

External fracture of tunnelled cuffed central venous catheters due to *mechanical stress* in paediatric oncology patients: a case series and quality improvement initiative

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01 WHY THIS MATTERS

When a long-term central line fails, the problem is not just the catheter.

The local evidence gap

Broviac programmes remain relatively limited in Pakistan, with little published local experience of mechanical catheter complications.¹

The clinical stakes

Catheter failure can compromise essential treatment, necessitate urgent replacement and expose vulnerable children to additional procedures and anaesthesia.

The reason to report

Two fractures within three weeks were an opportunity to turn individual adverse events into shared learning and contribute local data to a limited evidence base.

02 CASE SERIES & REMOVED CATHETERS

CASE 1 · DAY 40

8 y, 33 kg · ALL on blinatumomab

LIKELY TRIGGER
Clamping outside designated zones

MANAGEMENT
Removal + re-insertion (2 GAs)

1 Removed catheter

2 Fracture distal to clamp

3 Full-thickness breach

CASE 2 · DAY 12

5 y, 17 kg · ALL, allogeneic BMT

LIKELY TRIGGER
Heavy access; forced flush

MANAGEMENT
Emergency replacement next day

4a Fracture near hub

4b Hub-junction crack

4c Fatigue-type crack

03 QUALITY IMPROVEMENT RESPONSE

- IDENTIFIED** Two catheter fractures flagged by the Anaesthesia team and reviewed as a case series.
- EDUCATED** Targeted educational session conducted for paediatric nursing staff caring for long-term CVCs.
- FOLLOW-UP** Nursing Department encouraged to conduct internal audits of line handling, securement and catheter-care practices.

04 RECOMMENDATIONS

- ✓ Structured nursing training
- ✓ Bedside catheter-care protocols
- ✓ Repair kits with staff training²

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TAKE-HOME MESSAGE

External Broviac fracture is a potentially preventable mechanical complication; recognising stress-prone sites and reinforcing safe handling may prevent line failure and additional procedures.

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¹Dogar SA, Khan MA. J Pak Med Assoc. 2013 ²Wouters Y et al. Clin Nutr. 2019 ALL, acute lymphoblastic leukaemia; BMT, bone marrow transplant; GA, general anaesthesia; CVC, central venous catheter. No conflicts of interest. No specific funding received.