Jagua Publication

Journal of Applied Health Sciences and Medicine 3(5) (2023): 25 –26

www.jpub.org

Letter to the editor

Embolization of a Transplanted Kidney in MELAS Requires Special Considerations

Josef Finsterer[1*], Sounira Mehri[2]

[1]Neurology and Neurophysiology Center, Vienna, Austria.
[2]Biochemistry Laboratory, LR12ES05 "Nutrition-Functional Foods and Vascular Health", Faculty of Medicine, Monastir, Tunisia.

How to cite:
Finsterer et al. 2023. "Embolization of a Transplanted Kidney in MELAS Requires Special Considerations". *Journal of Applied Health Sciences and Medicine* 3(5): 25 – 26. https://doi.org/10.58614/jahsm355

Received:
April 27, 2023
Accepted:
May 7, 2023
Published:
May 13, 2023

Corresponding author:
Josef Finsterer
fifigs1@yahoo.de

With interest we read the article by Kim et al. on an 18 year-old female with mitochondrial encephalopathy, lactic acidosis, and stroke-like episode (MELAS) syndrome, who underwent en block kidney transplantation (EBKT) because of renal failure due to glomerulosclerosis [1]. Two months after transplantation the patient experienced urinary tract infection due to hydronephrosis of the left transplanted kidney [1]. Despite all measures to preserve the left kidney, hydronephrosis was classified as intractable and it was decided to sacrifice the culprit kidney and to embolise it which was technically difficult because of kinking, multiple renal arteries, but was lastly successful [1]. The study is excellent, but has limitations that are cause of concerns and should be discussed.

The main limitation of the study is that it was not mentioned how MELAS was diagnosed and that the causative mutation responsible for MELAS was not reported. Knowing the underlying genetic defect is crucial as it may allow assessing the prognosis and may facilitate genetic counselling. Since 80% of the MELAS patients carry the mtDNA variant m.3243A>G in *MT-TL1*, we should know if MELAS in the index patient was due to this common cause of MELAS and whether other first-degree family members also carried this variant. Knowing whether an mtDNA or nDNA located gene was mutated is critical, as the phenotypic expression of mtDNA located genes is strongly dependent on heteroplasmy rates and mtDNA copy number. Knowing the nature of the underlying mutation is also critical for choosing the optimal immunosuppressive treatment after transplantation, as immunosuppressants can be mitochondrion-toxic.

Another limitation is that it is unclear whether the index patient had inherited the pathogenic variant from her parents or whether it had occurred de novo. Knowing whether kidney failure due to glomerulosclerosis was inherited is critical as the index patient would transmit the causative mutation if it was inherited but may not inherit the defect to the next generation if the mutation had occurred de novo.

We should know why the left kidney was embolized and not explanted. Because recurrent infections were made responsible for hydronephrosis, it cannot be ruled out that the left kidney hosted microbial agents, which could be a permanent source of bacteriemia or viremia. Therefore, we should know the long-term outcome after embolization. Did the index patient still experience recurrent urinary tract infections or was renal function completely restored after embolization? There is not mention, whether the complicated anatomy, multiple angulations, accessory renal arteries were

present already immediately after transplantation or whether they developed during the time between transplantation and the development of hydronephrosis. Were the multiple renal arteries already described in the operation report? Knowing the pathophysiology of multiple renal arteries and kinking is crucial for future cases.

Hydronephrosis was attributed to ureter obstruction but there is no discussion of its pathophysiology. We should know whether ureter obstruction was due to host-versus graft reaction, due to ureteritis, due to spasms, or due to ureter stones.

Overall, the interesting study has limitations that call the results and their interpretation into question. Addressing these issues would strengthen the conclusions and could improve the status of the study. Complications after kidney transplantation in MELAS patients require special attention and management.

Keywords: mtDNA, MT-TL1, renal failure, kidney transplantation

Acknowledgements

Statement of Ethics: a) The study was approved by the institutional review board (responsible: Finsterer J.) at the 4th November 2022. b) Written informed consent was obtained from the patient for publication of the details of their medical case and any accompanying images.

Data availability statement: Data that support the findings of the study are available from the corresponding author.

Funding: No funding was received

Author contribution: JF: Design, literature search, discussion, first draft, critical comments, final approval.

Disclosures: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Compliance with Ethics Guidelines: This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

References

[1] Kim DH, Park HS, Shin YH, Yoon CJ, Lee T. Technical Feasibility of Renal Artery Embolization on a Transplanted Kidney Due to Intractable Unilateral Hydronephrosis After En Bloc Kidney Transplantation: Case Report. J Endovasc Ther. 2023 Mar 25:15266028231159813. doi: 10.1177/15266028231159813.