



PICC DIFFICULT REMOVAL: AN EXPERIENCE OF AN INTRAVENOUS THERAPY TEAM

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INTRODUCTION

One of the complications related to PICC devices is the difficulty or the impossibility to remove them by usual steps. The main reasons for this, could be the formation of fibrin sheath around the catheter, a catheter knot, venospasm, thrombosis or stenosis of the veins and the length of catheter stay.

The literature's recommendations for catheter safe removal include:

Massage over the
vein

Warm compress
over the
extremity

Catheter
withdrawal over
a wire

METHODS

- **Design** → Descriptive study
- **Setting** → Araba University Hospital
- **Study period** → April 2015 – December 2019

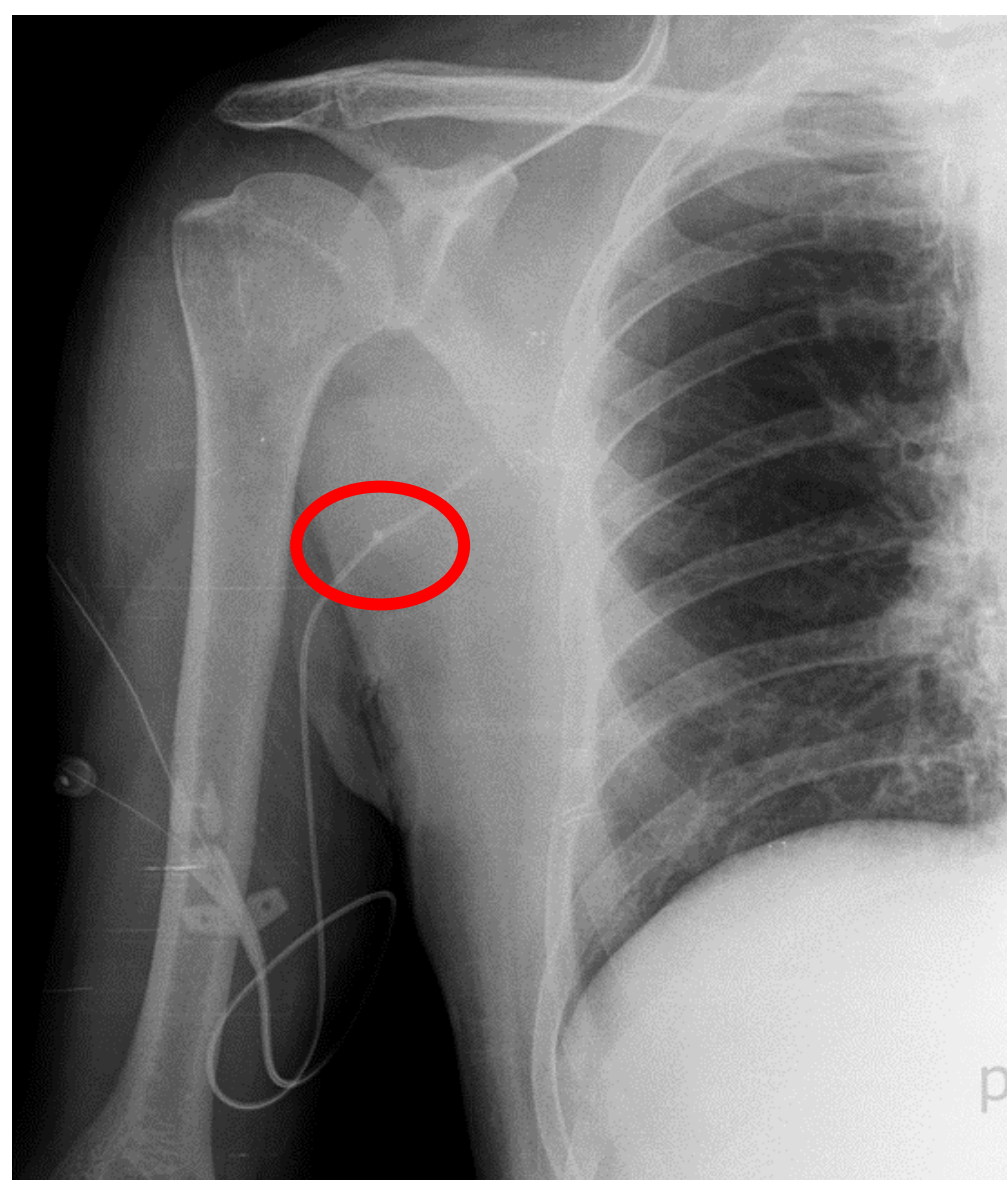
❖ **Difficult removal** of PICC which was defined as 'the impossibility of catheter removal by continuous traction without resistance, checking the integrity and complete catheter removal'.

❖ The need of additional interventions of the Intravenous Therapy Team or the radiology department.

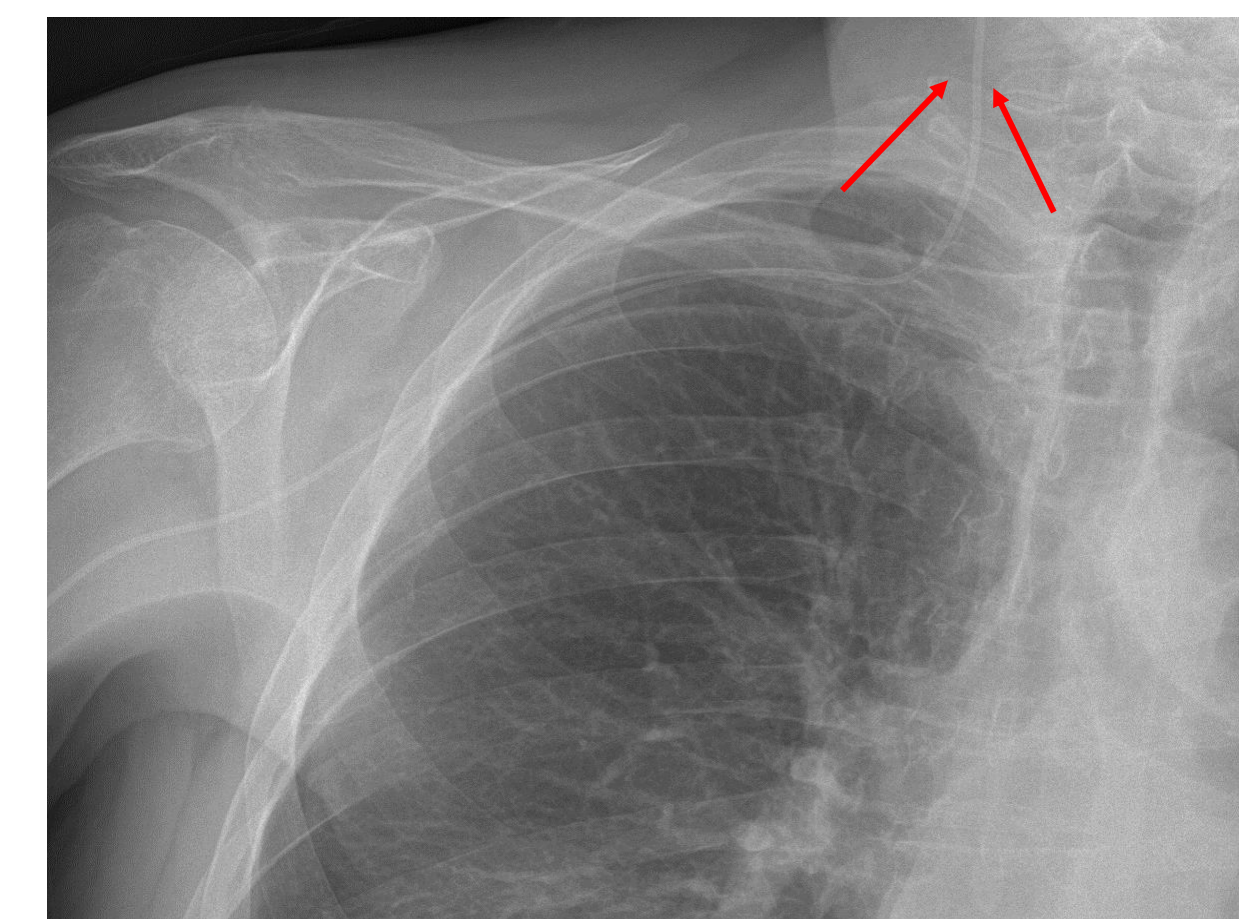
❖ Risk factors of catheter difficult removal: type of disease, catheter duration, laterality, thrombosis related to PICC, catheter migration, loop or knot and the formation of fibrin sheath.

❖ Number and type of removal techniques

- **Data analysis** → Absolute frequencies and percentages



Catheter knot



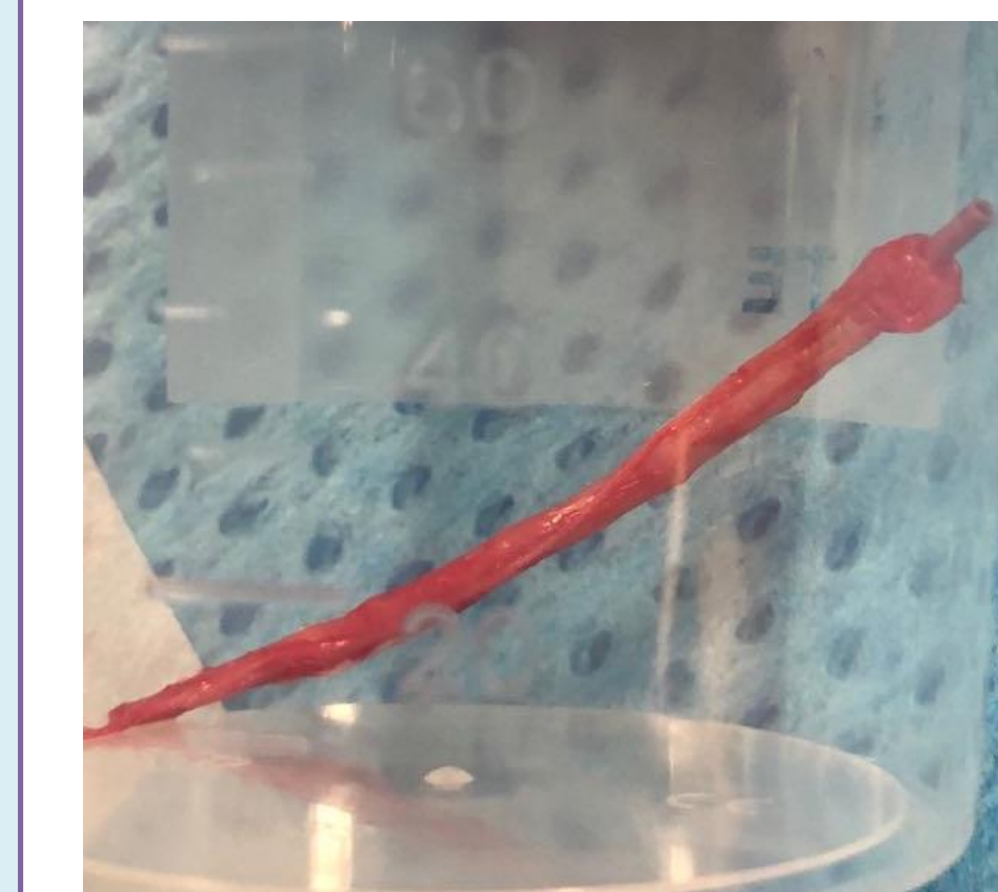
Catheter migration

OBJECTIVE

To describe the incidence of PICC difficult removal by conventional procedure and its risk factors. As well as to identify which are the techniques implemented for definitive catheter removal.

RESULTS

- 2,910 PICC were inserted in 2,393 patients, 52% were men. 54% (n=6) were inserted in the right arm.
- 73.78% (n=2147) of PICC were inserted in oncologic and hematologic patients.
- PICC difficult removal happened in 0.38% (n=11).
- The mean duration of PICC was 353.82 days (range 1-1519).
- Catheter patency alteration happened in the 27% (n=3) and was solved with urokinase.
- The PICC thrombosis rate was 36.36% (n=4) and migration, knot or loop occurred in the 45.45% (n=5).
- In the 54.5% (n=6) of the cases, PICC was removed in the radiology department by using different techniques. A venotomy was needed in one patient. The 27.27% of PICCs (n=3) were removed by the Intravenous Therapy Team doing maneuvers. Finally PICC withdrawal was performed pulling out the catheter after the death of one patient.
- After PICC withdrawal, fibrin sheath was found in 27.27% (n=3).



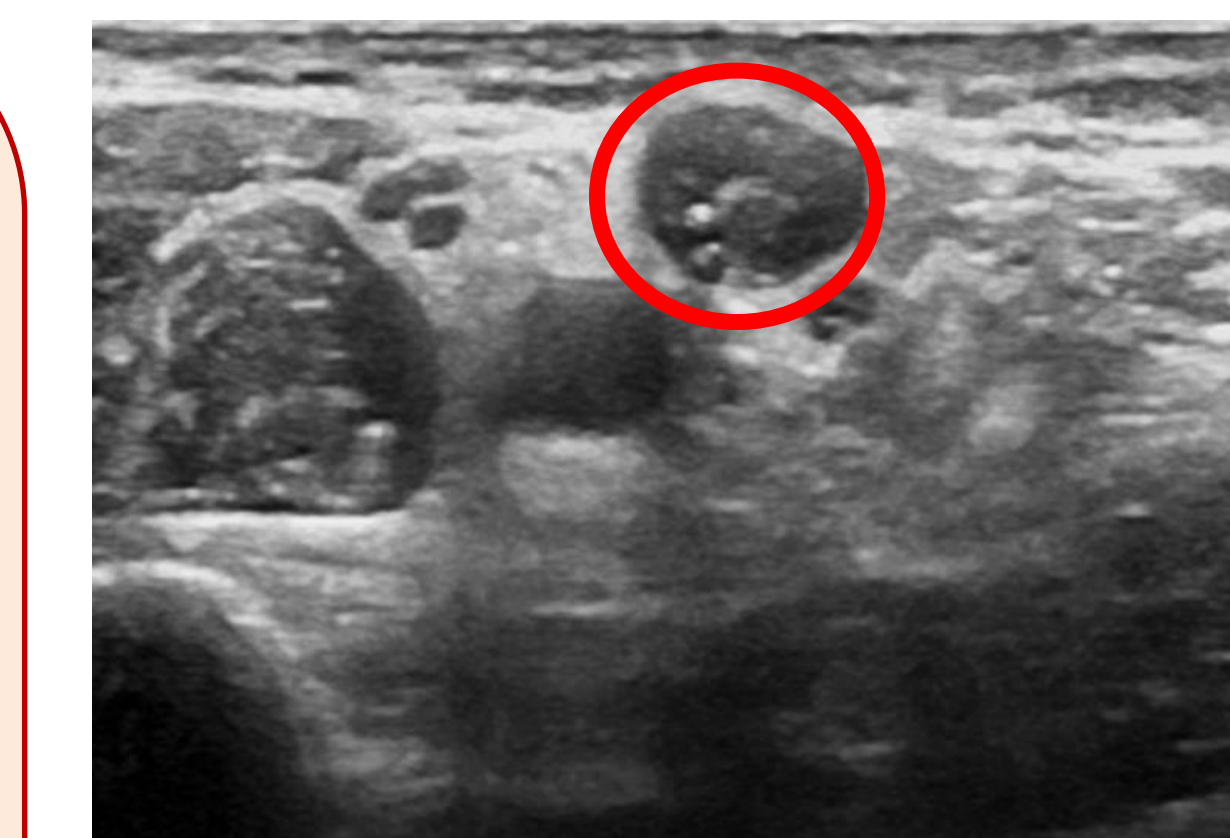
Fibrin sheath

DISCUSSION AND CONCLUSION

- ✓ The incidence of difficult catheter removal is very low.
- ✓ According to the literature some risk factors were observed and could have contributed to this difficulty
 - Long catheter duration
 - Thrombosis
 - Fibrin sheath formation
- ✓ The research team, after carrying out the study, designed a pathway to follow in case of the presence of this complication.



Warm application



Thrombosis