The Downside of Telephone Health Visits in a Kidney Transplant Patient during the COVID-19 Pandemic

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Case Description
A 74-year-old woman from regional Australia had a delayed presentation with a rapidly enlarging arteriovenous fistula (AVF) during the coronavirus disease 2019 pandemic, on a background of kidney transplantation secondary to autosomal dominant polycystic kidney disease. Her right brachiocephalic AVF had not been used since kidney transplantation in 2001. During a phone consultation, the patient reported rapid enlargement of her AVF over 12 months. In-person assessment was arranged and revealed a tense, pulsatile, right brachiocephalic mega fistula measuring up to 8 cm in diameter, extending from the cubital fossa into the upper arm (Figure 1A).

Graft function at presentation was an eGFR of 40 ml/min per 1.73 m² and a serum creatinine of 115 mg/dl. She was booked for expedited ligation and excision (Figure 1, B and C). Three months postoperatively, she reported improved exercise tolerance and energy levels. She had improvement in graft function, with an eGFR of 51 ml/min per 1.73 m² and a serum creatinine of 95 mg/dl, raising the possibility that the mega fistula caused a degree of high-output heart failure and decreased kidney perfusion.

Discussion
A mega fistula can be defined as a generalized aneurysmal dilatation of the vein of an AVF (1). Mega fistulae can lead to complications such as high-output cardiac failure, steal syndrome, skin ulceration, and rupture (1,2). Fistulae, and mega fistulae in particular, have been implicated in significant cardiac consequences, including high-output cardiac failure; left ventricular changes, including hypertrophy, dilatation, and elevated diastolic pressure; secondary pulmonary hypertension; arterial stiffness augmentation; and distal ischemia (3). There have been cardiac benefits shown with ligation in case series (3,4). Once a mega fistula develops, treatment options are limited, with ligation the treatment of choice.

Figure 1. (A) The patient had a tense, massively dilated brachiocephalic arteriovenous fistula. (B) Intraoperative picture of the excised arterialized mega brachiocephalic arteriovenous fistula. (C) Patient arm post closure of the excised mega fistula, with drain in situ.
Ongoing access monitoring in patients not on dialysis is important to prevent complications such as a mega fistula. The value of maintenance of patent AVF post kidney transplant is uncertain. The coronavirus disease 2019 pandemic response meant patient consultations were converted to telehealth or phone review. Practitioners should be aware of inquiring about unused fistulae during consultations. Additionally, patients not on dialysis should be taught to examine their own fistula and alert their nephrologist of any changes. Nephrologists, nurses, and patients should all be aware of the possibility of developing a mega fistula.

**Teaching Points**

- A mega fistula is an important complication of a fistula and can lead to secondary complications, including high-output cardiac failure, skin ulceration, and rupture.
- Ongoing surveillance of unused fistulae is essential for early detection of potential complications.
- Consequent to coronavirus disease 2019 patient reviews being transferred to telehealth consultations, there were reduced face-to-face reviews and clinical assessments. Patients and clinicians need to remain vigilant to ensure assessment of unused arteriovenous fistulae is raised during phone consultation and followed up appropriately.

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**Author Contributions**

H. Wallace was responsible for the conceptualization; both authors wrote the original draft of the manuscript and reviewed and edited the manuscript.

**References**


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