

In life, there are no solutions. There are forces in motion: one must create them, and the solutions will follow.

Antoine de Saint Exupery



PICC-PORT: New management issues

Dr ROSAY

Léon Bérard center- Lyon-DAR IVTeam
France

Links of interest

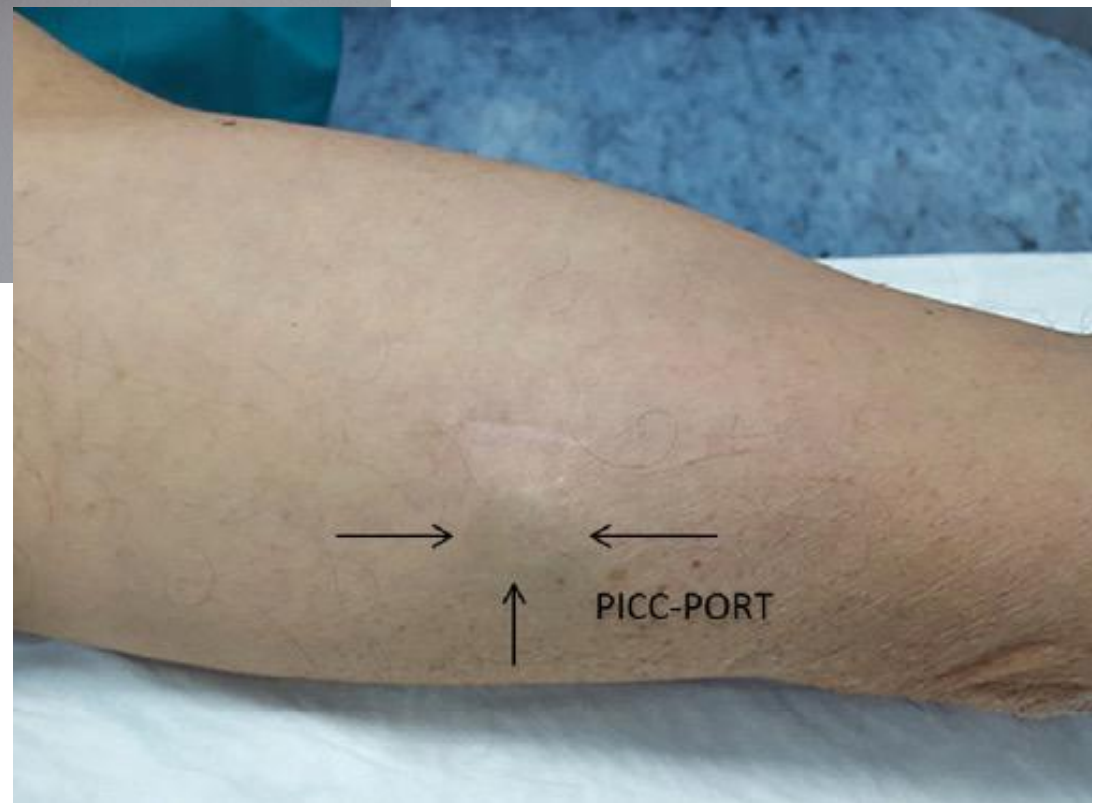
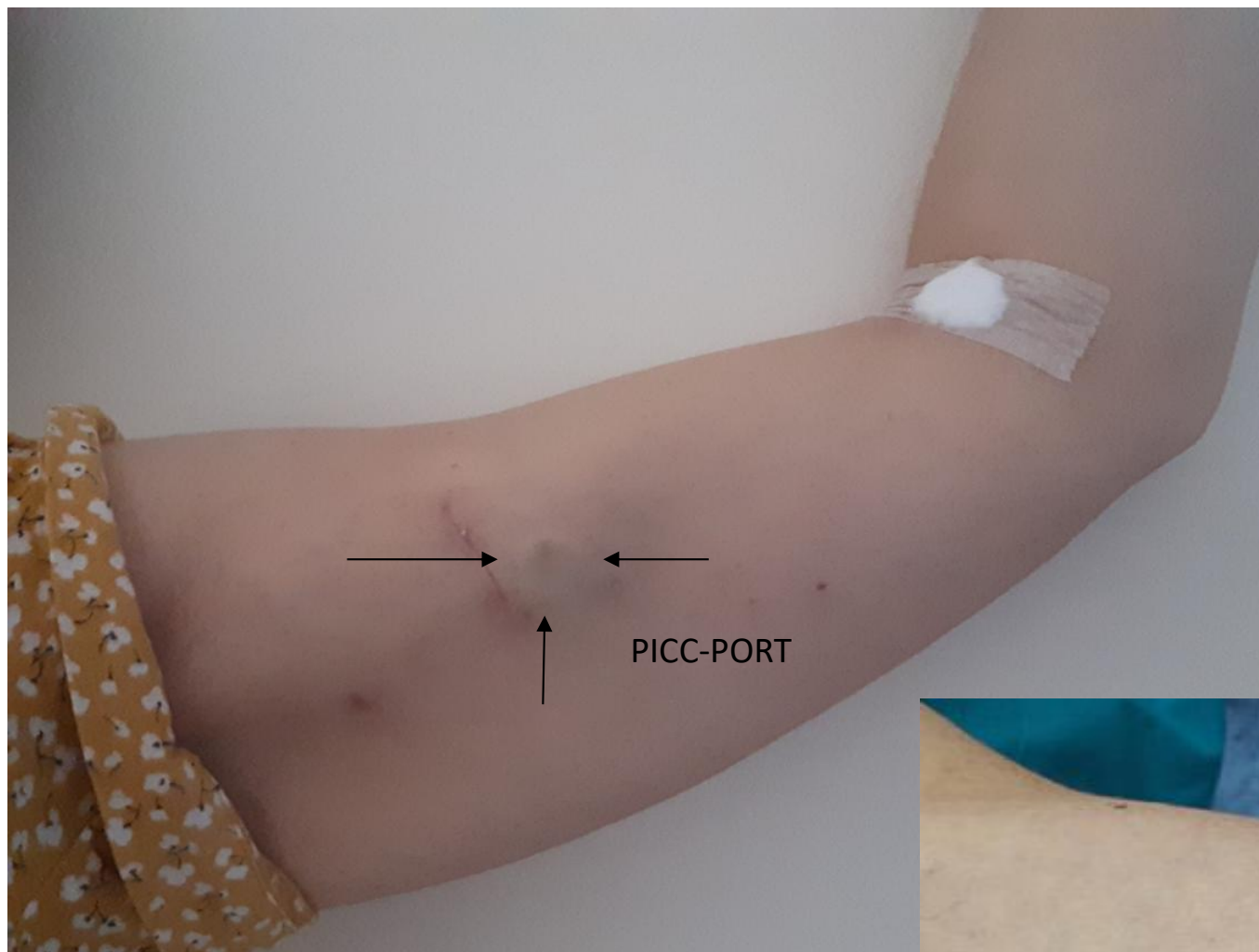


- Leon Berard Center = cancer disease center

Vygon - BD

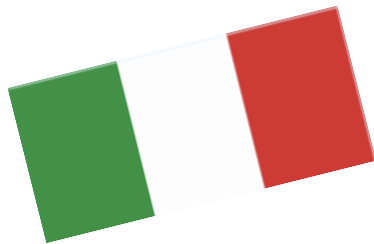
Postulate: PICC-PORT is well placed

- Percutaneous access was always performed under **ultrasound guidance** at the proximal third of the arm in the 'yellow zone' according to the PICC ZIM
- *Tourniquets were never used to stop venous flow*
- *in the upper-arm of the unaffected breast cancer body side*
- The accessed vein was always measured in order to obtain (whenever possible) a **catheter-to-vein ratio ≤ 0.33** .
- zone tip location in the **distal third of the superior vena cava**
- A subcutaneous pocket for port reservoir placement was obtained 3–5 cm distal to the vein access in the mid third of the arm with a 15–20 mm cutaneous access in the so-called **green zone**



A multicenter retrospective study on 4480 implanted PICC-ports: A GAVeCeLT project

**Sergio Bertoglio^{1,2} , Maria Giuseppina Annetta³, Fabrizio
Brescia⁴ , Alessandro Emoli⁵, Fabio Fabiani⁴, Maria Fino⁶,
Domenico Merlicco⁶, Andrea Musaro⁷, Marina Orlandi⁸, Laura
Parisella⁴, Fulvio Pinelli⁸ , Simona Reina², Valentina Selmi⁸,
Nicola Solari², Fausto Tricarico⁹ and Mauro Pittiruti¹⁰ **



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Table 2. Immediate/early adverse events (first 30 days after insertion).

	TAE		SAE	
	n	%	n	%
<u>Transient ecchymosis</u>	806	18	—	—
Symptomatic CRT	33	0.7	—	—
Local infection	24	0.5	7	0.2
CRBSI	2	0.04	1	0.02
<u>Hematoma</u>	9	0.2	1	0.02
Unpaired wound healing	10	0.2	1	0.02
Catheter occlusion	2	0.04	—	—
Chamber flip	4	0.09	—	—
Cardiac arrhythmia	3	0.07	—	—
Subcutaneous abnormal reaction	2	0.04	—	—
TOTAL	904	20.2	10	0.2

TAE: transient adverse event (i.e. not requiring removal); SAE: serious adverse event (i.e. requiring removal); CRT = catheter related thrombosis; CRBSI = catheter related bloodstream infection.

Ecchymosis



**The skin on the arm is
thin**

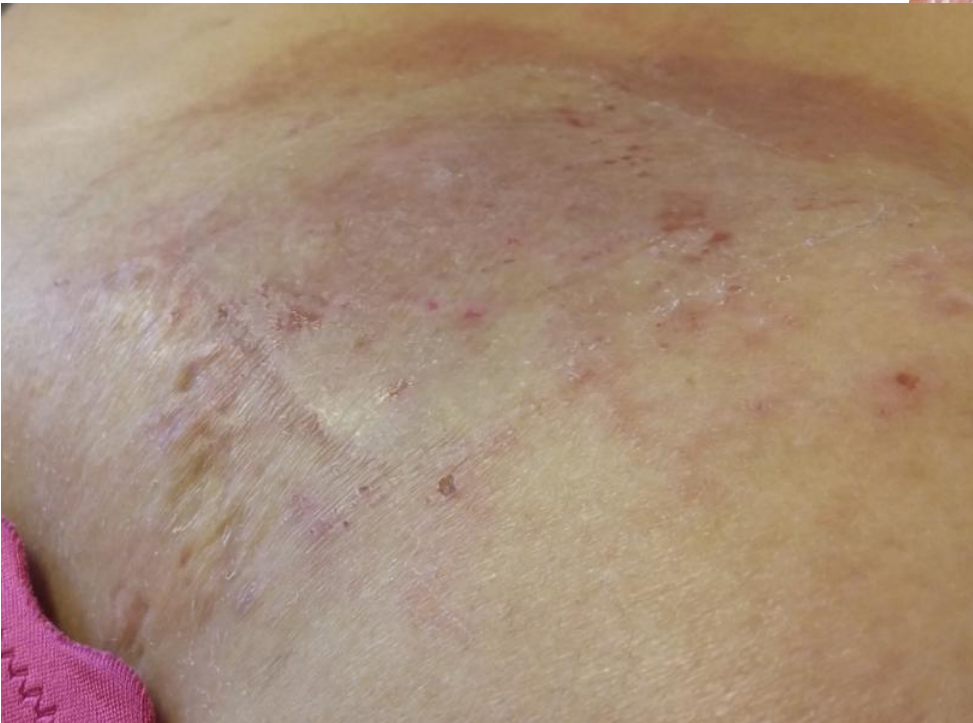
**The arm is always in
moving**

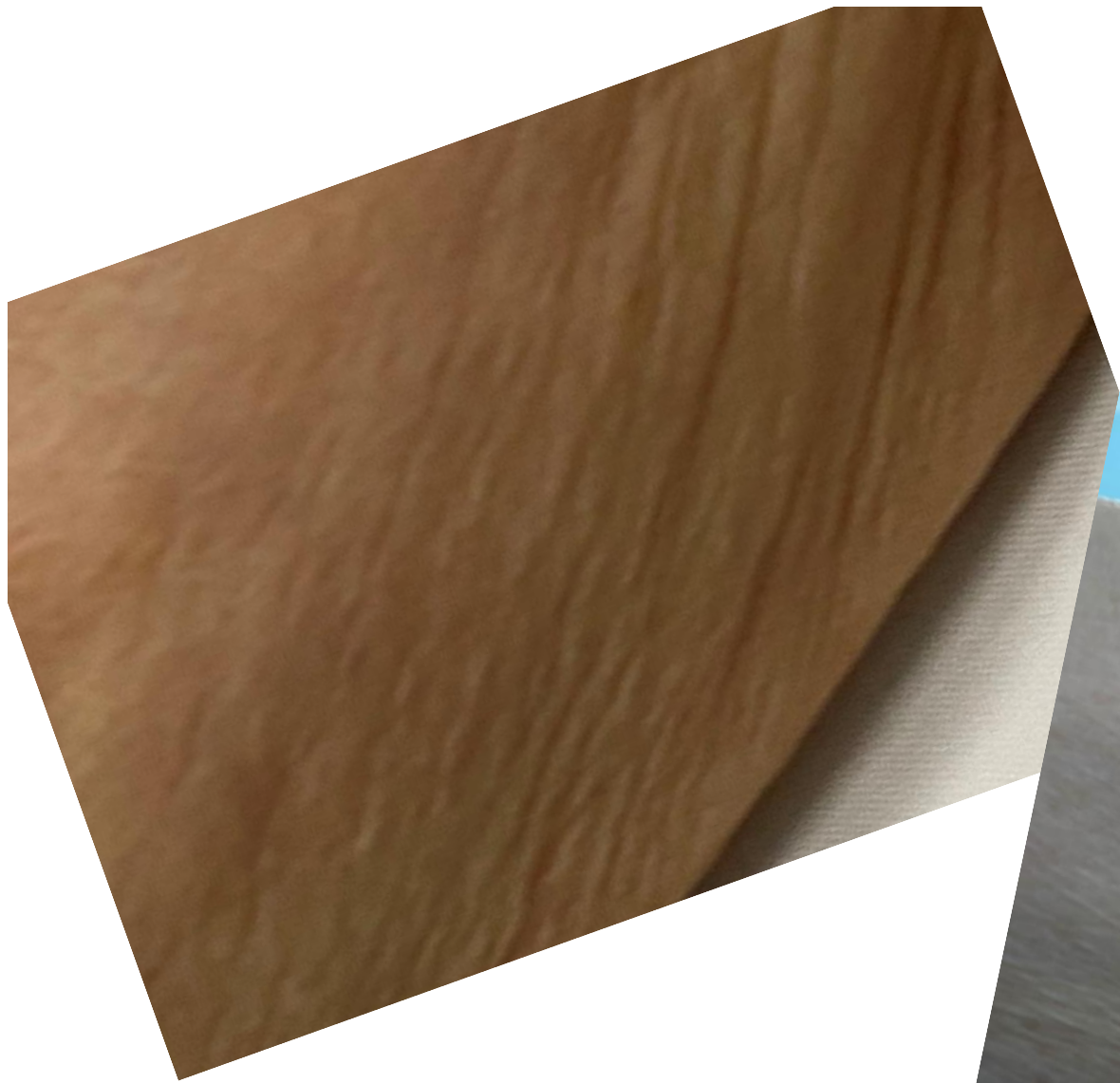
**The port on the arm is not
located on a large, stable
and immobile hard surface**

Skins are different



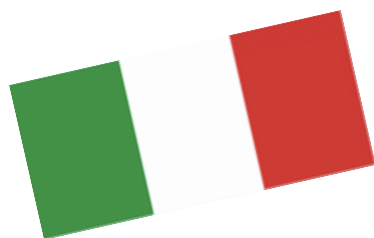
**Not the same skin, the same
trophicity**





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Domenico Merlicco⁶, Andrea Musaro⁷, Marina Orlan
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Table 3. Late adverse events (more than 30 days after insertion).

	TAE		SAE	
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Symptomatic CRT	60	1.3	1	0.02
PWO	55	0.4	—	—
Local infection	20	0.4	7	0.2
CRBSI	18	0.4	18	0.4
Skin decubitus and reservoir exposition	4	0.1	4	0.1
Catheter dislodgment with tip malposition	6	0.1	6	0.1
Catheter occlusion	4	0.1	1	0.02
Drug extravasation	5	0.1	5	0.1
Cardiac arrhythmia	4	0.1	—	—
TOTAL	176	3.9	42	0.9

TAE: transient adverse event (i.e. not requiring removal); SAE: serious adverse event (i.e. requiring removal); CRT: catheter related thrombosis; PWO: persistent withdrawal occlusion; CRBSI: catheter-related bloodstream infection.

Application and comparison of different implanted ports in malignant tumor patients

Li et al. *World Journal of Surgical Oncology* (2016) 14:251
DOI 10.1186/s12957-016-1002-6

Yanhong Li[†], Yonghua Cai[†], Xiaoqin Gan, Xinmei Ye, Jiayu Ling, Liang Kang, Junwen Ye, Xingwei Zhar
Jianwei Zhang, Yue Cai, Huabin Hu, Meijin Huang^{*} and Yanhong Deng^{*}



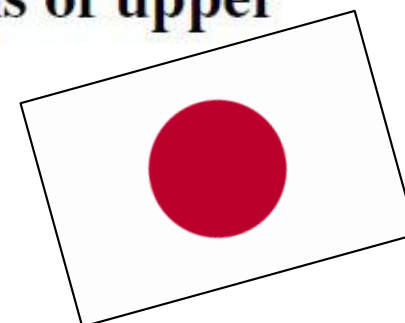
Table 3 Complications after port implantation

Complications	Upper arm vein group	Jugular vein group	Subclavian vein group	P value
<u>Foundation exposure</u>	2 (1.9)	1 (1.4)	0 (0)	0.23
<u>Seepage on foundation</u>	1 (0.9)	1 (1.4)	1 (0.6)	0.82
Thrombus	1 (0.9)	3 (4.3)	6 (3.6)	0.03
Infection	1 (0.9)	2 (2.9)	6 (3.6)	0.40
Poor transfusion	1 (0.9)	5 (7.1)	12 (7.2)	0.01
Catheter breakage	0 (0)	0 (0)	2 (1.2)	0.34
Pinch-off syndrome	0 (0)	0 (0)	3 (1.8)	0.20
Patients with pump removal	3 (2.8)	5 (7.1)	13 (7.8)	0.23

Data in parenthesis is a percentage

A retrospective analysis on the utility and complications of upper arm ports in 433 cases at a single institute

Yukiko Mori¹ · Satoshi Nagayama² · Jun-ichiro Kawamura² · Suguru Hasegawa² ·
Eiji Tanaka² · Hiroshi Okabe² · Megumi Takeuchi³ · Makoto Sonobe⁴ ·
Shigemi Matsumoto¹ · Masashi Kanai¹ · Manabu Muto¹ · Tsutomu Chiba^{1,5} ·
Yoshiharu Sakai²



Int J Clin Oncol (2016) 21:474–482
DOI 10.1007/s10147-015-0917-1

Table 2 CVP-related complications

Complications	<i>n</i>	Complication/1000 catheter days (complication rate; %)	Evulsion	Treatment for the patients without evulsion		
				Antibiotic	Anticoagulant	Observation
Catheter infection	27	0.107 (6.2)	27	0	0	0
Port infection	16	0.064 (3.7)	14	2	0	0
Thrombosis	10	0.040 (2.3)	3	0	7	0
Obstruction	10	0.040 (2.3)	9	0	0	1
Catheter dislocation	9	0.036 (2.1)	9	0	0	0
Reserver leak	5	0.020 (1.2)	4	0	0	1
<u>Skin complication (exposure)</u>	4	0.016 (1.0)	4	0	0	0
Port rotation/flip	2	0.008 (0.5)	2	0	0	0
Total	83		72	2	7	2

PICC-PORT totally implantable vascular access device in breast cancer patients undergoing chemotherapy

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Sergio Bertoglio^{1,2} , Ferdinando Cafiero², Paolo Meszaros³,
Emanuela Varaldo^{1,2}, Eva Blondeaux⁴, Chiara Molinelli⁴ and
Michele Minuto^{1,2}



	complications		due to failure	
	n	%	n	%
Catheter occlusion	3	0.7	3	0.7
PICC-PORT CRBSI	2	0.5	2	0.5
Pocket infection	4	1	4	1
<u>Skin dehiscence</u>	2	1.0	—	—
Drug extravasation	6	1.4	2	0.5
Drug leakage	2	0.5	—	—
PICC-PORT UEDVT	10	2.4	—	—
Total	29	6.9	11	2.6

CRBSI: catheter-related bloodstream infection; UEDVT: upper extremity deep vein thrombosis; PICC: peripherally inserted central catheter. Multiple complications in the same subject were counted only once.

Implanting totally implantable venous access ports in the upper arm is feasible and safe for patients with early breast cancer

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Haiping Xu*, Rui Chen*, Chaojun Jiang, Sainan You,
Qiannan Zhu, Yan Li, Shuo Li, Xiaoming Zha and Jue Wang

Table 2. Device-related complications.

Complications	No.	Complication rate per 1000 catheter-days
Immediate procedural complications	1	0.008
Arrhythmia	1	0.008
Late complications	31	0.255
Catheter-associated venous thrombosis	8	0.066
Port pocket infection	12	0.099
CRBSI	1	0.008
Catheter occlusion	5	0.041
Persistent pain	1	0.008
Catheter dislocation	4	0.033
Total	32	0.263





An adapted port

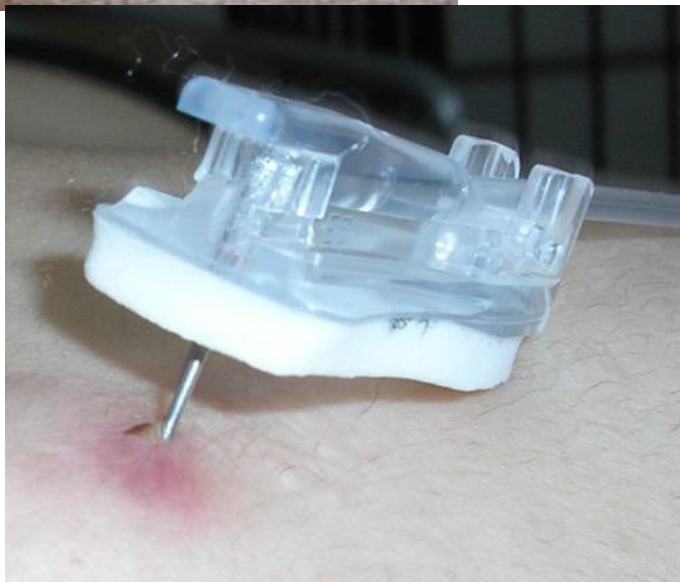
- Large septum: to avoid puncturing in the same place
- Low profil: to reduce the tension on the skin



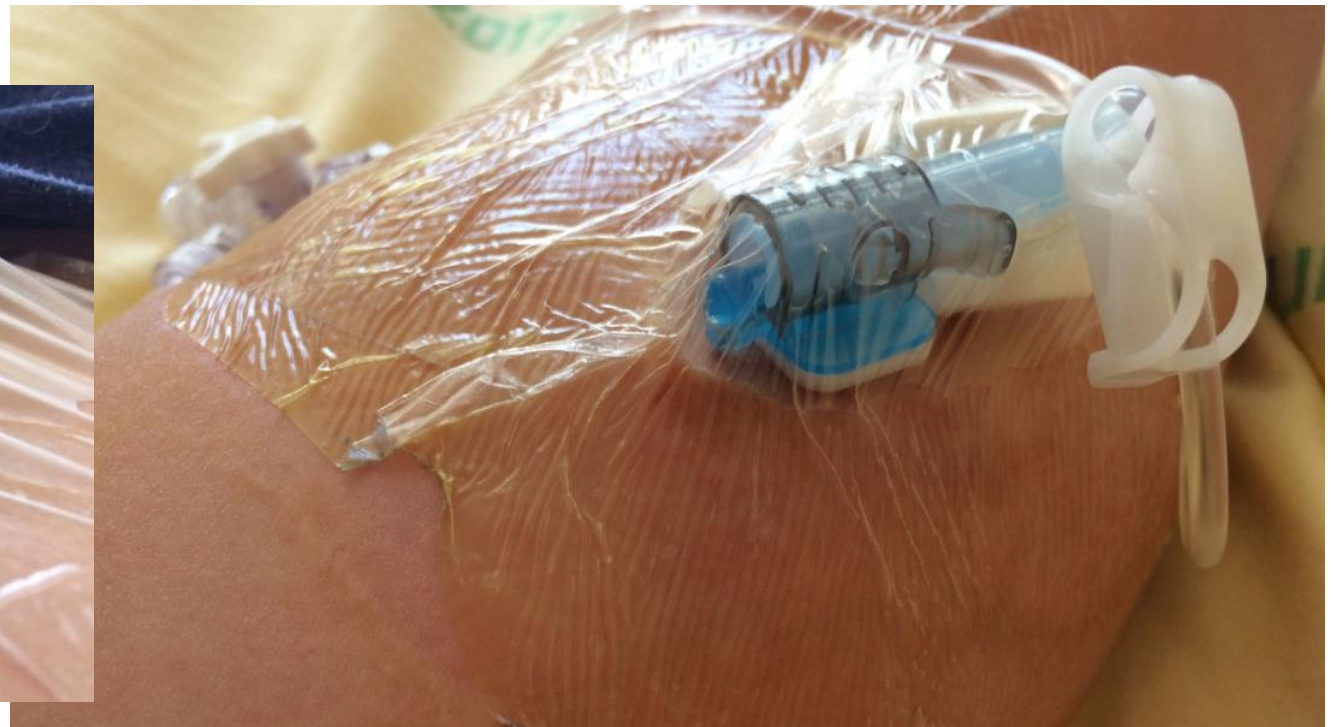
Adapted needle

Huber needle not adapted: too big, too long, too bulky

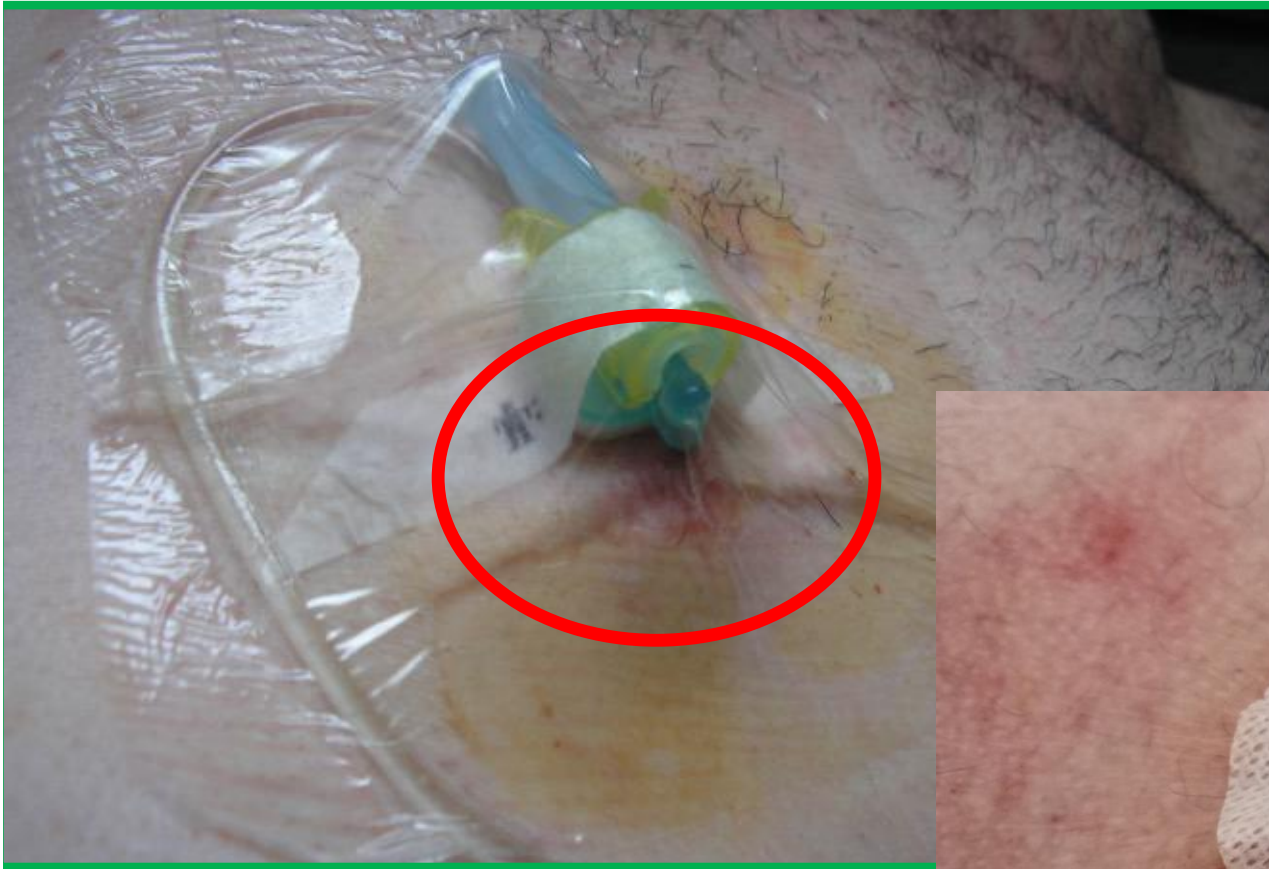




Unadapted dressing



Low profil Huber needle



High = 15 mm
Size = 20 G





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With our humble experience,
we prefer:

Short and sequential treatments such as
adjuvant breast chemotherapy

infusion 1 - 2hours,

3-6 months

- With a beautiful skin with a nice trophicity

We avoid

Long and Continuous treatments with Home infusions:

- No parenteral nutrition

- No chemotherapy lasting 3 days

- Poor skin

Sometimes choose another solution



Take home message



Conclusion

- Placement of PICC PORT must be well done
- Skin complications (exposition, extravasation) may not be uncommon.
- Good indication: Short-term hospital treatment on healthy skin
- Adapted port: slim port with large septum
- Good Huber needle: good length



Lyon: fête des lumières