

## Catheter-related thrombosis vs fibroblastic sleeve. Incidence and impact in oncological and hematological patients with peripherally inserted central catheter

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### Background

More and more oncological and hematological patients are implanting peripherally inserted central venous catheters for the administration of therapy. Associated complications include thrombosis and fibroblastic sleeve. Their correct discrimination can be difficult, as they are similar on ultrasound, but their management turns out to be completely different, with thrombosis alone requiring specific anticoagulant therapy. Few studies have investigated the incidence of these complications.

### Materials and methods

In a cohort of oncological and hematological patients with PICC, we evaluated the incidence of catheter-related thrombosis and fibroblastic sleeve at 7-10 and 28-30 days. We enrolled 45 patients with polyurethane (4Fr) PICCs. We also correlated the results with the type of underlying oncological or hematologic disease.

### Results

The fibroblastic sleeve was identified by ultrasound in 11 patients (24.4%): 6 times at 7-10 days (13.3%) and 5 times at 28-30 days (11.1%); 5 patients (45.6%) had gastrointestinal oncological disease, 2 (18.1%) had airways oncological disease and 4 had breast cancer (36.3%). Catheter-related thrombosis was identified by ultrasound in 5 patients (11.1%): 3 times at 7-10 days (60.0%) and 2 times at 28-30 days (40.0%); 3 patients had gastrointestinal oncological disease (60.0%), 1 (20%) gynecological oncological disease and 1 (20%) onco-hematological disease. 3 thromboses were found to be asymptomatic (60.0%). At the limits of

significance (p-value 0.069) the relationship between vein diameter and development of fibroblastic sleeve/thrombosis (OR 5.29, 95% CI: 1.25 - 53.55). Statistically significant (p-value 0.039) the relationship between the timing of the complication and the number of platelets (OR 1.03, 95% CI: 1.01 – 1.08).

### Discussion

Fibroblastic sleeve is a frequent finding (24.4%), but asymptomatic, in oncological and hematological patients. Less frequent (11.1%), but with significant consequences, is catheter-related thrombosis. Discrimination between these two complications is clinically relevant as almost one in four patients could undergo unnecessary anticoagulant therapy, with consequent waste of resources and potential serious side effects. Incidence of asymptomatic thrombosis (4.4%) leads us to underline how about one patient out of twenty may undergo an unacknowledged venous thrombosis with significant consequences from a prognostic point of view (e.g. extension of thrombosis and subsequent embolization).

### References

1. Giovanna Passaro, Mauro Pittiruti, Antonio La Greca (2020) The fibroblastic sleeve, the neglected complication of venous access devices: a narrative review. *JVA*
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