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Introduction

Catheter tip malposition is relatively common during bedside PICC insertion.

To avoid malposition, our department developed a technique in which the insertion length is adjusted by confirming the catheter within the subclavian vein using ultrasound (Subclavian track method ; SC track method).

We report the procedure and evaluate its effectiveness.

Methods and Patients

Conventional method: The insertion length was determined by measurement of body surface directly.

SC track method : The insertion length was adjusted as shown in the figure on the right.

The tip position was evaluated on chest X-ray taken immediately after insertion, based on the distance from the carina.

Patients inserted PICC in our department
without fluoroscope
260 cases (2021.Oct. to 2025 Dec.)

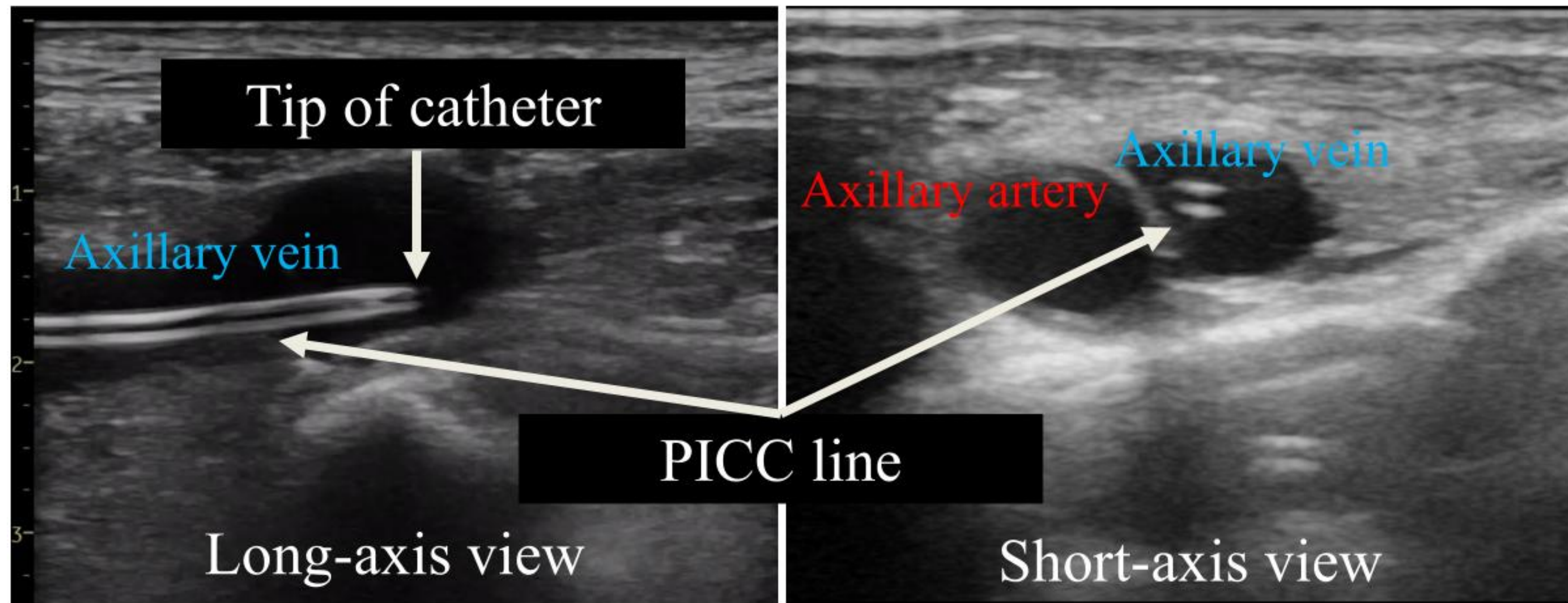
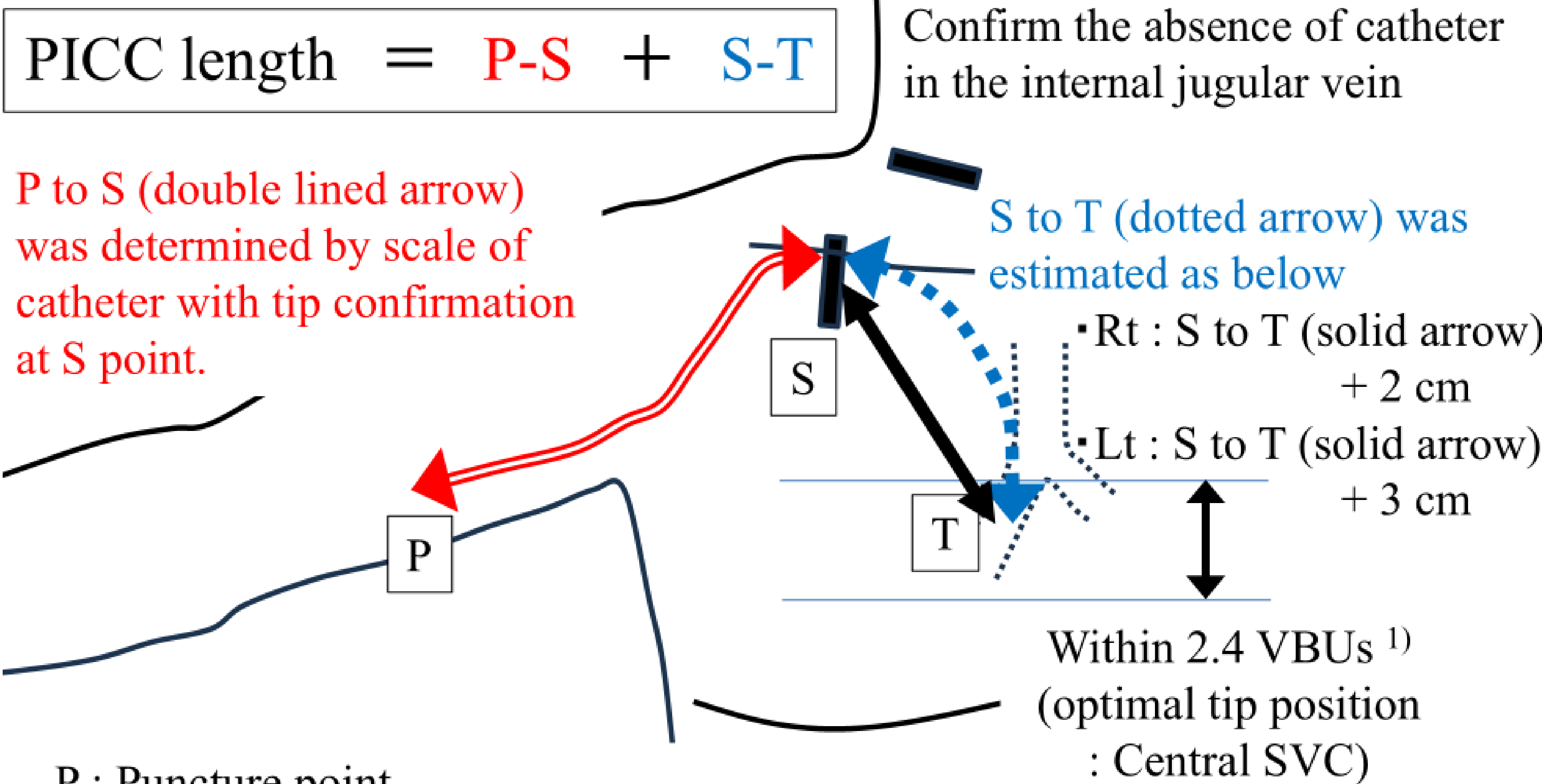
3 cases : inadequate medical records
1 case : failure of insertion

256 cases

Conventional method
(2021. Oct. to 2024. Jun)
107 cases

SC track method
(2024. July to 2025 Dec.)
149 cases

Subclavian track method (SC track method)



Results

The rate of catheter placement within the SVC was significantly higher in the SC track method group.

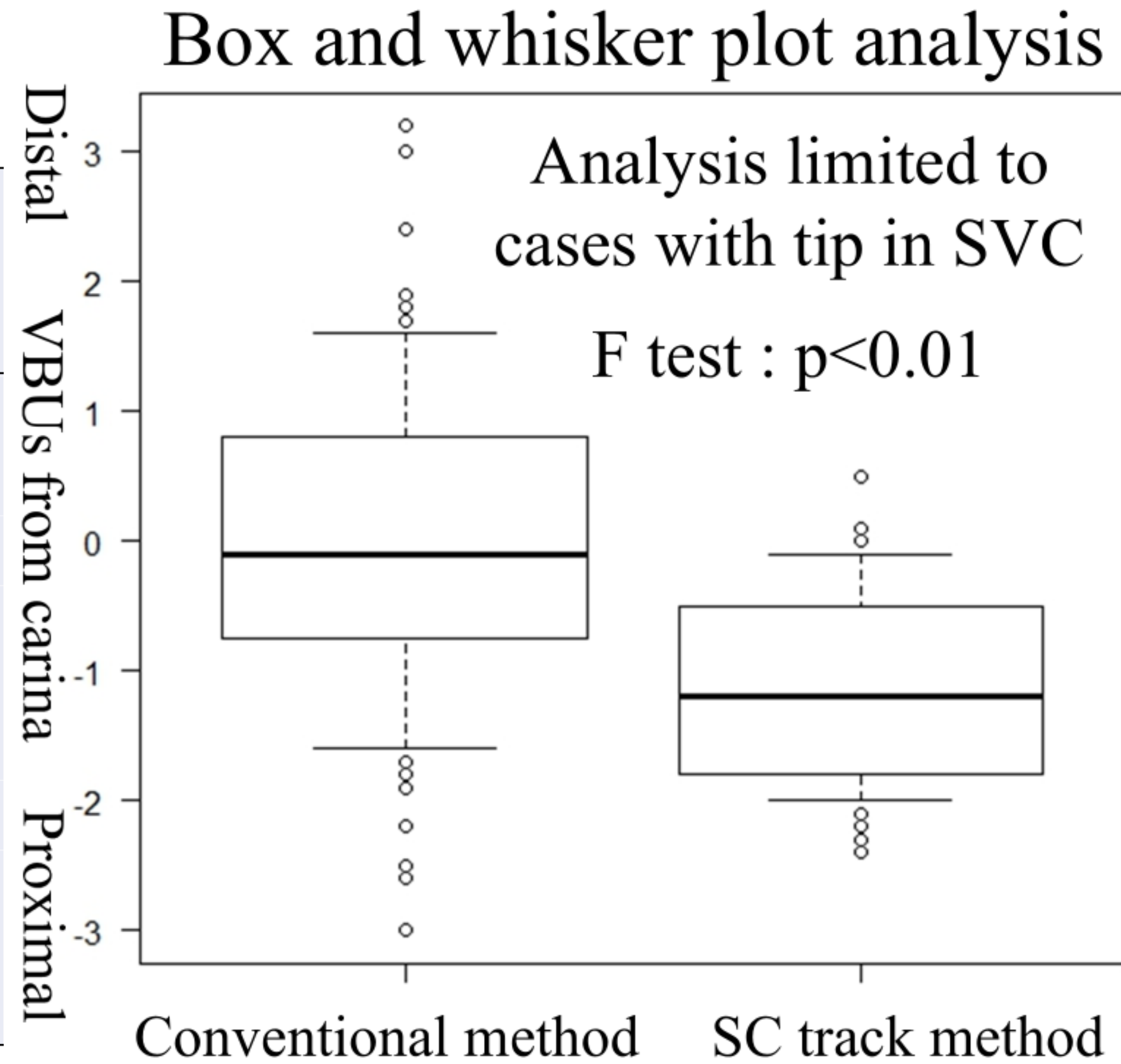
The optimal tip position rate was significantly higher in the SC track method group.

Catheter adjustment after the initial chest X-ray was significantly lower in the SC track method group.

The box-and-whisker plot analysis demonstrated reduced variability in catheter tip position in the SC track method group.

Comparison between conventional and SC track method

	Conventional method (n=107)	SC track method (n=149)	P-value
Within SVC	93 (86.9%)	145 (97.3%)	<0.01
Outside SVC	14 (13.1%)	4 (2.7%)	
Within optimal	54 (50.5%)	140 (94.0%)	<0.01
Outside optimal	53 (49.5%)	9 (6.0%)	
Adjustment (-)	85 (79.4%)	144 (96.6%)	<0.01
Adjustment (+)	22 (20.6%)	5 (3.4%)	



Conclusion

The SC track method is an effective bedside technique that can significantly reduce catheter malposition during PICC insertion.

- No financial conflict of interest to disclose concerning the presentation.
- This study was approved by the Institutional Review Board in our institution