Bad Gut Feelings: An Unusual and Challenging Case of Disseminated *Mycobacterium avium* complex in a Renal Transplant Recipient

R Marinovich¹, S Perez-Patridge², E Wilson²

¹Department of Medicine, Queen’s University, Kingston, ON; ²Division of Infectious Diseases, Queen’s University, Kingston, ON

Correspondence: rmarinovich@qmed.ca

**Background**

Nontuberculous Mycobacterium

- Mycobacterial species other than *Mycobacterium tuberculosis* (TB) or *Mycobacterium leprae* (leprosy)
- Generally free-living organisms found in the environment.
- *Mycobacterium avium*-complex (MAC) are the most clinically relevant organisms in this category.

**Case Presentation**

**Organ Transplant** | **Incidence**[1]
---|---
Kidney | 0.16-0.38%
Heart | 0.24-2.8%
Lung | 0.46-8.0%

**MAC in Solid Organ Transplant**

- Most commonly causes disease in immunocompromised host.
- Particularly in persons with HIV and CD4 count < 50 cells/µl.
- In HIV negative persons ~ 90% of cases are pulmonary MAC.

**Endoscopy**

- Diffusely abnormal duodenum.
- Duodenal and ileal biopsies taken for histopathology.

**Initial workup and management**

- MAC therapy initiated—azithromycin, rifabutin, ethambutol.
- Immunosuppression adjusted—tacrolimus discontinued and prednisone decreased.
- Renal graft and bone marrow biopsies also show disseminated MAC infection.

**Further Developments**

- Azithromycin dose reduced to improve GI intolerance.
- Graft function declined but remains viable.
- Repeat duodenal biopsy (Jan 2020) - extensive AFB+ granulomas.

**Complicated Course**

- Treatment is complicated by multiple adverse reactions:
  - Azithromycin
  - Clarithromycin
  - Rifabutin
  - Fluoroquinolones
  - Gi intolerance
  - Hives
  - Hepatitis, nausea
  - Resistant organism

**Pathology**

*Mycobacterium avium*-complex noted within the duodenal tissue.

**Literature Review**

**MAC in adult renal transplant recipients**[1-5]

- 13 cases identified.
- 6 cases (46%) of localized infection, 7 cases (54%) disseminated.
- Intestinal involvement described in 3 cases.
- All cases received antimicrobial treatment and 7 cases required decreased immunosuppression.
- 4 cases reported MAC related death, and 5 cases reported graft rejection.
- 4 cases reported remission of MAC infection with maintained graft function.

**Outcomes for MAC infection in Adult Kidney Transplant Recipients (n=13)**

- MAC Related Death: 31%
- Graft Rejection: 31%
- Preservation with Preservation of Graft Function: 35%

**References**


---

**Organ Transplant** | **Incidence**[1]
---|---
Kidney | 0.16-0.38%
Heart | 0.24-2.8%
Lung | 0.46-8.0%

**Endoscopy**

- Diffusely abnormal duodenum.
- Duodenal and ileal biopsies taken for histopathology.

**Initial workup and management**

- MAC therapy initiated—azithromycin, rifabutin, ethambutol.
- Immunosuppression adjusted—tacrolimus discontinued and prednisone decreased.
- Renal graft and bone marrow biopsies also show disseminated MAC infection.

**Further Developments**

- Azithromycin dose reduced to improve GI intolerance.
- Graft function declined but remains viable.
- Repeat duodenal biopsy (Jan 2020) - extensive AFB+ granulomas.

**Complicated Course**

- Treatment is complicated by multiple adverse reactions:
  - Azithromycin
  - Clarithromycin
  - Rifabutin
  - Fluoroquinolones
  - Gi intolerance
  - Hives
  - Hepatitis, nausea
  - Resistant organism

**Pathology**

*Mycobacterium avium*-complex noted within the duodenal tissue.

**Literature Review**

**MAC in adult renal transplant recipients**[1-5]

- 13 cases identified.
- 6 cases (46%) of localized infection, 7 cases (54%) disseminated.
- Intestinal involvement described in 3 cases.
- All cases received antimicrobial treatment and 7 cases required decreased immunosuppression.
- 4 cases reported MAC related death, and 5 cases reported graft rejection.
- 4 cases reported remission of MAC infection with maintained graft function.

**Outcomes for MAC infection in Adult Kidney Transplant Recipients (n=13)**

- MAC Related Death: 31%
- Graft Rejection: 31%
- Preservation with Preservation of Graft Function: 35%

**References**


---

**Organ Transplant** | **Incidence**[1]
---|---
Kidney | 0.16-0.38%
Heart | 0.24-2.8%
Lung | 0.46-8.0%

**Endoscopy**

- Diffusely abnormal duodenum.
- Duodenal and ileal biopsies taken for histopathology.

**Initial workup and management**

- MAC therapy initiated—azithromycin, rifabutin, ethambutol.
- Immunosuppression adjusted—tacrolimus discontinued and prednisone decreased.
- Renal graft and bone marrow biopsies also show disseminated MAC infection.

**Further Developments**

- Azithromycin dose reduced to improve GI intolerance.
- Graft function declined but remains viable.
- Repeat duodenal biopsy (Jan 2020) - extensive AFB+ granulomas.

**Complicated Course**

- Treatment is complicated by multiple adverse reactions:
  - Azithromycin
  - Clarithromycin
  - Rifabutin
  - Fluoroquinolones
  - Gi intolerance
  - Hives
  - Hepatitis, nausea
  - Resistant organism

**Pathology**

*Mycobacterium avium*-complex noted within the duodenal tissue.

**Literature Review**

**MAC in adult renal transplant recipients**[1-5]

- 13 cases identified.
- 6 cases (46%) of localized infection, 7 cases (54%) disseminated.
- Intestinal involvement described in 3 cases.
- All cases received antimicrobial treatment and 7 cases required decreased immunosuppression.
- 4 cases reported MAC related death, and 5 cases reported graft rejection.
- 4 cases reported remission of MAC infection with maintained graft function.

**Outcomes for MAC infection in Adult Kidney Transplant Recipients (n=13)**

- MAC Related Death: 31%
- Graft Rejection: 31%
- Preservation with Preservation of Graft Function: 35%

**References**