Case Report

Breaking blood barriers in transplantation: A case based insight in ABO incompatible kidney transplantation

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Background

When we think of organ transplantation, one of the first rules that come to mind is the need for blood group compatibility between the donor and the recipient. Blood group compatibility has long been considered as a cornerstone of safe transplant medicine. However, with recent advances in medical science, we are now able to challenge and overcome this barrier — and a remarkable example of this is the ABO incompatible kidney transplant.

Keywords: End-stage kidney disease; ABO incompatible; Blood barriers

1. Case Presentation

We have done in our institute an ABO incompatible renal transplant for a 42-year-old female with end-stage kidney disease who had been on dialysis for over 2 years.

She comes for regular dialysis sessions at our dialysis unit. Despite that, her energy levels were very low and her quality of life was poor. She also had uncontrolled blood pressure during dialysis sessions.

Her husband stepped forward to donate his kidney. But there was a hurdle — his blood group was B positive, and her group was O positive. conventionally, such a mismatch would rule out the possibility of direct donation. But thanks to the ABO incompatible transplant protocol, we could proceed.

1.1. What is ABO Incompatible Transplant?

Normally, a person with blood group O cannot receive a kidney from a donor with blood group B due to the presence of natural antibodies that can attack the new kidney. In an ABO incompatible transplant, we remove or suppress these antibodies before and after the surgery to prevent rejection.

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2. Management

Before the transplant, the patient underwent

- Plasmapheresis: a process where her blood was filtered to remove harmful B group antibodies. She received 5 sessions of Plasmapheresis before surgery.
- Immunosuppressive medications: to reduce her immune system's response, which would be started before renal transplant
- Monitoring of antibody levels (Anti-A/B titres): to ensure they were within safe limits.

Once prepared, the transplant surgery was carried out successfully. Post-surgery, she remained under close observation, with medications to prevent rejection and infection. She never required plasmapheresis after surgery as her Anti-B titre was low.

2.1. The Outcome

She went off dialysis, her kidney function was excellent, and she got back to working full-time and spending quality time with his family. This would not have been possible without the ABO incompatible transplant approach.

2.2. Why This Matters

In India, and particularly in Tamil Nadu, the shortage of compatible donors remains one of the biggest challenges in transplantation. Many willing family donors are ruled out due to blood group mismatch. ABO incompatible transplantation provides new hope, expanding the donor pool and reducing the waiting time for patients with ESRD.

2.3. Addressing Common Concerns

- Is it risky? - While the risk of rejection is slightly higher, with experienced teams and proper protocol, outcomes are excellent.
- Is it costly? - Yes, the procedure can be slightly more expensive due to additional treatments like plasmapheresis/Immunoadsorption and medications. However, the long-term benefit far outweighs the initial costly treatment.
- Is it common? - It is becoming increasingly common in advanced transplant centres across India.

3. Conclusion

ABO incompatible renal transplantation is a beacon of hope for many patients who might otherwise remain on dialysis indefinitely. With the right medical support and patient preparation, we can truly break blood barriers and offer a new lease on life.

If you or your loved one is waiting for a kidney transplant and have a willing but incompatible donor, consult your nephrologist about the possibilities of ABO incompatible transplantation. It might just change your life — like it did for this patient.