

# Transverse and longitudinal incision in the creation of a PICC-Port pocket: which approach should be used?

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## Introduction

PICC-ports have increasingly replaced thoracic ports due to lower intra- and post-procedural complications. A critical technical step in implantation is the creation of the subcutaneous pocket, usually performed with either a transverse or longitudinal skin incision. Evidence on the optimal approach remains scarce.

## Methods

We conducted a prospective observational study involving 28 onco-hematological patients undergoing PICC-port implantation between July and August 2024 at Day Surgery Unit of Ospedale Miulli, Acquaviva delle Fonti (Italy). Patients were randomly assigned to receive either a transverse or longitudinal incision. Data collected included demographic and clinical variables, procedural time, and wound healing. Scar outcomes were assessed at 1 and 2 months using the Stony Brook Scar Evaluation Scale (SBSES) and the Patient and Observer Scar Assessment Scale (POSAS).

## Results

Baseline characteristics and hematological parameters were comparable between groups. The mean incision length was similar, while the transverse approach showed a slightly shorter procedural time (Tab.1).

At 1 and 2 months, SBSES scores were high in both groups, but consistently higher in the transverse incision cohort. POSAS evaluations revealed a better patient-perceived scar quality with the transverse incision, particularly regarding comfort and absence of symptoms as pain, burning, itching (Tab. 2).

Two complications occurred in the longitudinal group: one wound dehiscence requiring advanced dressings and one inflammatory reaction resolved with the rejection of one internal suture stitch. No complications were observed in the transverse group.

| <b>Tab. 1</b>            | TRANSVERSE   | LONGITUDINAL | p     |
|--------------------------|--------------|--------------|-------|
|                          | n=14         | n=14         |       |
| Gender (male)            | 9 m-5 f      | 7 m - 7 f    | 0.445 |
| Age (years)              | 61±14        | 60±12        | 0.954 |
| Laterality               | Dx 11 - Sx 3 | Dx 12 - Sx 2 | 1     |
| Weight (Kg)              | 78±7         | 79±15        | 1     |
| Height (cm)              | 173±8        | 169±8        | 0.236 |
| BMI (kg/m <sup>2</sup> ) | 26.1±3.7     | 27.0±4.3     | 0.694 |
| Smoke                    | 2 (14%)      | 5 (36%)      | 0.385 |
| Diabete                  | 1 (7%)       | 2 (14%)      | 1     |
| Steroid therapy          | 0 (0%)       | 1 (7%)       | 1     |
| Incision lenght (cm)     | 2.03 ± 0.18  | 2.04 ± 0.14  | 0.739 |
| Procedural time (min)    | 11.1 ± 4.5   | 9.9 ± 2.8    | 0.4   |

| <b>Tab. 2</b>          | TRANSVERSE | LONGITUDINAL | p     |
|------------------------|------------|--------------|-------|
|                        | n=14       | n=14         |       |
| SBSES 1°month          | 3.71±0.47  | 3.64±0.50    | 0,699 |
| SBSES 2°month          | 4.43±0.65  | 4.29±0.61    | 0,503 |
| Variation 2 vs 1       | 0.71±0.47  | 0.64±0.63    | 0,629 |
| POSAS observer 1°month | 20.9±1.4   | 20.9±1.9     | 0,911 |
| POSAS observer 2°month | 23.0±1.3   | 22.7±1.5     | 0,565 |
| Variation 2 vs 1       | 2.1±0.9    | 1.8±1.3      | 0,417 |
| POSAS patient 1°month  | 35.5±1.9   | 35.6±2.9     | 0,939 |
| POSAS patient 2°month  | 37.5±1.8   | 36.9±2.5     | 0,445 |
| Variation 2 vs 1       | 2.00±0.78  | 1.29±0.99    | 0,045 |



## Conclusions

Both techniques are safe when performed by trained operators. Transverse incisions appear to provide superior scar quality and lower complication rates, as perceived by both patients and clinicians. Larger randomized studies are warranted to confirm these findings and guide standardized recommendations for PICC-port implantation.