L’ancoraggio sottocutaneo

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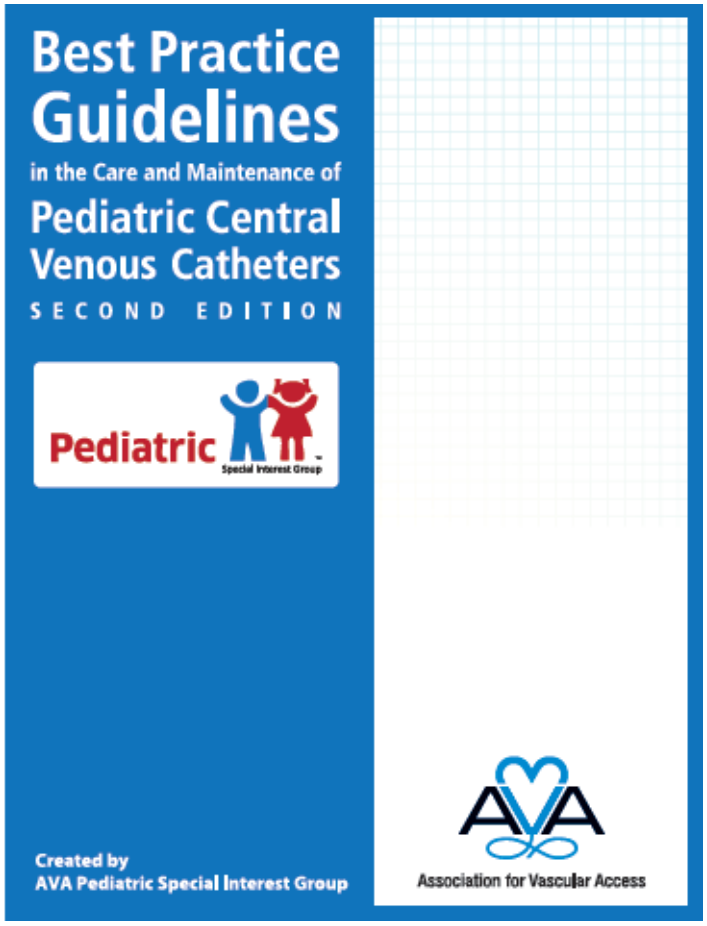
OSPEDALE PEDIATRICO

Catheter dislocation

Dislocation of tunnelled central venous catheters (CVCs) is still major complication among pediatric patients

In a study of 980 neonatal PICCs, the complication rate for CVCs with noncentral tip placement was twice that of CVCs inserted in a central vein

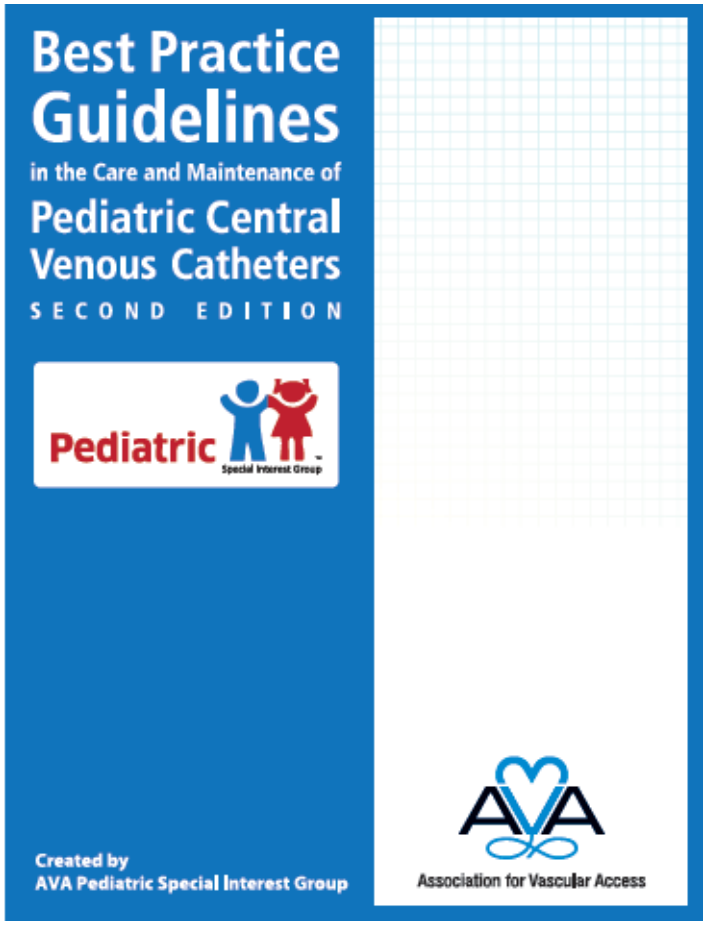


Definition

Catheter dislocation is defined as **a CVC tip that has changed or migrated** from the original catheter tip placement location.

An optimal catheter tip location for CVCs is

- **the distal one-third of the SVC**
- **the cavoatrial junction**



Symptoms

Symptoms of catheter dislodgment are related to tip malposition.

They can be may be vague or clinically significant, depending on the resultant catheter tip location.

TABLE 2 Proportions and Incidence Rates of CVAD Complications Across Device Type in Included Studies

Event and CVAD Type	Proportion of Complications					Incidence Rates of Complications per 1000 Catheter Days				
	Studies	CVADs	Outcomes	Pooled %	95% CI	Studies	Catheter Days	Outcomes	Pooled IR	95% CI
Dislodgement/migration										
All	39	9784	686	4.7[d,e,h]	3.2–6.4	23	645 611	437	0.43[d,e,g]	0.30–0.56
PICC	14	5389	389	5.4[d,e]	3.3–8.0	11	203 619	383	1.42[d,e]	0.70–2.14
Umbilical	1	140	4	2.9[e]	0.6–6.4	1	979	4	4.09[e]	0.0–8.76
Nontunneled	2	1126	91	3.5[d,f]	0.0–15.2	0	—	—	—	—
HD	3	264	14	8.8[d,e]	0.1–26.0	1	30 936	3	0.10[f]	0.00–0.23
Tunneled	8	963	89	7.0[d,e]	1.7–15.0	5	154 725	41	0.24[d,e]	0.03–0.46
Totally implanted	11	1902	99	2.0[d,e]	0.1–5.2	5	256 962	6	0.02[a,f]	0.00–0.04

Ullman, A. J., Marsh, N., Mihala, G., Cooke, M., & Rickard, C. M. (2015). Complications of Central Venous Access Devices: A Systematic Review. PEDIATRICS, 136(5), e1331–e1344. doi:10.1542/peds.2015-1507

Disposition	No. (%)
Removed	
No longer needed	1901 (73.9)
Infectious complications	112 (4.4)
Infection involving PICC	103 (4.0)
Suspected infection involving PICC	9 (0.3)
Noninfectious complications	422 (16.4)
Phlebitis	32 (1.2)
Local infiltration	77 (3.0)
Thrombosis	14 (0.5)
Leakage	38 (1.5)
Occlusion	94 (3.7)
Dislodgement	119 (4.6)
Breakage	36 (1.4)
Other	12 (0.5)
Transferred[a]	139 (5.4)

Jumani, Ketan et al. “Risk factors for peripherally inserted central venous catheter complications in children.” *JAMA pediatrics* 167 5 (2013): 429-35 .

Catheter Securement

The technique of **securing the catheter** is determined at the time of CVC insertion on the basis of type of catheter, manufacturer's recommendations, patient-specific indications, and institutional policy.

Securement techniques are critical and directly influence catheter motion, which contributes to known complications such as catheter migration and dislodgement

Catheter Securement

Inadequate stabilization and securement can cause unintentional dislodgment and complications requiring premature VAD removal

Accidental dislodgement may be caused by two different mechanism:

- **incomplete adhesion** of the Dacron cuff to the subcutaneous tunnel tissue in the early weeks after positioning
- **physical activity** of young children.

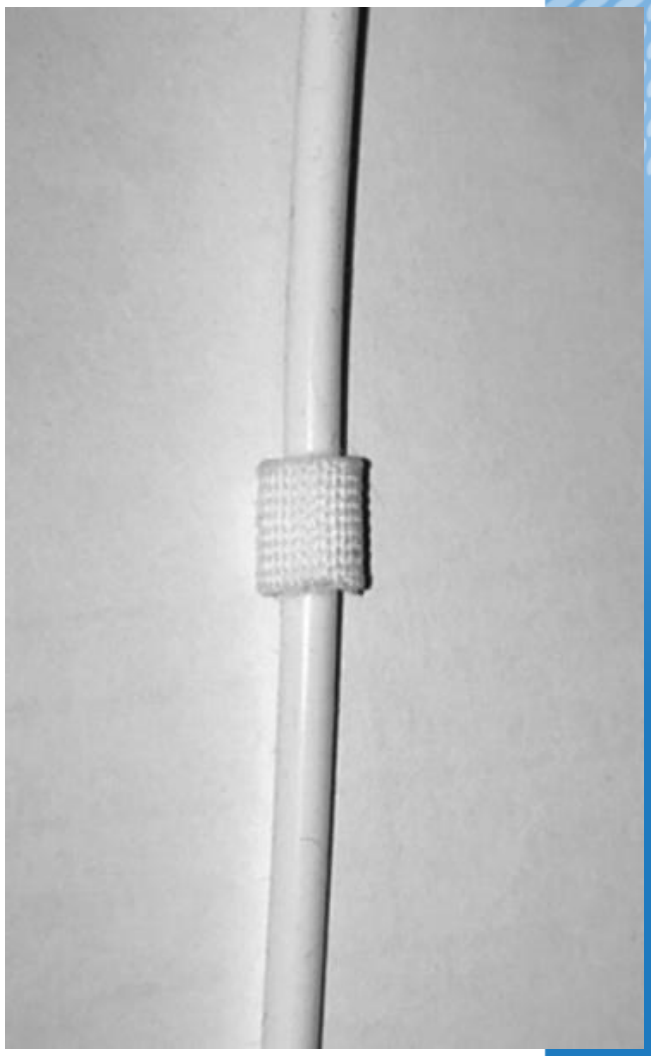
Catheter Securement…off label

Catheter Securement

The cuff, positioned approximately 1 cm within the insertion tract, becomes embedded into the tissues within weeks following insertion.

Until the cuff is fully secured, surgical glue or sutures and dressings may be used to aid securement and prevent infection.

During those early weeks, before tissues have grafted onto the cuff, the catheter is as vulnerable to dislodgement as other non-cuffed devices.



38. VASCULAR ACCESS DEVICE SECUREMENT

KEY DEFINITIONS

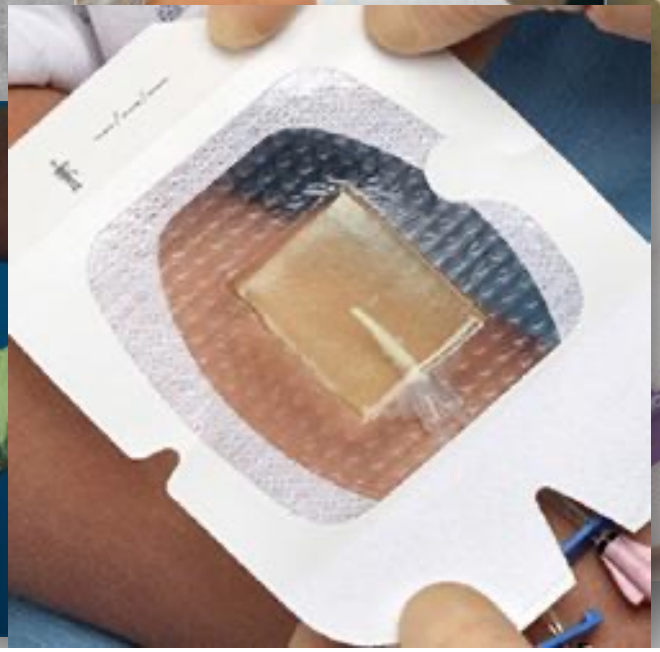
Adhesive securement device (ASD): an adhesive-backed device that adheres to the skin with a mechanism to hold the VAD in place; a separate dressing is placed over the ASD. Both the dressing and ASD must be removed and replaced at specific intervals during the VAD dwell time.

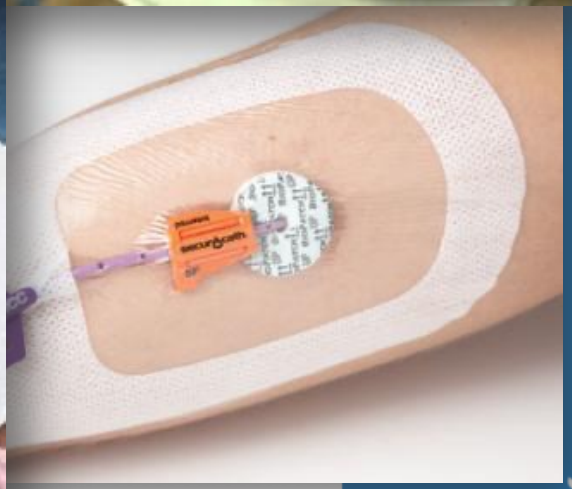
Integrated securement device (ISD): a device that combines a dressing with securement functions; includes transparent, semipermeable window and a bordered fabric collar with built-in securement technology.

Subcutaneous anchor securement system (SASS): a securement device that anchors the VAD in place via flexible feet/posts that are placed just beneath the skin; these act to stabilize the catheter right at the point of insertion. A separate dressing is placed over the SASS. The SASS does not need to be changed at regular intervals when the dressing is changed; it can remain in place if there are no associated complications.

Tissue adhesive (TA): a medical-grade cyanoacrylate glue that can seal the insertion site and temporarily bond the catheter to the skin at the point of insertion and under the catheter hub. TA should be reapplied at each dressing change.

Catheter Securement



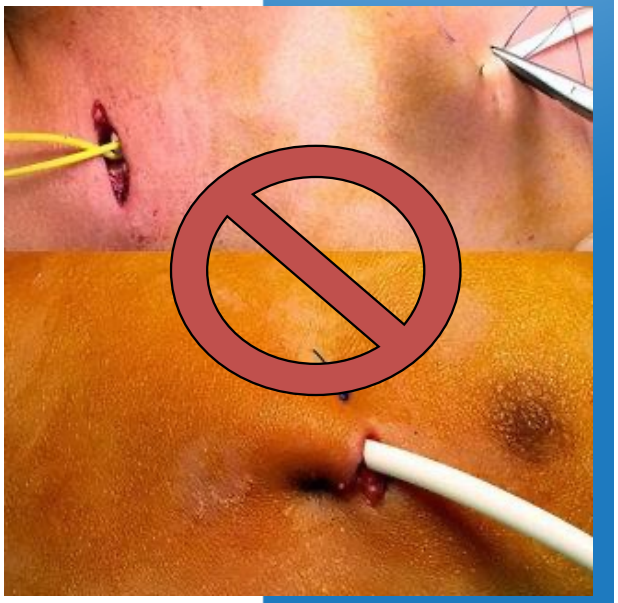


AVOID SUTURE!

Avoid use of tape or sutures, as they are not effective alternatives to an Engineered Securement Device (ESD).

Rolls of nonsterile tape can become contaminated with pathogenic bacteria, although its contribution to VAD infection has not been quantified.

Sutures are associated with needlestick injury, in addition to supporting the growth of biofilm and increasing the risk of catheter-related bloodstream infection



Catheter Securement

Adhesive sutureless securement is used with PIVC, midline, PICCs, and some chest, neck, and femoral CVADs.

The presence of skin disorders that contradict the use of medical adhesives (ie, pediatric epidermolysis bullosa, toxic epidermal necrolysis, and burns)

Catheter Securement

Sucutaneously anchored securement device – SASD

A securement device that anchors the vascular access device in place via flexible feet/posts that are placed just beneath the skin;

these act to stabilize the catheter right at the point of insertion.

A separate dressing is placed over the SASS.

The SASS does not need to be changed at regular intervals when the dressing is changed; it can remain in place if there are no associated complications.

Catheter Securement

Sucutaneously anchored securement device – SASD

Catheter Securement

Sucutaneously anchored securement device – SASD

Advantages:

- High performance → high resistance to traction
- Cost-effective
- Multitasking (spinal drainage, pig-tail drainage, chest tube…)
- Potential duration as long as catheter life
- No sedation/anesthesia needed to remove both the SASS and the catheter

Catheter Securement

Sucutaneously anchored securement device – SASD

- **TIPS & TRICKS**

Catheter Securement

Sucutaneously anchored securement device – SASD

Drawbacks:

- Need careful dressing
- Non properly «painless»
- **In children require more caution**
- Prefer not use with cuffed catheter
    - cuff + glue + SASD → high risk of cuff retention
    - Difficult removal procedure → general anesthesia/deep sedation

Catheter Securement

Sucutaneously anchored securement device – SASD

- Prefer not use with cuffed catheter

Thanks to Desireé Rubei RN

Catheter Securement

Sucutaneously anchored securement device – SASD

COMPLICATIONS

Thanks to Desireé Rubei RN

Catheter Securement

Conclusion

Available evidence suggests that SASS

- is an effective catheter securement device and is easy to insert and maintain, well tolerated and associated with a low rate of catheter-related complications
- is cost saving compared with adhesive securement devices

In children some peculiar aspects should be considered, in order to avoid **discomfort** and **complications**

THANK YOU FOR ATTENTION

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