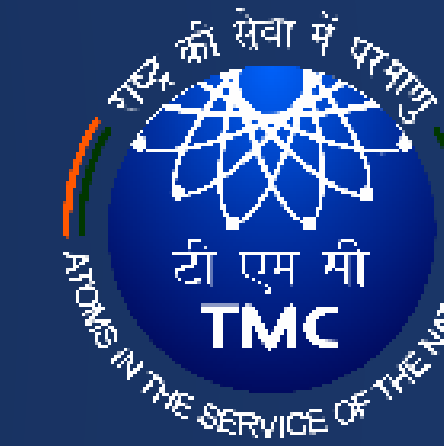




Complications of Peripherally Inserted Central Catheter (PICC) in a nurse-led clinic of a tertiary care cancer centre in India



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Introduction

The use of central venous access facilitates delivery of systemic treatment in cancer patients requiring treatment for prolonged period. A peripherally inserted central catheter or "PICC" is a form of intravenous access that extends to the superior vena cava, and can be used for a prolonged period of time. It is most commonly used in cancer patients for administration of chemotherapy regimens, extended antibiotic therapy, hydration, transfusion of blood and blood products and for total parental nutrition. The use of PICC prevents frequent needle pricks and also spare veins from effects of chemotherapeutic agents which are irritants or vesicants. It also prevents extravasations, thus improving the quality of life of patients. To decrease the risk of infection, particularly a blood stream infection, those involved in the care of PICC must adhere to strict infection control procedures. Once inserted it is important to assess for complications such as infections, catheter occlusion, Phlebitis etc. Therefore this retrospective audit will help to identify the incidence of complications which in turn will help to initiative preventive and corrective measures and also to evaluate the use of PICC in Cancer patients.

We report here the complications in patients with PICC of a Nurse led PICC clinic.

Methods

A retrospective study was undertaken. Case record register was analysed. Patients who are admitted for treatment in ACTREC, requiring chemotherapy by PICC and PICC insertion by nurse were included in the study. Patients were assessed weekly and when complained of discomfort. A total of 688 PICCs were inserted over four years and 1month i.e. Dec 2016 to December 2021. Out of the 688 PICC insertions attempted, 684 (99.4%) were successful. All PICCs were placed in the antecubital / upper arm using traditional (blind) method. All patients were assessed once a week.

Results

Table I: Patient details

PATIENT DETAILS	(n=688)	Freq (%)
Age	Median Age	42
	Gender	
	Male	376 (55)
	Female	312(45)
Diagnosis	Solid tumor	381 (55)
	Liquid tumor	307 (45)
Co-morbidities	Nil	531 (77)
	Present	157 (23)
Vein selected (n=684)	Basilic	302 (44)
	Cephalic	48 (7)
	Median	334 (49)
Tip Position	Cavoatrial Junction	179 (26)
	Internal Jugular Vein	4 (1)
	Superior Venacava	143 (21)
	Right Atrium	353 (51)
	Failed	9 (1)

Fig 2: Factors responsible for premature removal of PICC (n=639)

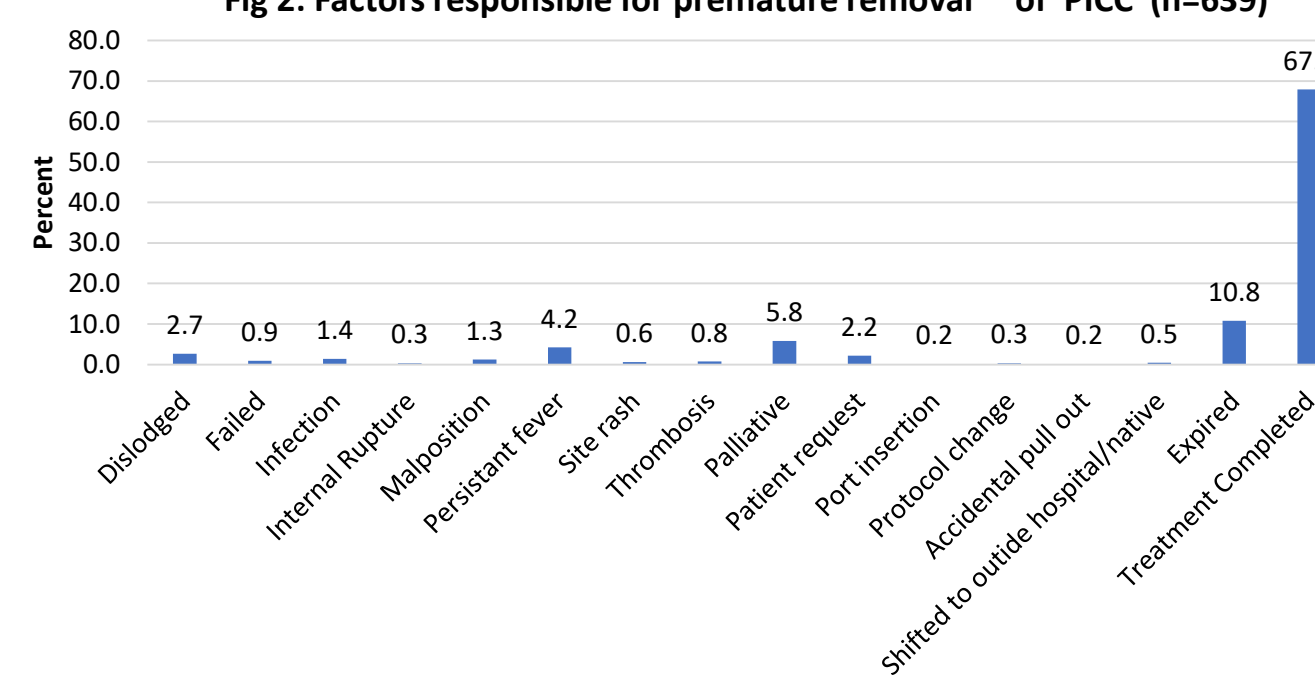


Fig 1: Reason for PICC removal (n=639)

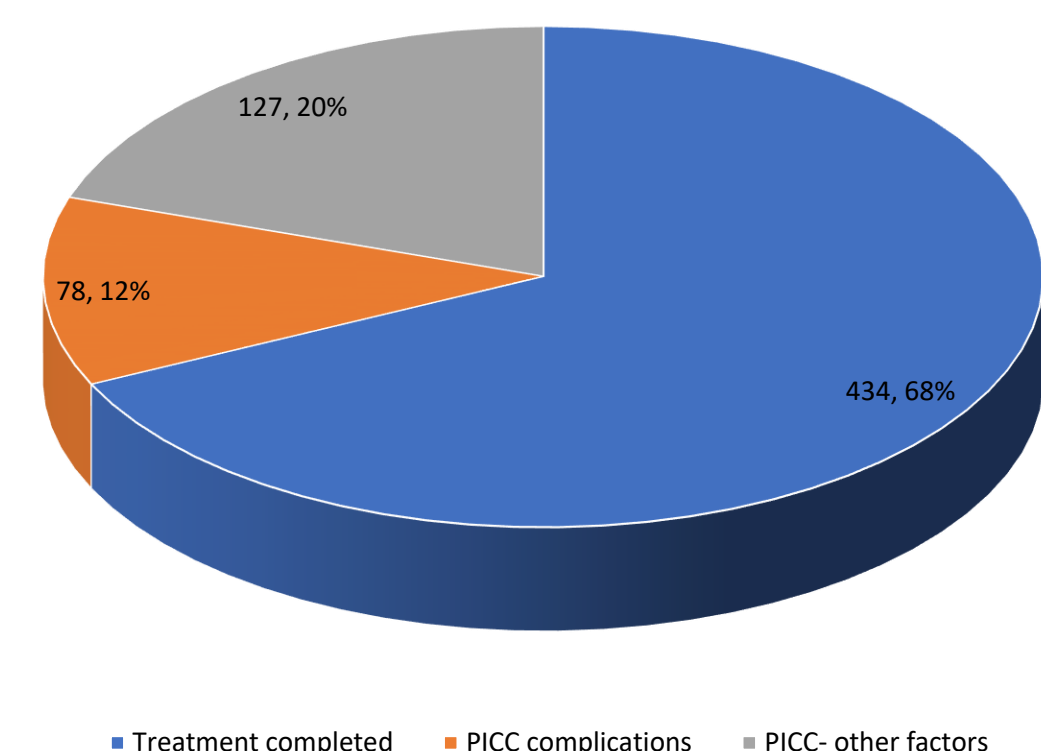
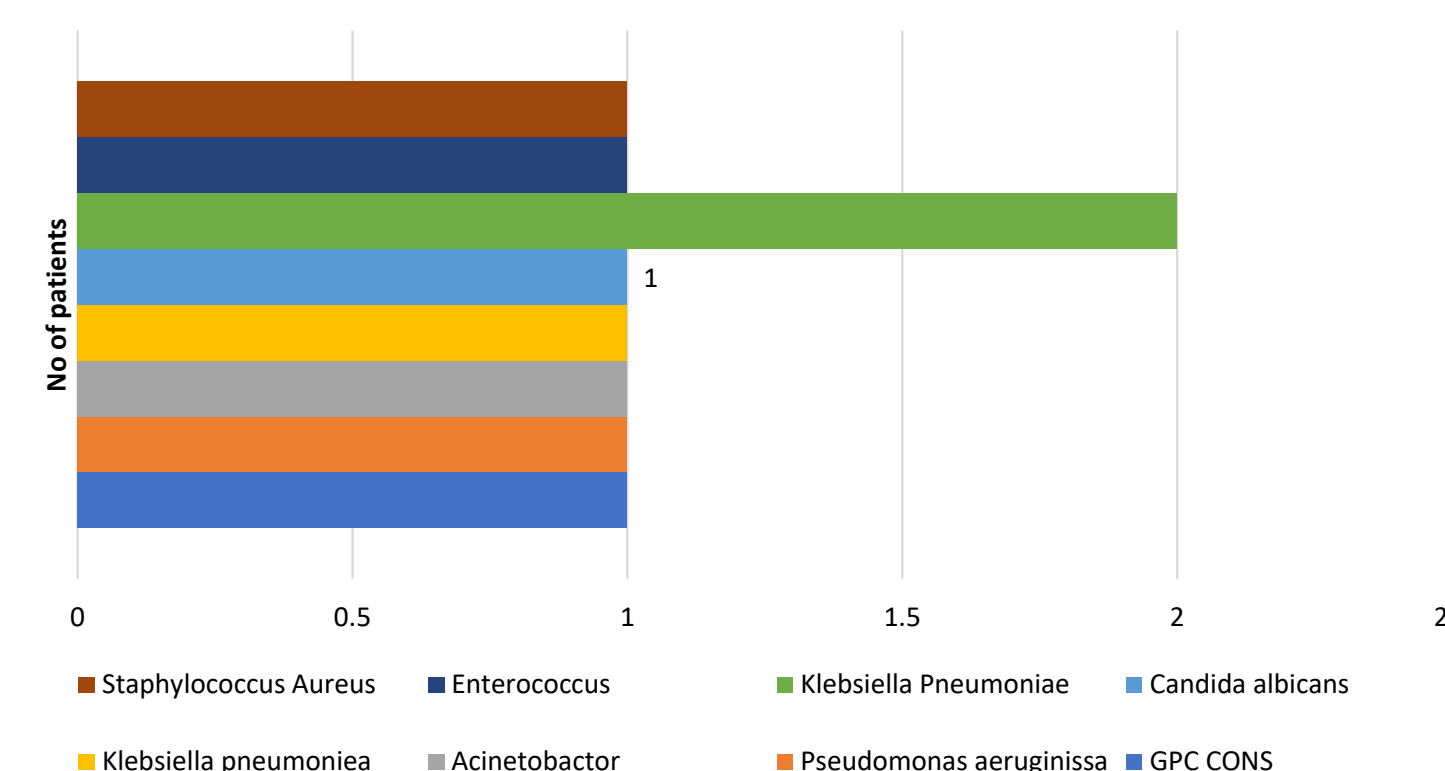


Figure 3: Organism identified



The median age of patient was 42 years {(Range: 1-81 years) (Inter quartile range: 32)}. Majority (54.7%) of patients were males. Total no of line days was 81598 with a median duration of catheter in situ of 118 days. Out of the 688 catheters inserted, around 4.3% the catheter was still in use, and 2.8 % patients were lost to follow up. In 68% of patients the catheter was used for the intended purpose of treatment and removed after completion of treatment. The remaining PICC had to be prematurely removed because of following reasons: Site rash (0.6%), Infection (1.4 %), Thrombosis (0.8 %), Dislodged (2.7%), Malposition (1.3%), Expired (10.8%), shifted to other hospital (0.5%), treatment regime changed (0.3%), request for removal (2.2%). Median duration from catheter insertion to infection was 37.5 days (4-131 days).

Discussion and conclusion

In our centre complications are lower than most published data. PICC related complications occurred in 78 (12%) patients which is much lower than reported by Sergio et al where the complications occurred in 24.7% of cases and by Kang J et al where 17% developed PICC-related complications. The incidence of infection was as low as 1.4% which is also similar to a study by Cotogni P et al, where the incidence of catheter-related bloodstream infections was low (0.35/1000 catheter-days) and 1.3% by Kang J et al., Among the 9 (1.4%) patients who had infection, Gram Negative Bacillus was identified. The malposition rate (1.3%) in our centre was also lower than reported in a paper where the rate was 62.9% (Venkatesan T et al). The catheter dislodgement in our study (2.7%) was similar to the study by Sergio et al, where the incidence was 3.8%.

We conclude that traditional (blinded) method and nurse led PICC can be successfully used and maintained in majority of patients requiring long term treatment specially in low or middle income countries where resource is a challenge..

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