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Simultaneous Dengue Fever of Live Kidney Donor and the Transplant Recipient A Serendipity or Transmission Through the Graft: A Case Report and Review of Literature

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ABSTRACT

Dengue fever is a common cause of fever in tropics. The occurrence of dengue fever in the peri transplant period raises the suspicion of the possible transmission through the graft due to short incubation period of the dengue fever. However the non vectorial transmission of dengue through the organ transplantation is rarely reported and there is no such case report from India in best of our knowledge. Hence, we report of case of concomitant dengue fever in both donor and the recipient of renal transplant during the peri transplant period associated with transmission through the graft. Both donor and the recipient recovered completely during the recovery phase and the it was not associated with any complication of the dengue fever during the hospital stay. Dengue virus, non vectorial transmission, renal transplantation, peri transplantation period.

INTRODUCTION

Dengue virus is an arbovirus leading to the dengue fever a common cause of fever in the tropics. The commonest mode of transmission of the dengue virus is through vector aedes aegypti the mosquitoes. There are only few case reports of alternative routes of transmission such as percutaneous transmission, blood transfusion, bone marrow transplantation and solid organ transplantation[1,2]. The Incubation period of the dengue fever ranges from 7-14 days. The risk of virus transmission through organ donation is probably related to short incubation period before viremia. There is paucity of data supporting the transmission of dengue virus through solid organ transplantation and hardly there are any case reports of transmission through the renal transplantation[3]. Hence, we report a rare case of report of the concomitant dengue fever of both donor and the recipient of the renal transplant during the peri transplant period and the probable mode of transmission was through graft.

Case summary: A 34 years old male patient who is a known case of CKD-5D (Underlying etiology-chronic Glomerulonephritis) received live renal graft from his father who is 60 years old without any known comorbidities. On Pre-OP day he received basiliximab. He underwent transplant on 31/08/2023. Post-transplant on day D3 patient developed high grade fever associated with chills, retroorbital pain and myalgia. There was no other localization of the fever. He was hemodynamically stable with no features of suggestive of any other localization. On etiological evaluation of his fever he was found to have dengue fever (NS1 Ag and IgM antibody positive by ELISA). During hospital stay he had progressive leucopenia with thrombocytopenia in critical phase and the gradual resolution in the recovery phase. His evaluation for the other causes of fever was negative including the viral serology, culture from the surgery site, other culture reports including the blood and urine culture. He was managed with fluid, antipyretics and closed monitoring till recovery following 7 days from the onset of the fever.

At the same time on D2 post kidney transplant his father who was the live kidney donor developed fever associate with chill and backache. He was also hemodynamically stable with no other localization of the fever. His evaluation was also consistent with dengue fever (NS1Ag and IgM antibody of dengue fever was positive(Table 1 and Figure 1 and 2). He was managed as also managed as a case of dengue fever without any warning symptoms and signs with hydration, antipyretics and other supportive measures.

In this case both donor and the recipient of the kidney transplant developed simultaneous dengue fever. The coincidence of both developing is simultaneously is one of the rarest phenomena. There is rare possibility of arboviral transmission through the graft, however this is not reported in the literature yet. This possibility makes this case interesting and rare. Hence, we are reporting this case.

DISCUSSIONS

Simultaneous dengue fever of live kidney donor and the transplant recipient was a serendipity or transmission through the graft. Dengue virus is a RNA virus with four serotypes which is widely distributed in the tropics including India. India is also a hyperendemic region for dengue fever and it likely that the donor may get infection prior to the transplant and it may transmit the infection to the recipient through the graft[1] as both donor and the recipient were staying at different location in the same city prior to the transplant. In this case the recipient is likely to get the infection early from the donor through the graft. There are multiple non vectorial transmission of dengue fever reported in the literature including the blood transmission, needle stick injury and the other blood products. Previously the transmission through the blood product was understudied and was not recommended. As there is evidence of transmission through the alternative root the current guidelines recommend the screening during blood and organ donation[4,5].

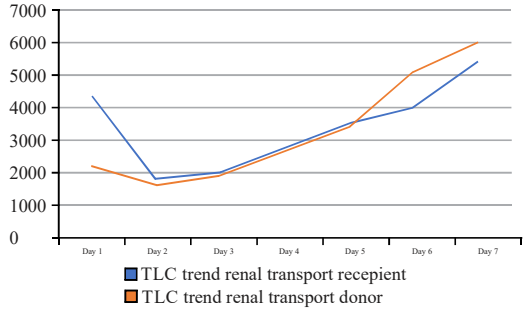

Fig. 1: Showing the comparative trend of (Total leukocyte count trend) in both patients during the hospital stay

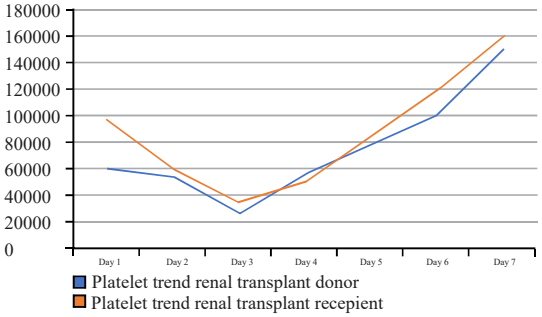

Fig. 2: Showing the comparative trend of Platelet in both patients during the hospital stay

Table 1: Showing the comparative reports of the renal transplant donor and recipient at the time of the diagnosis of the dengue fever

Investigation at diagnosis	Renal transplant recipient	Renal transplant donor
Hb (mg dL^{-1})	7.68	8.4
TLC (per cumm)	4340	2190
DLC (%)	P80L7E0M12B1	P74L16E4M6B0
Platelet (per cumm)	96000	60000
Urea (mg dL^{-1})	36.22	43.56
Creatinine (mg dL^{-1})	1.75	1.83
Sodium (mEq dL^{-1})	130	130
Potassium (mEq dL^{-1})	3.83	3.23
Bil (T D) (mg dL^{-1})	1.1	0.8
AST ALT (IU L^{-1})	56/60	48/50
Urine RE and ME	NAD	NAD
Dengue serology (NS1Ag IgM IgG by ELISA)	(+/+/-)	(+/+/-)
IgM IgG Typhi dot	Negative	Negative
MP para check	Negative	Negative
PBS for hemoparasites	Activated Lymphocytes (+)	Activated Lymphocytes (+)
HIV HbsAg anti HCV	Negative	Negative
CMV EBV serology	Negative	Negative
Urine culture and sensitivity	No growth after 48 hrs	No growth after 48 hrs
Blood culture and sensitivity	No growth after 7 days	No growth after 7 days
Surgical site swab culture	No growth after 48 hrs	No growth after 48 hrs

The non-vectorial transmission of the dengue due to infected donor is very rarely reported and the concomitant dengue fever is very rarely reported and there are no case reports from India. The limited detection of transmission of dengue fever is due to lack of viral RT PCR for detection of the infection in the Donors[5].The course of dengue fever in our patient similar to case reports by which was fever and thrombocytopenia[3]. The transplant patients are generally receiving immunosuppressant and the probability of severe disease is high due to infection of multiple serotypes[6]. There is no case report suggestive of graft rejection amongst the dengue infected cases as in our case.

The present case report highlights the simultaneous occurrence of the dengue fever in both donor and the recipient raising the suspicion of the transmission through th graft. Both patents were successfully managed conservatively without any dengue associated complication in the high risk setting of the patients.

CONCLUSION

The present case report high light the possibility of the non-vectoral transmission of the dengue fever in the peri transplant period even in the tropics. Also the need to screen the solid organ transplant donor for the dengue fever and to sensitize the urologist and nephrologist about the possible cause of the fever as dengue fever in peri-transplant period in the tropics even if donor and the recipient are staying in the protected environment.

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