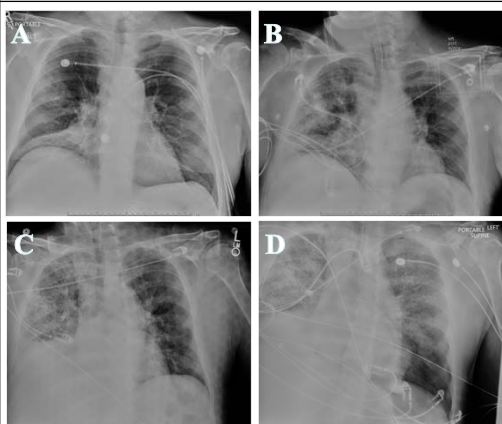


Figure 2: Daily chest x-ray comparison and progression of right lower lobe localized infiltrate (A) to diffuse bilateral infiltrates (D)

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}.

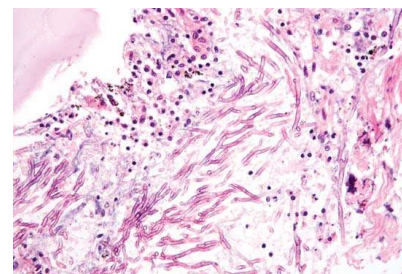


Figure 3: Pulmonary Aspergillosis

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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