Tunnel infection diagnosed by 18 F-FDG PET/CT scan

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A 65-year-old lady, type 2 diabetic and hypertensive on peritoneal dialysis for end stage renal disease for the past 24 months. She underwent two exchanges per day with 2.5% dextrose dialysis solution on automated peritoneal dialysis. She had 1.5 L of ultrafiltrate and 200 mL of urine per day. The patient membrane transporter status was high average. The weekly kt/v done 6 months before was 1.4. There were no episodes of peritonitis.

She presented with an umbilical hernia; a defect of 0.5 cm diameter and pain on tunnel. There was no redness on tunnel. The dialysis fluid was clear and there was no pain abdomen. Cuff extrusion was not present.

A tunnel ultrasound revealed collections at several points along the catheter. An ultrasound guided aspiration was done. The aspirate was clear akin to dialysis fluid. There were no cells. There were no organisms on Gram and Ziehl Neelsen staining and KOH mount. The cultures were sterile [1–5].

An 18F-FDG PET/CT scan was done to identify the presence of tunnel infection. It had shown the presence of metabolically active collection in the tunnel (Fig. 1). An ultrasound guided aspiration of the metabolic active collection was done. The culture showed the growth of *Staphylococcus aureus*. The organism was sensitive to vancomycin, linezolid, ampicillin and doxycycline. She was treated with four doses of injection vancomycin 1.0 g for every 72 h and

tablet doxycycline 100 mg per day for 21 days. After 18 days of treatment the extra peritoneal portion of the catheter was changed to right side with a new tunnel formation and simultaneous repair of the umbilical hernia. This step ensured us to prevent peritonitis.

Peritonitis occurring in a patient with tunnel infection does not usually respond to antibiotic therapy without catheter removal. Tunnel infections without concomitant peritonitis can be treated with limited surgical intervention and salvage of the infected catheter.

Ultrasonography is most commonly employed imaging method for diagnosis of tunnel infections. A low-echo circumferential rim is seen around the catheter under normal circumstances. The tunnel infection is diagnosed if an area of hypoechogenicity (indicative of fluid collection) > 2 mm in width along any portion of the catheter tract. (1) Scintigrams using white blood cells labelled either with In-111 oxine (2) or with Tc-99m exametazime (3) have also been used to image infected catheter tunnels. 18 F-FDG PET/CT scan had been used to diagnose the aetiology of fever of unknown origin in patients on dialysis. (4) The accuracy of 18 F-FDG PET/CT in diagnosis of tunnel infections is yet to be established. (5) However it is particularly useful when the infectious collection is not obvious as in our patient. 18 F-FDG PET/CT scan is several times expensive than ultrasound.

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Fig. 1 18F-FDG PET/CT scan, vertical arrow is showing the metabolically active collection in tunnel and horizontal arrow is showing the umbilical hernia

Compliance with ethical standards

Informed consent Informed consent was obtained.

Conflict of interest The author(s) declare that they have no conflict of interest.

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