Percutaneous versus Surgical Peritoneal Dialysis Catheter Insertion Outcomes in Patients who Underwent Urgent Start Dialysis: A 6-Year Retrospective Study

Jehad Al Laham[1]*, Khalfan Al-Shaaili[2], Samira Al Saeghi[3]

[1]Nephrologist -Renal Medicine Unite, Nizwa Hospital, Nizwa, Oman

[2]Nephrology Consultant -Renal Medicine Unite, Nizwa Hospital, Nizwa, Sultanate of Oman

[3]Nephrology Staff Nurse (PD-organizer), Nizwa Hospital, Nizwa, Sultanate of Oman

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*Corresponding Author: jehad.laham@hotmail.fr

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Abstract

Objectives: Peritoneal Dialysis is a widely accepted renal replacement therapy for End Stage Kidney Disease patients. Peritoneal Dialysis is usually initiated 2-4 weeks after placement of a Peritoneal Dialysis Catheter to allow time for the peritoneal cavity to heal. Urgent start Peritoneal Dialysis is an effective therapy to prompt initiation of Peritoneal Dialysis after Peritoneal Dialysis Catheter insertion, typically within 14 days. This modality offers several potential advantages, like avoiding the use of temporary hemodialysis catheters, reducing costs to the healthcare system, and potentially increasing overall Peritoneal Dialysis utilization. Patients undergoing Urgent Start Peritoneal Dialysis may develop various mechanical and infectious complications following Peritoneal Dialysis Catheter insertion. At our center, Peritoneal Dialysis Catheter insertion is performed either by Nephrologists using a percutaneous technique with local anesthesia and fluoroscopic guidance or surgically via laparoscopic or open techniques under general anesthesia. This project aims to compare outcomes between these two Peritoneal Dialysis Catheter insertion techniques in patients undergoing Urgent Start Peritoneal Dialysis; the primary outcome is the early complication rate by day 30 after insertion, and secondary outcomes include technique and patient survival. Another objective is to improve patient outcomes for those who underwent Peritoneal Dialysis Catheter insertion and started Peritoneal Dialysis early as part of the Urgent Start Peritoneal Dialysis program (i.e., within 2 weeks).

Methods: A retrospective observational study was conducted at Nizwa Hospital, Sultanate of Oman, from January 1st, 2018, to December 31st, 2023, and included 50 patients with end-stage kidney disease who started dialysis through the Urgent Start PD program. Peritoneal Dialysis Catheter insertion was performed either percutaneously with local anesthesia by nephrologists or surgically via laparoscopy/open technique under general anesthesia. We monitored Peritoneal Dialysis Catheter-related complications—mechanical and infectious—over 365 days.

Results: Of the 50 patients, 31 (62%) underwent Peritoneal Dialysis Catheter insertion via the percutaneous technique, while 19 (38%) underwent surgical insertion. Peritoneal Dialysis commenced after an average of 3.86 days. Mechanical complications, such as Peritoneal Dialysis Catheter migration and leakage, were more prevalent in the laparoscopy group (10%). In contrast, other complications, such as infection and bleeding, were more common in the fluoroscopy group (16%) during follow-up. One Peritoneal Dialysis Catheter was removed from the percutaneous technique group in the early period due to refractory peritonitis. All patients received prophylactic antibiotics. Three patients underwent renal transplantation before completing one year of follow-up, and five patients died. There was no difference in patient or Peritoneal Dialysis Catheter survival between the two techniques.

Conclusion: Our study indicates that the complications associated with peritoneal dialysis catheter (PDC) insertion, whether performed percutaneously or surgically, are low and align with global data. Both techniques demonstrated comparable safety and survival outcomes, with differing complication profiles. Furthermore, the insertion technique didn't affect catheter and patient survival.

Keywords: Urgent Start, Peritoneal Dialysis, Peritonitis, technique survival, prophylaxis, APD, Complications.

Introduction

The prevalence of chronic kidney disease (CKD) is increasing progressively with time due to many factors such as aging, lifestyle modifications, improvement in the healthcare system, and treatment of comorbid conditions. [1,2]

Hemodialysis (HD) and peritoneal dialysis (PD) are modes of Kidney Replacement Therapy (KRT) used for End Stage Kidney Disease(ESKD) treatment; both are equivalent in terms of patient survival and metabolic control [1,3,4].

In the past, chronic PD was initiated 2-4 weeks after Peritoneal Dialysis Catheter (PDC) implantation to give the peritoneal cavity time to heal. This approach is still used in some centers for fear of complications due to an earlier start of PD [1,5,6].

Nowadays, it appears unacceptable for patients with unplanned dialysis to wait for two to four weeks before initiation of PD therapy, so there has been a tendency to increase interest in early start PD, which is also called urgent start Peritoneal Dialysis (USPD) [6,7].

Urgent-start peritoneal dialysis (USPD) refers to the practice of initiating PD soon after PDC placement in patients with newly diagnosed ESKD, usually within 14 days of catheter insertion [8,9].

This definition of USPD is widely, though not universally, used. Some investigators reserve the term "urgent-start PD" for PD initiated within 72 hours of catheter insertion and use "early-start PD" for PD initiated between 72 hours and 14 days after catheter insertion [8,10].

USPD is an effective therapy to prompt PD initiation after PDC insertion; it has numerous potential benefits, including avoiding temporary hemodialysis catheters, being less costly to the health care system, and increasing overall PD utilization [3,7,11].

There are five key elements to set up a successful urgent start PD program [8,9]:

- Ability to place PDC within 48 hours.
- Staff education regarding the use of catheter immediately after placement
- Administrative support.
- Identification of appropriate urgent-start PD candidates.
- Utilization of protocols in every step of the urgent-start process.

Outcomes: Before, many observational studies suggested that USPD has a similar or lower risk of mortality, hospitalization, and fewer short-term dialysis-related complications compared with urgent start hemodialysis via a central venous catheter (CVC) [2,5,12,13].

Regarding USPD and conventional PD, there are no differences between the approaches in outcomes (risk of catheter blockage, malposition or readjustment, PD dialysate flow problems, infectious complications, exit-site bleeding, technique survival, or patient survival) [8,10,14].

The USPD program requires the ability to place peritoneal catheters within 48 hours, and this can be achieved by the available surgeon or interventional radiologist/nephrologist, who should put a PD catheter within 24 to 48 hours, either by laparoscopic (surgical) or percutaneous(radiological) technique, respectively, and many studies have been conducted comparing the outcomes between both techniques [15,16,17, 18].

Multiple operative techniques are available for the insertion of PDC, which can be broadly categorized as medical (percutaneous, radiological, and peritoneoscopic) or surgical (open surgical and laparoscopic) [16,18,19].

Dialysate leaks are considered the most common complication observed in the USPD. Most leaks can be managed conservatively without the need to replace the PD catheter. The risk of leakage can be minimized by appropriate catheter placement techniques [8,20].

PD fluid leakage is defined as leakage observed at the exit site or as subcutaneous infiltration in the abdominal or peri-catheter area.

Other complications in USPD may occur early or late. These include PDC migration, defined as displacement of the catheter tip from its optimal pelvic position, confirmed clinically or radiologically. PDC malfunction is defined as impaired inflow or outflow through the catheter.

Infectious complications may also occur, include PD-related peritonitis, defined according to International Society for Peritoneal Dialysis (ISPD) criteria as the presence of at least two of the following: (1) abdominal pain and/or cloudy effluent; (2) effluent white blood cell count ≥100/μL with ≥50% polymorphonuclear cells; and (3) positive PD effluent culture. Exit-site infection (ESI) is defined as purulent discharge from the exit site, with or without erythema.

Contraindications: Patients who have an urgent indication for dialysis (usually for hyperkalemia, volume overload, or marked uremia) are not good candidates for USPD since such patients cannot wait for PDC insertion, and it is difficult to achieve rapid metabolic control with PD in comparison with hemodialysis or Continuous Kidney Replacement Therapy (CKRT) [8,21].

Other contraindications include lack of patient consent and recent surgery involving large anterior abdominal incisions.

USPD Prescription: The initial prescription depends on Residual Kidney Function (RKF), patient body size, and clinical indicators as per patient assessment.

Time on therapy and the number of cycles is determined by the patient's residual kidney function and specific clinical parameters (including signs and symptoms of uremia, electrolyte and acid-base disorders, and disorders of mineral metabolism [8].

Therapy is usually done on an alternate-day basis in the first two weeks after catheter placement. This allows for alternate dry days, which increase surgical healing. However, daily dialysis can be done if needed. Strict measures should be taken to reduce intra-abdominal pressure and prevent leaks, including a supine position during dialysis, a bowel regimen for all patients to avoid straining with bowel movements, cough suppressants, if needed, and draining patients when sitting up, eating, or ambulating [8,13].

Some steps should be taken into consideration for patients undergoing USPD [8,9]:

- All patients should be counseled about dialysis options.
- Suitable candidates for PD should be referred to an access surgeon or an interventional radiologist/nephrologist, who should place a PDC within 24 to 48 hours of referral. The patient should then be referred for assessment into the USPD program.
- The patient is evaluated for the need for immediate dialysis initiation.
- If there is no indication for immediate dialysis initiation, training can commence. The patient’s clinical status is assessed at each visit, and laboratory tests are obtained at least weekly. Dialysis therapy should be initiated when clinically indicated.

Barriers to urgent start: The common barriers to the USPD program are the lack of surgeons or interventionalists (radiologists or nephrologists) who can place a PDC within 48 hours; another barrier is the lack of a local USPD program for outpatients [8,9].

Many studies have previously been conducted on the same topic.

A retrospective Cohort study was done in UK by Emad Maher et el, which had a purpose of confirming the clinical effectiveness of radiological PDC insertion in the practice compared with laparoscopic insertion; the study concluded that Radiologic PD catheter insertion is a clinically effective alternative to laparoscopic surgery, although there was poorer long-term survival with radiologic catheter placement, possibly because of preferential selection of radiologic insertion for more frail patients [22,23].

Another study was conducted in New Zealand by David Voss et el, it aimed to compare the outcomes between Radiological PDC insertion and surgical insertion over 5 years, the primary outcome was the early complications can be seen and the secondary outcome was the patient and PDC survival, this study showed that Radiological insertion of first PD catheters using fluoroscopy is a clinically non-inferior and cost-effective alternative to surgical laparoscopic insertion [23,24].

A huge study which was done in UK by Victoria R Briggs et el, Department of Nephrology and School of Health and Related Research, they included randomized controlled trials (RCTs) examining adults and children undergoing PD catheter insertion using both techniques laparoscopic and percutaneous PDC insertion, the primary outcomes of interest were PDC function and technique survival and the studies showed that the evidence needed to guide clinicians in developing their PD catheter insertion service is lacking. No PD catheter insertion technique had lower rates of PD catheter dysfunction [20].

In addition, an extensive multicenter study conducted in the USA and Egypt by Ahmed Kamel Abdel Aal et al. compared the outcomes of elective-start vs. urgent-start PDC placement and found no significant difference in safety or outcomes between the radiological and surgical techniques for PDC implantation [14,25].

Briefly, these studies confirmed that Percutaneous (by fluoroscopic guidance) PDC insertion is safe, cost-effective, and yields outcomes similar to those of surgical (by laparoscopic guidance) PDC placement.

Our study objective is to identify the outcomes of Percutaneous vs surgical PDC insertion in patients who underwent USPD over the last 6 years in our center, in addition to being the first of its kind in Oman. No single local study is available to investigate outcomes between the two techniques in patients undergoing USPD.

Methods

This is a single-center retrospective observational study conducted in Nizwa Hospital, Sultanate of Oman, Nephrology Department, from 1 January 2018 to 31 December 2023, the

by laparoscopic (surgical) or fluoroscopic-guided (percutaneous) technique and started on PD within 2 weeks after insertion as a part of USPD program during this period collected through reviewing health records in NH.

All patients received a 63-cm Medcomp® coiled-tip silicone peritoneal dialysis catheter (PDC) with two Dacron cuffs for chronic PD access.

At Nizwa Hospital, the hemodialysis unit provides dialysis to 19 patients per shift, operating three shifts per day. In contrast, the hospital's peritoneal dialysis unit, which includes two clinics, provides daily outpatient services for PD patients. PD training is offered to patients as inpatients in private rooms for an average of 10 days. Then, the patient can be discharged and continue PD at home.

- The inclusion criteria include individuals aged ≥13 years, regardless of gender. All patients undergoing urgent-start peritoneal dialysis who received their first PDC insertion using either a fluoroscopic or laparoscopic technique between 01/01/2018 and 31/12/2023 were included.

- The exclusion criteria include individuals aged < 13 years, patients started PD 2 weeks or more after PDC insertion (elective - start PD), missing efficacy data, and more than one PDC placed.

The sample was purposive; the study included all cases that met the inclusion criteria, patients presenting with ESKD indicated for dialysis and underwent PDC insertion by one of these techniques (fluoroscopy or laparoscopy) and started PD within 2 weeks of insertion as a part of the USPD program.

Fifty patients who started USPD during the specified period were retrospectively reviewed, and the collected data were analyzed.

The following data were recorded: age, gender, cause of ESKD, comorbid diseases, RKF, body mass index (BMI), date of insertion, insertion technique, start date of PD, PD modality, antibiotic prophylaxis, and outcomes at days 30 and 365.

The selection of patients for the insertion technique was based on multiple factors, including patient preference following appropriate counseling, BMI, history of abdominal surgery, and the risk associated with general anesthesia.

Our objective is to compare outcomes between two PDC insertion techniques in patients undergoing USPD over 365 days after insertion. The primary outcomes are early complications by day 30 after insertion (exit-site bleeding, infection, peritonitis, leakage, and PDC malfunction), while the secondary outcomes include technique and patient survival.

It should be noted that late complications are considered those occurring beyond 30 days after PDC insertion.

Another objective of this study is to improve patient outcomes for those who underwent PDC insertion and were started on PD early as part of the USPD program (i.e., within 2 weeks).

A total of 50 patients with ESKD had been dialyzed as part of the USPD program after PDC implantation using fluoroscopic or laparoscopic techniques from 1 January 2018 to 31 December 2023. The medical records of these patients during this period were retrospectively reviewed, and the collected data were analyzed. The Data were retrospectively obtained from the electronic medical registration system (inpatient medical records) (computer-assisted system) of Nizwa Hospital, Nephrology department, PD center registry.

During this study, the Research Team Members were assigned to assist with and guide the data collection process and to review all selected patients' health records. Medical records staff members searched the patient’s file to collect the data. Patient data was maintained with high privacy and confidentiality during recruitment.

All information was collected with the approval of the health records committee and local administrative permission to access health records.

The study was approved by the Research and Ethical Review & Approve Committee/authority (RERAC) in Oman.(**Unique Identification code:** 28329)

For data entry and analysis, we used the computer program Statistical Package for the Social Sciences (**SPSS 20)**, and the Fisher’s exact test was the statistical test used for data analysis.

Kaplan-Meier curves was used for patient survival -Technique survival. Transparency was maintained to avoid any bias during data collection. Close monitoring and follow-up with data collectors were held to guide and ensure the proper data collection.

Results

During the follow-up period, 50 patients underwent USPD at our center. 30 males (60%) and 20 females (40%); the mean patient's age was 55.8 years (18–93 years). The most common cause of ESKD was Diabetes Mellitus, with a percentage of 46% [**Figure 1].**

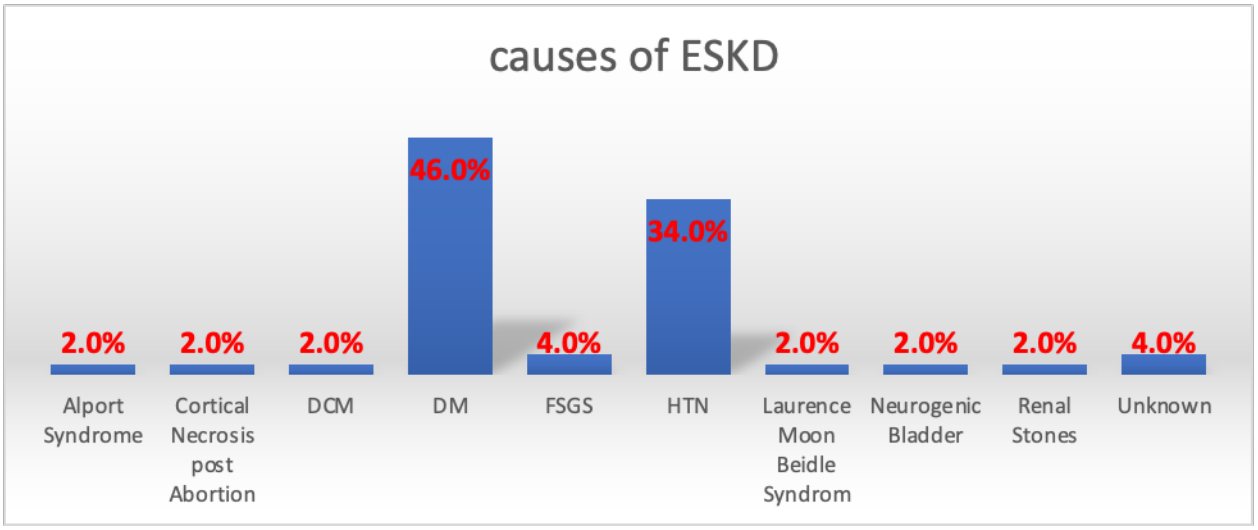


Figure 1: Causes of ESKD. **DCM:** Dilated Cardio Myopathy, **DM:** Diabetes Mellitus, **FSGS:** Focal Segmental Glomerulosclerosis, **HTN:** Hypertension, **ESKD:** End-Stage Kidney Disease.

There was no significant difference in body mass index or residual kidney function between both groups of insertion, while we can see that the hospital stay is longer in laparoscopic PDC insertion group in comparison with radiological group, moreover there was two patients had prior abdominal surgery (10%) (exploratory laparotomy 2010, laparotomy 2004) before laparoscopic PDC insertion and one patient (3%) had renal transplant in radiological group.

Table 1 showed the baseline Characteristics among patients underwent Radiological vs Laparoscopic PDC insertion.

Table 1: baseline Characteristics among patients underwent Percutaneous vs Surgical PDC insertion.

Characteristics	Percutaneous ($n = 31$)	Surgical ($n = 19$)	P-value
Age*	**62.5 (SD: 15.2)**	**45.8 (SD: 20.3)**	0.004
Sex:	**18 (58%)**	**12 (63%)**	0.768
Male	**13 (42%)**	**7 (37%)**	0.768
Female			
Primary renal Disease	**15 (48%)**	**8 (42%)**	0.77
- DM	**12 (38%)**	**4 (21%)**	0.20
- HTN	**0**	**2 (10%)**	0.14
- GN	**0**	**1 (5%)**	0.38
- Alport syndrome	**1 (3%)**	**0**	1
- Cortical necrosis	**0**	**1 (5%)**	0.38
- Renal stones	**1 (3%)**	**1 (5%)**	1
- Congenital	**1 (3%)**	**0**	1
- DCM	**1 (3%)**	**1 (5%)**	1
- Unknown			
Comorbidities:	**9 (29%)**	**4 (21%)**	0.74

- IHD	**0**	**2 (10%)**	0.14
- DLP	**2 (6%)**	**0**	0.52
- DCM/ICM	**2 (6%)**	**0**	0.52
- HCV	**2 (6%)**	**3 (15%)**	0.36
- Hypothyroidism	**2 (6%)**	**0**	0.52
- Liver cirrhosis			
BMI*	**27.4 (SD: 5.3)**	**26 (SD: 7.1)**	0.43
RKF* (urine output ml)	**609 (SD: 510)**	**807 (SD:693)**	0.28
Prior abdominal surgery	**1 (3%) Renal transplant**	**2 (10%) exploratory laparotomy 2010, laparotomy 2004**	1
Hospital Stay (days)*	**1.7 (SD: 1)**	**4 (SD: 3.77)**	0.01

Mean (SD: Standard deviation).
DM: *Diabetes Mellitus,* ***HTN:*** *Hypertension,* ***GN:*** *Glomerulonephritis,* ***DCM:*** *Dilated Cardiomyopathy,* ***ICM:*** *Ischemic Cardiomyopathy,* ***IHD:*** *Ischemic Heart Disease,* ***DLP:*** *Dyslipidemia,* ***HCV:*** *Hepatitis C Virus,* ***BMI:*** *Body Mass Index,* ***RKF:*** *Residual Kidney Function,*

Thirty-one patients (62%, P-value = 0.119) underwent fluoroscopic-guided percutaneous placement of a peritoneal dialysis catheter after the initial catheter insertion. In comparison, 19 patients (38%, P-value = 0.003) underwent catheter placement using the surgical technique.

PD was initiated after an average duration of 3.86 days, using automated peritoneal dialysis (APD) as the PD modality [**Figure 2].**

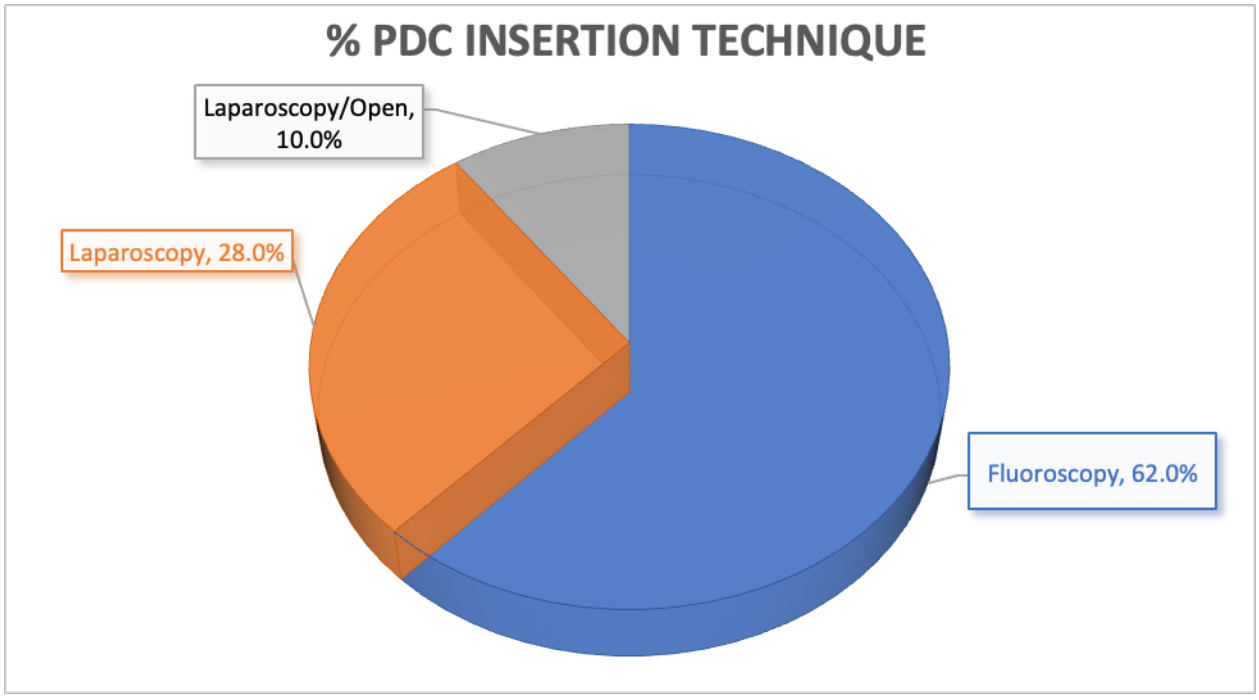


Figure 2: PDC insertion technique. **PDC:** peritoneal Dialysis Catheter

Six patients of 50 (12%) underwent USPD because of multiaccess failure, 4 of them underwent surgical insertion.

Two patients of 50 (4%) were on hemodialysis; one of them did not tolerate the hemodialysis, and the other asked for PD due to a social issue.

The patients who were left underwent the USPD because of uremic symptoms and other urgent indications for dialysis (hyperkalemia, metabolic acidosis, etc.).

Mechanical complications related to PDC insertion, such as PDC migration and leakage, were more prevalent in the laparoscopy group, occurring either as early complications by day 30 (observed in two patients, 4%) or as late complications beyond that (observed in four patients, 8%). In contrast, other complications, such as infection and bleeding, were more frequently observed in the fluoroscopy group during follow-up, with five patients (10%) affected by day 30 and 3 patients (6%) by day 365 [**Figure 3**].

All patients received prophylactic antibiotics with amoxicillin/clavulanate or cefazolin; one patient received a single dose of vancomycin due to allergy to B-Lactam antibiotics.

Infectious complications were more frequent in patients who received amoxicillin than in those who received Cefazoline during follow-up over 365 days (five patients, 10%, versus one patient, 2%, respectively).

Three patients (6%) received kidney transplants before completing one year of follow-up, and five patients (10%) died during the late study period. Among those who died, one patient succumbed to extensive pulmonary embolism (PE), three patients died from septic shock, and one patient experienced sudden death at home. Of these five patients, four had undergone fluoroscopic catheter insertion, and one had undergone surgical insertion.

There was one case of PDC removal in the early period (over 30 days) due to refractory peritonitis caused by E. Coli ESBL in the percutaneous group, and a new PDC was re-inserted percutaneously after 2 weeks without complications.

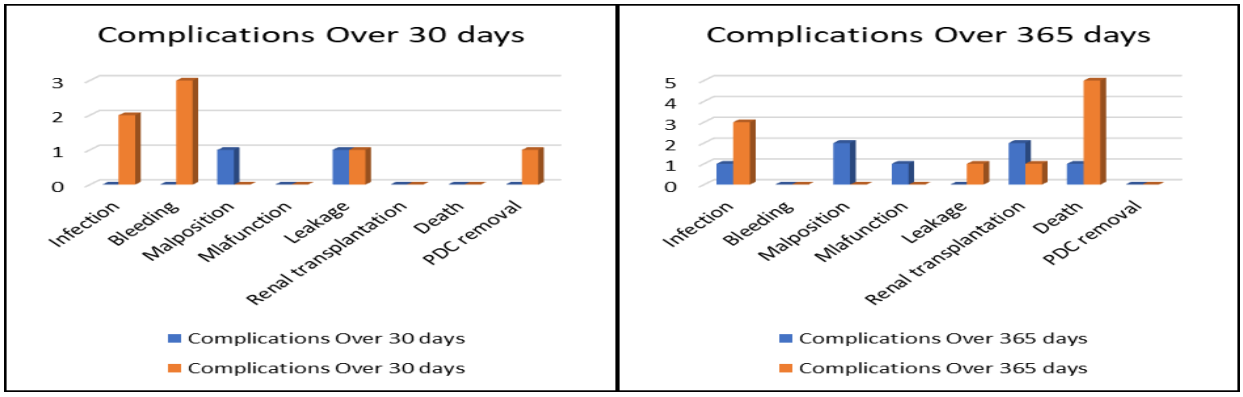


Figure 3: The complications of PDC insertion as per the insertion technique. **PDC:** Peritoneal Dialysis catheter

Discussion

During this retrospective study, the rate of catheter-related complications (such as infection, bleeding, PDC migration, and leakage) was very low with both techniques. Our analysis revealed that radiological insertion of PD catheters using a percutaneous fluoroscopic-guided method was safe and non-inferior to a surgical laparoscopic method, especially in non-obese patients without prior abdominal surgery.

Percutaneous insertion was associated with shorter hospital stay (Table1). Infections like exit site infection and peritonitis were more prevalent in the fluoroscopic technique; two patients (6%) developed peritonitis in the early period (over 30 days). PDC was removed in one patient due to refractory peritonitis with E. Coli ESBL. A new PDC was successfully reinserted percutaneously after 2 weeks without complications. Three patients (9%) in the fluoroscopic PDC insertion group developed infections in the late period (beyond 365 days), including peritonitis in two patients and an exit-site infection in one patient. All cases were managed conservatively as per our local protocol

in the management of these two complications with improvement. One patient in the surgical group developed an exit site infection with Pseudomonas in the late period, treated conservatively with improvement. So, in view of the above, we strongly recommend optimizing the sterilization precautions during percutaneous PDC insertion, continuing Cefazolin as a prophylactic antibiotic, and applying local Mupirocin to the exit site as the final step of the procedure.

Three patients (9%) experienced exit-site bleeding in the early period following percutaneous PDC insertion, all of whom were managed conservatively. In contrast, no exit-site bleeding was observed in the surgical technique. In the late period, no bleeding was noted in either method. Regarding mechanical complications after PDC insertion — such as malposition and leakage —these were more common with surgical PDC insertion than with percutaneous PDC insertion.

Over 30 days follow-up, one patient from the surgical group stated that had repeated low drain alarm, found with PDC malposition due to omental wrap and treated surgically by laparoscopic technique.

Leakage from the exit site was observed in 2 patients (4%) with both techniques, which is comparable to rates of 0% and 15% (median 4.8%) in other studies, and was treated as per our local protocol by holding dialysis for some days if possible or doing PD on an alternate-day basis in the first two weeks after catheter placement.

Over 365 days of follow-up; in the surgical group, two patients (10%) developed PDC malposition. The first one was treated conservatively with aggressive laxatives due to constipation and improved; the second one stated that they had a low drain, found with PDC malposition, and was treated by laparoscopic reposition with improvement.

One patient (5%) from the surgical group presented with malfunctioning of PDC, not responding to conservative treatment, and was found to have PDC tip migration, so he underwent surgical intervention (Reposition with Omentopexy).

One patient (3%) in the fluoroscopic-guided group reported a low ultrafiltration (UF) alarm, with swelling along the PDC course, and was diagnosed with a peri-catheter leak. He was on CCPD, so he was treated conservatively by switching him to APD with improvement.

We reported one case of PDC removal after percutaneous insertion in the early period due to refractory peritonitis caused by E. Coli ESBL. A new PDC was reinserted percutaneously for the patient after 2 weeks without complications and continued on APD as a part of the USPD program.

Three patients of 50 (6%) from the surgical group (15.7%) received kidney transplants before completing one year of follow-up. Five patients (10%) died during the late study period. Among those who died, one patient succumbed to extensive pulmonary embolism (PE), three patients died from septic shock, which is not related to PD, and one patient experienced sudden death at home. Of these five patients, four patients (12.9%) had undergone fluoroscopic catheter insertion, and one (5%) had undergone surgical insertion.

Kaplan–Meier analysis demonstrated high catheter survival in both groups, only one catheter removal event occurred during the study period, also demonstrated a 1-year survival of approximately 84% in radiological group and 95% in surgical group, with no deaths observed within the first 30 days in either group.

We don't think the mortality is related to the technique, so there was no difference in patient survival between the two methods [**Table 2**].

Table 2. Complications over the period of follow-up, Percutaneous versus surgical PD catheter insertion

	Number of subjects		**P-value**
	Percutaneous ($n = 31$)	**Surgical ($n = 19$)**	

	30-day follow-up	365-day follow-up	30-day follow-up	365-day follow-up	
Peritonitis	**2 (6%)**	**2 (6%)**	**0**	**0**	0.120
Exit site infection	**0**	**1 (3%)**	**0**	**1 (5%)**	1
Exit site bleeding	**3 (9%)**	**0**	**0**	**0**	0.090
PDC malposition	**0**	**0**	**1 (5%)**	**2 (10%)**	0.563
PDC malfunctioning	**0**	**0**	**0**	**1 (5%)**	0.210
Exit site leakage	**1 (3%)**	**0**	**1 (5%)**	**0**	0.720
Peri-catheter leak	**0**	**1 (3%)**	**0**	**0**	0.450
Death	**0**	**4 (12.9%)**	**0**	**1 (5%)**	0.368
PDC removal	**1 (3%)**	**0**	**0**	**0**	0.450

PDC: Peritoneal Dialysis Catheter

This study has several limitations, including its retrospective design and small sample size (n = 50). Therefore, future randomized controlled studies are recommended to validate these findings.

Some challenges were encountered in retrieving data from the Alshifa system, largely due to the long study period. In addition, there is limited global research available on comparable topics, and no financial support will be provided for the study.

Conclusion

This study demonstrated that the complications associated with peritoneal dialysis catheter (PDC) insertion, whether performed percutaneously or surgically, are low and align with global data. Both techniques demonstrated comparable safety and survival outcomes, with differing complication profiles. However, percutaneous insertion of the first PDC causes less hospital stay and fewer mechanical complications. Therefore, we strongly recommend prioritizing this technique when there are no contraindications.

Disclosure

The author declare no conflict of interest and no funding has received for this study.

Institutional Review Board Statement

The Research and Ethics Committee, Ministry of Health, Al-Dakhiliyah Governorate, Oman, granted approval under Ref. no. MoH/CSR/24/28329 for this study on 10/06/2024. .(Unique Identification code: 28329).

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