

Outcome of Central Venous Catheter Repair in Children with Intestinal Failure

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Background:

Children with intestinal failure (IF) requiring a central venous catheter (CVC) for long term parenteral nutrition (PN) are at risk of CVC breakage and infection. Modern IF management aims to preserve vascular access sites¹. CVC repair rather than removal is hence carried out for broken catheters when possible. Data suggesting an increased risk for central line-associated bloodstream infections (CLABSIs) associated with CVC repair are limited².

Objectives:

The aim of this study was to describe outcome of CVC repairs among a cohort of children with IF dependant on home PN (HPN) and risk factors leading to catheter repair.

Material and Methods:

All paediatric patients (0-17 years) on HPN program of a specialist intestinal rehabilitation service between Jan 2019 and Nov 2020 were included in the study. Data was collected retrospectively from the clinical notes. Risk factors associated with catheter breakage and incidence of CLABSIs post repair were documented. Descriptive statistics including medians, percentages and frequencies were used.

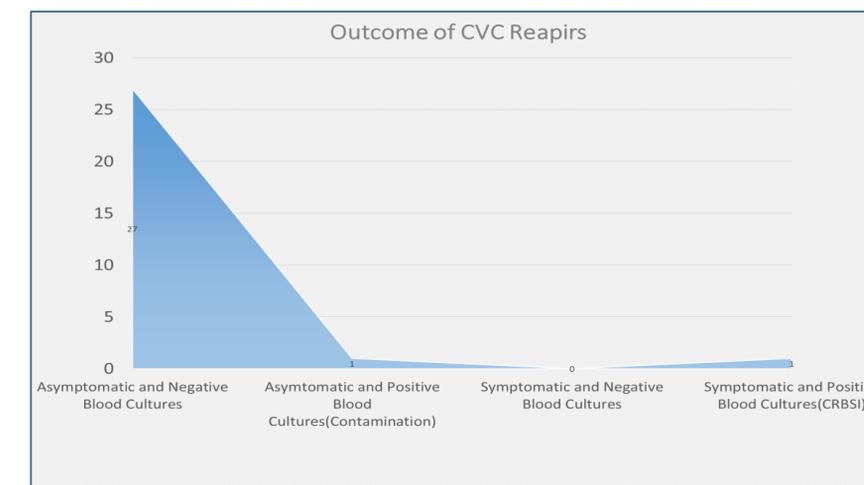
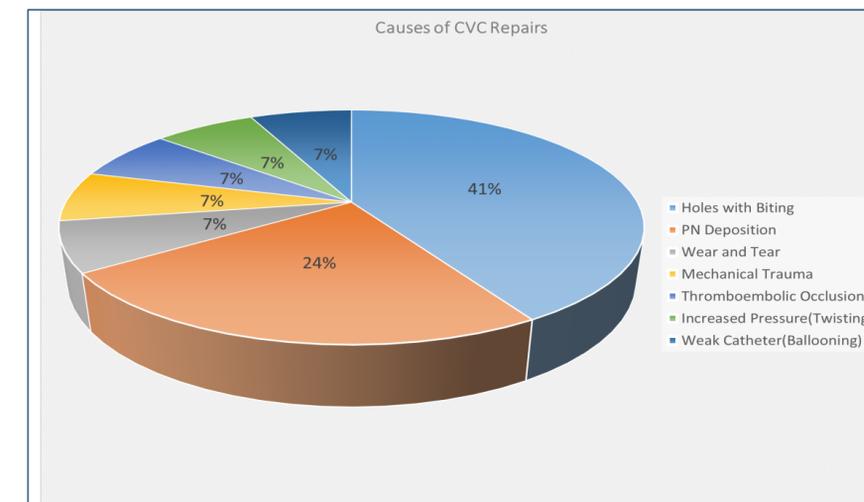
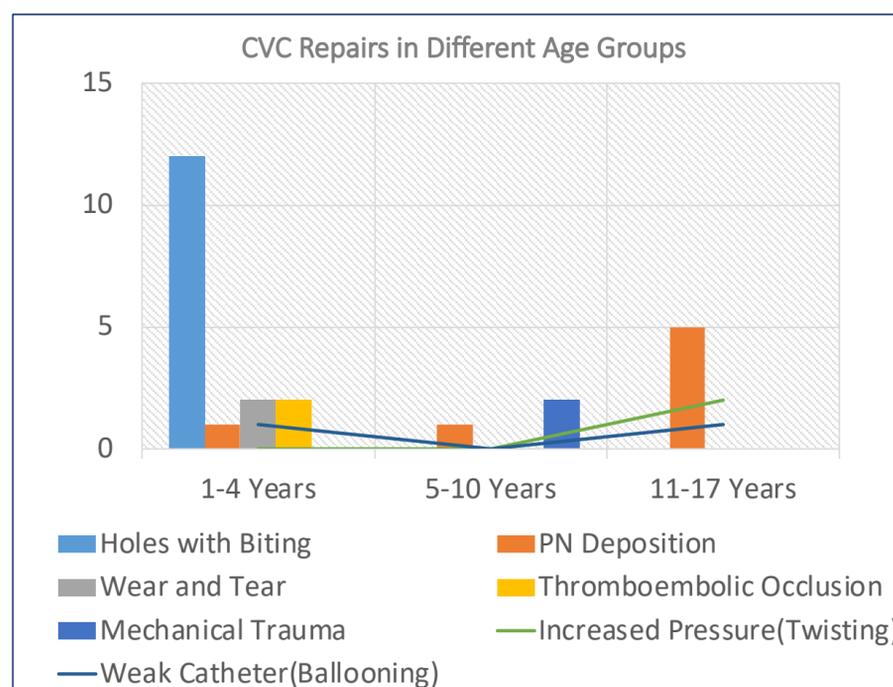
Results

- 40 children 1 to 17 years , 15 males (37%) and 25 females (63%) were included.
- 15/40 (37.5%) patients, 8 girls (53%) underwent total of 29 CVC repairs.
- Mean 0.36 repairs per patient per year.
- The highest number of repairs occurred in patients under 5 years of age (n=8/15; 53 %; 33% females).
- Around half of the patients 53.3% (n=8/15) underwent >2 repairs including one patient with 3 and another with 5 repairs

- Median time between two repairs was 6 months.
- The most common reason for repair was CVC fracture caused by biting (41%)
- 2nd most common reason of repair was total catheter occlusion with intraluminal PN deposition (24%).
- Repair was successful in 100% cases with none requiring CVC replacement.
- Blood cultures (BC) taken post CVC repair were negative in the majority of cases (27/29; 93%).
- 1 child had a positive CVC culture taken pre repair but negative BC post repair - contamination.
- 1 patient had a confirmed CLABSI post repair, who presented late 3 days after the initial catheter breakage - catheter salvage was successful with antibiotic therapy.

	0-4 Years	5-10 Years	11-17 Years
Total Patients (n=15/40)	8(53%)	2(13.3%)	5(33%)
Total Repairs (n=29)	18(62%)	3 (10.3%)	8(27.5%)

Mean 0.36 repairs per patient per year.



Conclusion:

- In our cohort of home PN dependant IF patients infection rate after CVC repair was minimal.
- CVC repair rather than removal is recommended to preserve central venous access sites and reduce the need for general anaesthesia.
- Support from a central vascular access team skilled in catheter repair is essential.

References:

1. J Pediatr Surg. 2019 Mar; 54(3):517-520. doi: 10.1016/j.jpedsurg. 2018.06.006. Epub 2018 Jun 9. Central venous catheter repair is highly successful in children with intestinal failure
2. J Pediatr Surg. 2019 Jan; 54(1):165-169. doi: 10.1016/j.jpedsurg. 2018.10.023. Epub 2018 Oct 5. Fractured paediatric central venous catheters - Repair or replace?