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PRESS RELEASE

For the 1st Time in the World, MIOT International Successfully Performed an “Across-Blood Group Kidney Transplantation” in a recipient with the “Bombay O Blood Group”

For the **1st Time in the World**, MIOT International has successfully performed a pioneering across-blood group kidney transplantation in a recipient with the rare Bombay O blood group. A 30-year-old male patient with chronic kidney disease has been undergoing dialysis at MIOT International for nearly a year. Due to his Bombay O blood group, he could receive blood or organs only from someone with the same blood group, which is very rare and prevalent in only 1 in 10,000 people in India.

The mother of the patient was the prospective donor but the transplant could not be done due to the incompatibility of the blood group and the presence of anti-H antibodies in the patient. Globally, a kidney transplant has never been reported in a recipient with the Bombay O blood group due to the rarity and higher complications involved. Additionally, the lack of precedents or guidelines for monitoring anti-H antibody levels, which are significant in preventing organ rejection, made the transplantation highly challenging.

However, MIOT's solid organ transplant specialists, with their extensive experience, completed this groundbreaking procedure for the **1st time in the world** by performing across-blood group kidney transplantation in a Bombay O recipient. They brought down the anti-H antibody titers to the optimum level and successfully completed the procedure.

Kidney Transplantation

Kidney transplantation is performed when an individual's kidney fails to function properly and cannot be reversed. A healthy kidney from a living or deceased donor is transplanted into a patient with kidney failure. The blood type of the donor must be compatible with that of the recipient. The first-degree blood relatives of the recipient are the ideal kidney donors, for successful transplantation. However, if donors within the family are not available, the patient may need to wait to have their name placed on a kidney transplant waiting list under the government portal to receive a kidney from a deceased donor.

If the blood type is:	Can receive donor kidney from these blood types:
Type O	Type O
Type A	Type A, O
Type B	Type B, O
Type AB	Type AB, A, B, O

Across-Blood Group Kidney Transplantation

Finding a donor with a compatible blood group can be time-consuming and may worsen the patient's health condition. To address this issue, across-blood group kidney transplantation is performed, allowing transplantation between a recipient and donor of different blood groups.

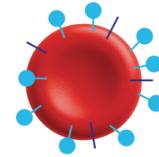
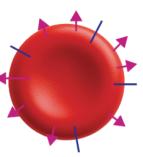
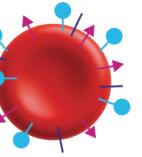
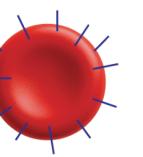
30-Year-Old Patient with Kidney Failure Presented at MIOT

A 30-year-old male patient suffered from kidney failure and has been undergoing dialysis at MIOT International. He had a rare Bombay O blood group, which required a donor with the same blood group to donate. Although his mother was willing to donate her kidney, the transplant could not be done due to the blood group incompatibility. Finding a cadaver donor with this rare blood group is nearly impossible.

Bombay O Blood Group

Bombay O blood group, also called HH blood group, is a rare blood group and the prevalence varies with the geographical distribution. The name is given after the city of Bombay, where it was discovered in 1952. Though the O blood group is a universal donor, it cannot be transfused to an individual with the Bombay O blood group.

People with blood group A will produce anti-B antibodies, those with blood group B will produce anti-A antibodies, and those with blood group O will produce both anti-A and anti-B antibodies in their serum. Due to the lack of antigens in the Bombay O blood group, these individuals will produce anti-H, anti-A and anti-B antibodies. As a result, the blood transfused from any ABO blood group to the Bombay O blood group will react due to the presence of anti-H, anti-A and anti-B antibodies. Therefore, they can be transfused only with RBCs that also lack the H, A, and B antigens i.e., they can only receive blood from another person with the Bombay O blood group. However, the person with Bombay O blood group can donate blood or organs to individuals with all ABO blood groups.

BLOOD GROUPS					
	Type A	Type B	Type AB	Type O	Type Bombay O
Antigen (on RBC)	Antigen A 	Antigen B 	Antigen A + B 	Antigen H 	No Antigen 
Antibody (in plasma)	Anti-B Antibody 	Anti-A Antibody 	Neither Antibody	Anti-A & Anti-B 	Anti-A, Anti-B and Anti-H 
Cannot donate	O, B, Bombay O	O, A, Bombay O	O, A, B, Bombay O	Bombay O	
Can donate	A, AB	B, AB	AB	O, A, B, AB	O, A, B, AB Bombay O
Can receive	A, O	B, O	AB, A, B, O	O	Bombay O

Challenges in Across-Blood Group Kidney Transplantation in a Bombay O Recipient

The patient with the Bombay O blood group visited MIOT International for a kidney transplant. As a pioneer in across-blood group kidney transplantation, MIOT's transplant specialist took on the challenge of performing across-blood group kidney transplantation for the first time in the world in a recipient with the Bombay O blood group.

Typically, in across-blood group kidney transplantation, before the procedure, the antibodies produced against the donor's blood group are removed from the recipient's blood by therapeutic plasma exchange. This process prevents the recipient's immune system from attacking and damaging the donated kidney, thereby reducing the risk of organ rejection. Following this, immunosuppressant drugs are administered to suppress the immune system and decrease new antibody formation. Before the transplantation, the antibody titers are monitored as per the standard guidelines. It is crucial to monitor the limits of ABO antibody titers, as the suboptimal level could lead to potential kidney rejection.

However, in the case of the Bombay O blood group, there were no existing precedents or guidelines for monitoring anti-H antibodies, making the patient's transplantation a great challenge.

Successful Transplantation with MIOT's Expertise

MIOT's team of experts, including Dr. Rajan Ravichandran, Director of the MIOT Institute of Nephrology; Dr. Manikandan, Director of the Department of Urology; Dr. Joshua, HOD of the Department of Transfusion Medicine; Dr. Chezhian Subash, HOD of the Department of Haematology, Haemato-Oncology and Bone Marrow Transplant; Dr. Kanakaraj, Senior Nephrologist; and Dr. Yashwanth Raj T, Nephrologist, with their extensive experience in across-blood group kidney transplantation, for the 1st time in the world, successfully performed the procedure using a donor kidney from the patient's mother, who has blood group B. They brought down the patient's initial anti-H antibody titers from 1 in 64 to an optimal level of 1 in 16 and successfully completed the across-blood group kidney transplantation.

The Patient Regained his Quality of Life

With the remarkable expertise of MIOT's super-specialists, the patient's kidney transplantation was successful. Not only was his life saved, but he was also spared from the lifelong pain of dialysis. He regained his health and returned to his routine life.

MIOT - A Leading Centre for Organ Transplantation

Conventional transplants require a donor with a matching blood group. However, finding a donor's kidney with a compatible blood group can be challenging. To address the deficit in the availability of matching donors, MIOT pioneered across-blood group kidney transplantation in India in 2010, using Japanese technology which has the best results in the world.

MIOT International's Institute of Nephrology is one of the largest centres in India, performing all types of kidney transplants, including those across-blood groups. Our transplant specialists perform living-related donor and deceased donor kidney transplants for both adults and children. Notably, at present one-fourth of the kidney transplants performed at MIOT International are across-blood group transplants.