

FUNGAL FIASCO! UNRAVELING GRAFT PYELONEPHRITIS IN EARLY POST RENAL TRANSPLANT

Authors: Beauty Suman¹, Himansu Sekhar Mahapatra¹, Lalit Pursnani¹, Muthukumar B¹, Renju Binoy¹, Purnima Paliwal²
Tanvi Thakker¹, Mahboob Alam¹, Abhishek Jha¹.

1-Department of Nephrology , Atal Bihari Vajpayee Institute of Medical Sciences and Dr Ram Manohar Lohia Hospital , New Delhi , India

2-Department of Pathology, Atal Bihari Vajpayee Institute of Medical Sciences and Dr Ram Manohar Lohia Hospital, New Delhi, India

INTRODUCTION

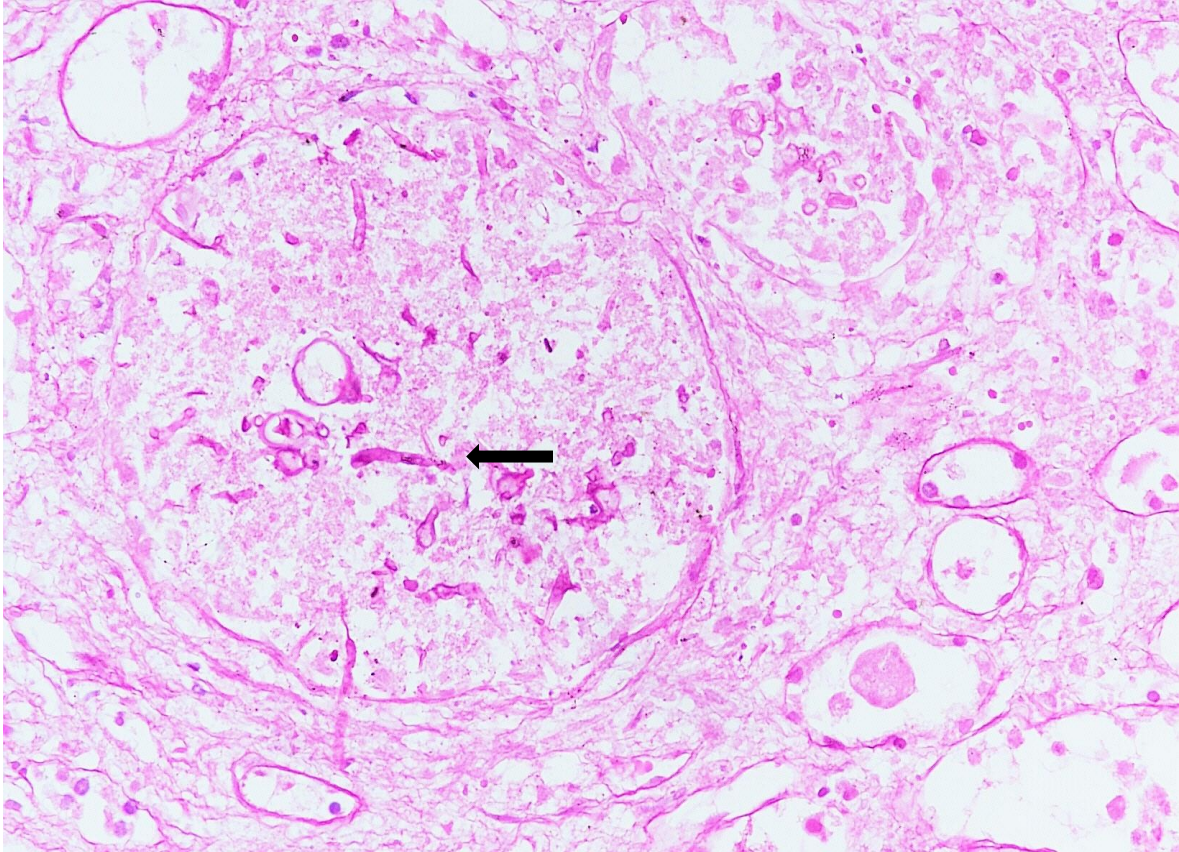
- Fungal infections in renal transplant recipient causes significant morbidity and mortality
- Incidence is more in the first six-month post transplant, attributable to maximum immunosuppression
- Clinical presentation of fungal infections is non-specific , especially the early stages, which contributes to delayed diagnosis
- Unique challenges in India: high environmental fungal burden, poor socio-economic status
- High mortality associated with fungal infections and graft loss necessitates the need for early diagnosis and treatment
- We report three cases of fungal graft pyelonephritis in allograft recipients, highlighting the clinical course, and treatment

- No potential conflicts of interest

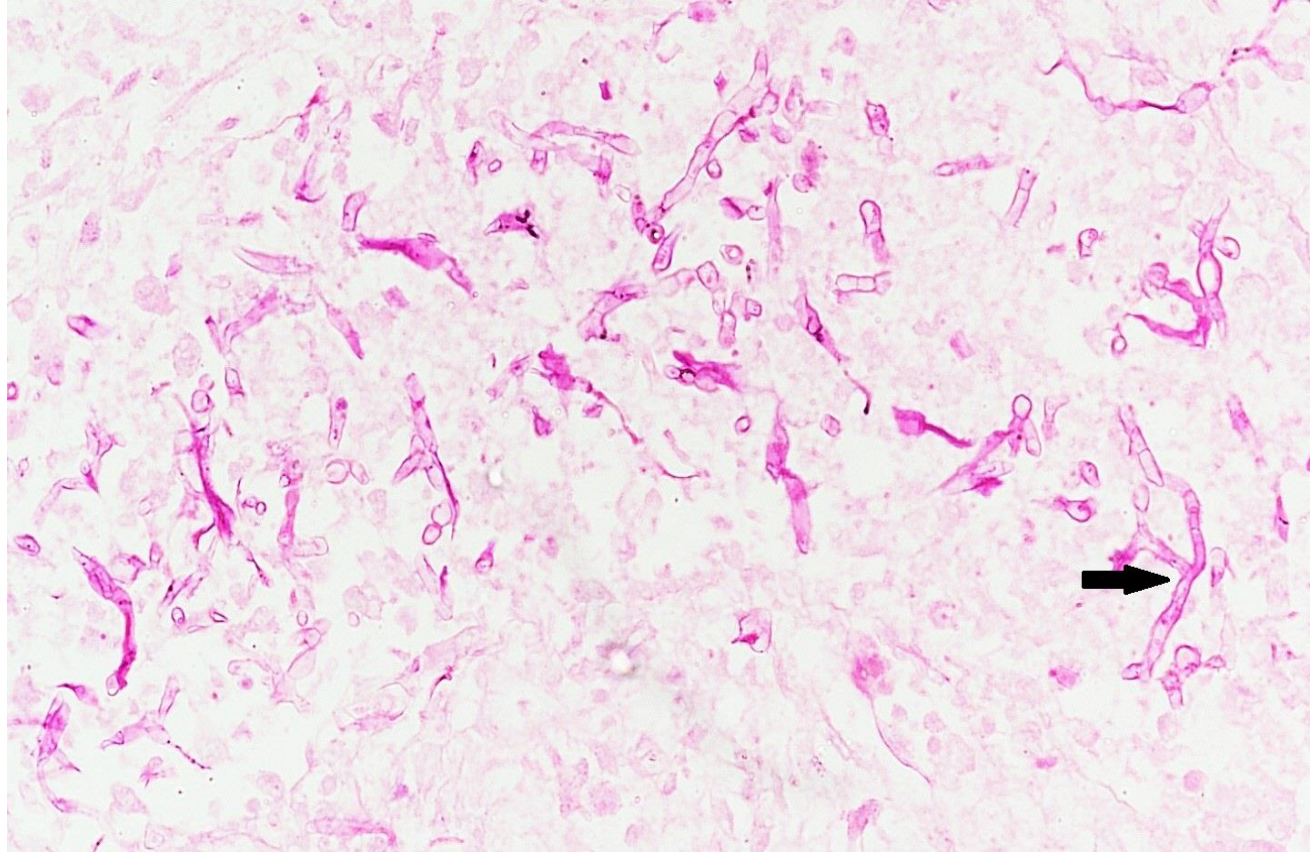
CASE 1:

- 24 Year/Male, ESRD since 2 year (native kidney disease: not known)
- Underwent Renal Transplant in June 2023; Donor-Mother, ABO compatible, Induction-steroids
- Slow graft function, discharged at 3 week with serum creatinine levels of 0.8 mg/dl, on Tac/MMF/steroid
- DJ stent removed at 5th week
- After 2 days of DJ stent removal, he developed high-grade fever, graft dysfunction and Pancytopenia
- Urine culture : Pseudomonas species
- Antibiotics given for 3 weeks but fever persisted, so, antifungal therapy was initiated empirically. MMF was stopped, steroid (10mg/day) and Tacrolimus continued.
- In view of persistent sepsis with DIC, Graft nephrectomy was performed
- The patient did not improve despite therapy, ultimately succumbing to septic shock

Graft Specimen Histopathology showing Invasive Aspergillosis



**Aspergillus hyphae in a necrotic glomerulus
(H&E x 400)**

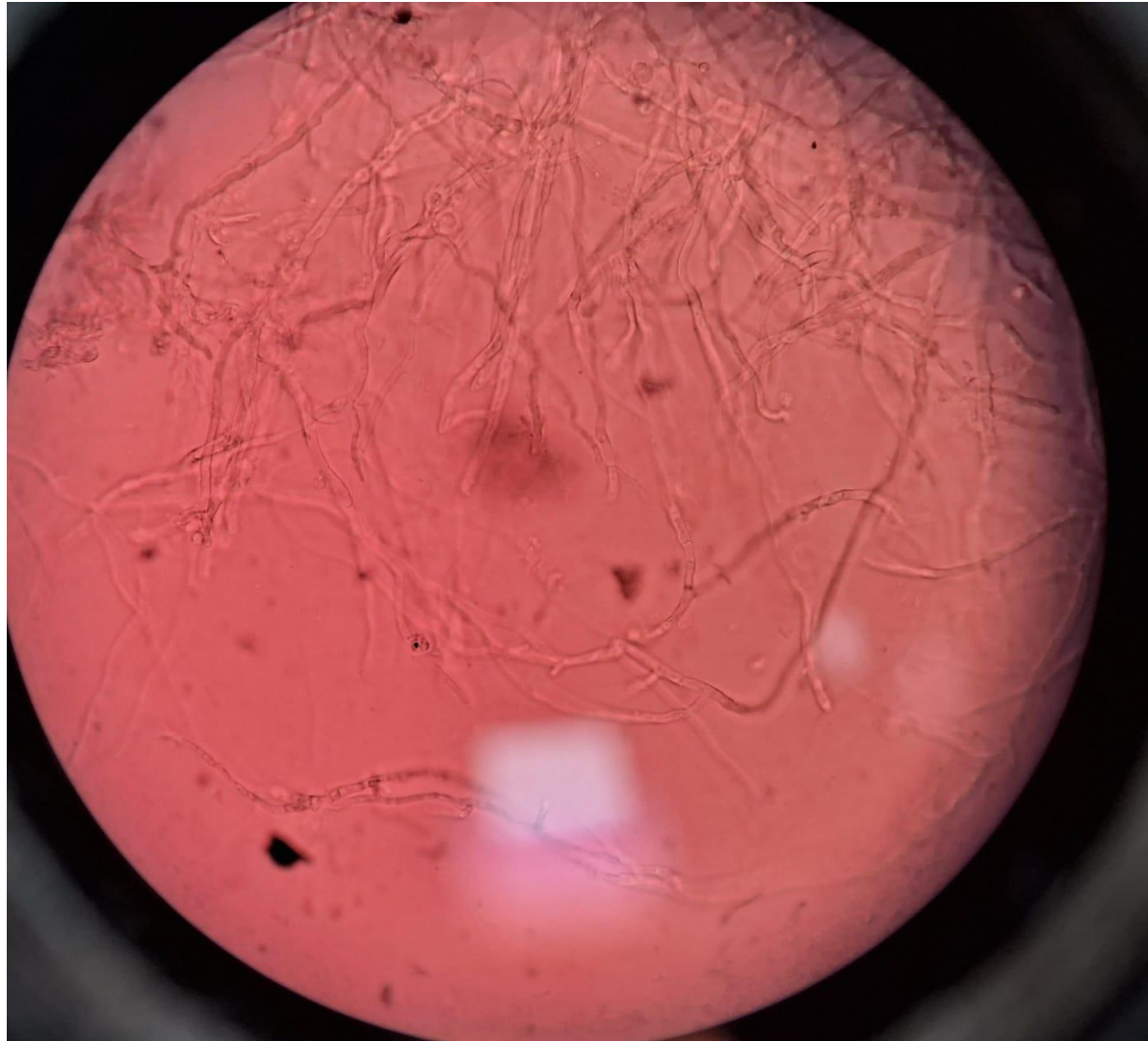


**Aspergillus hyphae in necrotic debris showing
septation and acute angle branching (arrow)
(H&E x 400)**

CASE 2 :

- 30 Year/ Male, ESRD since 1 year
- Underwent renal transplant-October 2023, Donor- Brother, ABO compatible, Induction- Steroids, slow graft function
- Graft biopsy (POD 5) showed antibody mediated rejection, treated with Plasmapheresis and Triple drug IS continued (Tac/MMF/steroid), Tac level was 10ug/L
- Day 9-Developed vascular anastomotic leak→ re-exploration done under GA, extubated 4 days later
- His urine output and graft function improved over next 2 week
- Fourth week- Developed UTI (Urine C/S- Klebsiella sp); started on antibiotics
- DJ stent was removed
- Six-week post-transplant- Fever with passage of fleshy material in urine; CT Urography s/o renal papillary necrosis and pyelitis of graft kidney
- Antibiotics continued & empirically anti-fungal started (Am B for 3 weeks)
- MMF was stopped and steroid was decreased

Urine KOH mount showed fungal elements, 40X



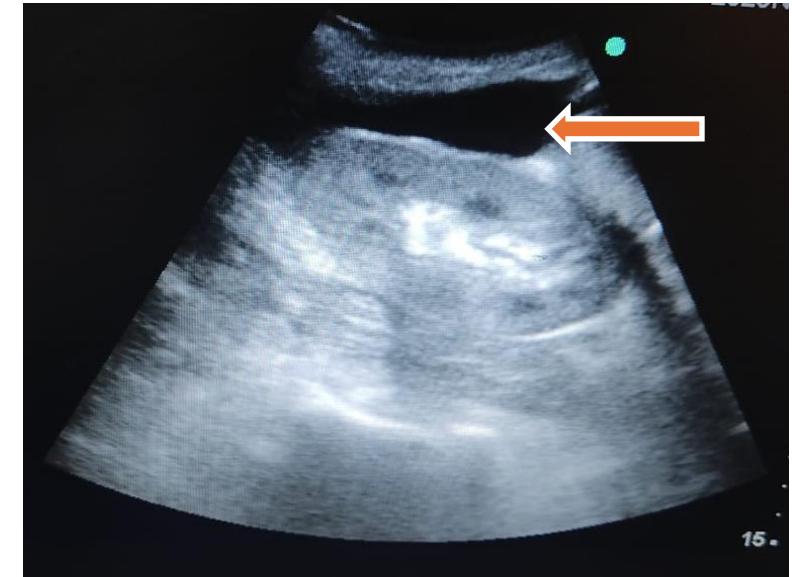
- His serum beta galactomannan levels were positive.
- Urinary debris showed fungal elements on KOH.
- Graft biopsy done to r/o fungal pyelonephritis, which showed acute tubular injury (no fungal elements)
- Discharged with a creatinine of 1.7 mg/dl

CASE 3 :

- 33 Year/Male, ESRD since 3 year
- Underwent renal transplant- 25th October 2023 , Donor- mother, ABO compatible, Haploidentical, Sensitization history-5unit blood transfusion, Induction-ATG, immediate graft function, Tacrolimus/MMF/Steroid

	POD 1	POD4	POD 10	POD15
Creatinine	2.3	2.6	3	5
Urine output	9Litres/d	3Litres/day	2Litres/day	400ml/day
Tac level		12	4	5.4

- USG showed perigraft collection (aspiration s/o lymphocele) and debris in pelvic lumen
- Other lab investigations: Anemia, blood c/s- sterile, procalcitonin was negative, urine c/s-pseudomonas growth



USG s/o perigraft collection



USG s/o echogenic debris in pelvic-calyces

- CT Urography: Large ill-defined collection adjacent to graft kidney with surrounding extensive fat stranding with its extension (6.6X12.5X10.8 cm) abutting anterior pararenal fascia of graft kidney, anterior abdominal wall, small bowel loops and urinary bladder and extending into the right paracolic gutter laterally, medially displacing bowel loops, inferiorly displacing bladder → Deroofing surgery done
- Percutaneous nephrostomy was placed for persistent HDN
- In view of persistent graft dysfunction, graft biopsy done which showed fungal graft pyelonephritis.
- Started on antifungals (Inj Amphotericin B)
- Ultimately succumbed to septic shock

DISCUSSION

- Incidence of fungal infection in post renal transplant vary from 6-9.8%
- Commonly associated risk factors include intense immunosuppression, use of induction agents, treatment of rejection, increased use of broad-spectrum antibiotics, presence of indwelling catheters
- In our case, after microbiological screening and search for other possible risk factors, we found a small fungal growth over roof of ICU at one corner (Culture showed mixed growth of environmental fungus-dematiaceous and hyaline fungi) → appropriate measures were taken



Fungal growth over roof

CONCLUSION:

- A high index of suspicion should be present as early diagnosis and prompt antifungal therapy are crucial for improving patient outcomes
- Even with graft nephrectomy and anti-fungal use, outcomes are dismal