Clinical Audit

An audit on chemoport-related complications

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Background

An implantable venous access device used for long-term chemotherapy and other infusions, offering patients a more comfortable and consistent access point than repeated venipuncture. Inserted under the skin, connected to a central vein. Made from a silicone bubble, appearing as a small bump.

Portal made of special self-sealing silicone for repeated punctures. Designed for a very low risk of infection in term chemotherapy. It should be inserted under the skin, connected to a central vein. This paper provides a comprehensive analysis of chemo port insertions and removals performed from 2018–2025, tracking procedural changes, complications, and outcomes.

Keywords: Huber Needle Chemo Port; Pneumothorax; Push-Pass technique

1. Introduction

1.1. Instrument Design

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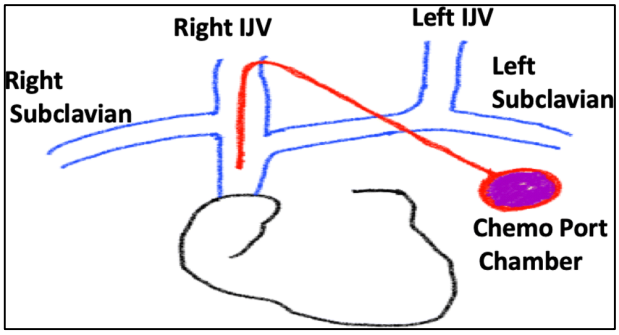


Figure illustrates the design and Insertion

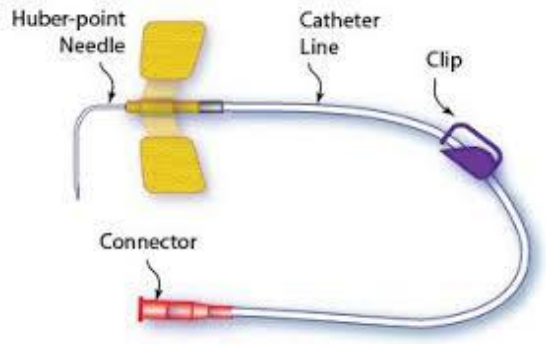
1.2. About the Instrument

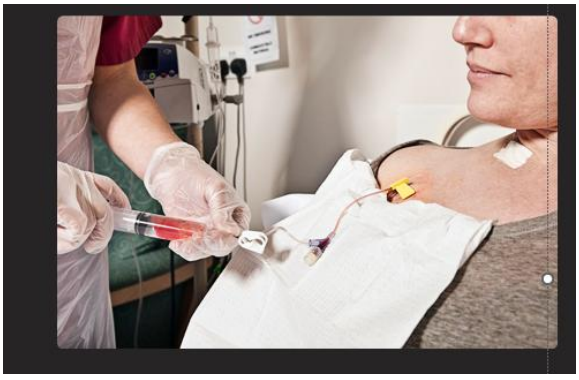
Single Lumen: Most common, provides one access channel.

Double Lumen: Offers two separate access channels for simultaneous infusions, if needed.

Key Tool: The Huber Needle

This non-coring needle is specifically designed to access the port septum without damaging the silicone, preserving its integrity for long-term use.





2. Study Design

Chemo Port Analysis Report (2018–2025)

Method: Retrospective analysis

Year: 2018 to 2025

Data retrieved from: Electronic Database

2.1. Chemo Port Insertion Statistics

Total number of chemo port insertions: 46

- **2018-2021**: Cephalic vein approach used for insertions
- **2022-Present**: Internal Jugular Vein (IJV) approach implemented

2.2. Chemo Port Removal Analysis

Total number of chemo port removals performed: 24

17 Complete Cases - Total complete chemo port insertion & removal in our facility

7 Removal Only - Only chemo port removal (insertion done outside)

- 1 - Patient had catheter thrombosis
- 6 - Patients were removed after the chemotherapy

3. Data Analysis

For analysis purpose complete cases were taken (n=17)

Out of 17 cases, 6 cases were removed without completing chemotherapy due to complication.

4. Complications

4.1. Infection Cases

- Possible cases of infection in OT: 2 (10 days and 15 days)
- Catheter related blood stream infection (CRBSI/CLABSI)

4.2. Other Issues

Other 4 cases possibly due to handling

- 1 with malrotation (CV) at 2 nd month
- 1 with thrombosis (CV) at 4th month
- Other 2 were local infection

5. Approach Evolution

Transition from cephalic vein (2018–2021) to Internal Jugular Vein (2022–Present) demonstrates procedural advancement and easy adaptation. Even though reduced the complication of malrotation and thrombosis infection rates were higher. Rate was 23.5% which was high compared to literature

5.1. Protocol formation - 2024

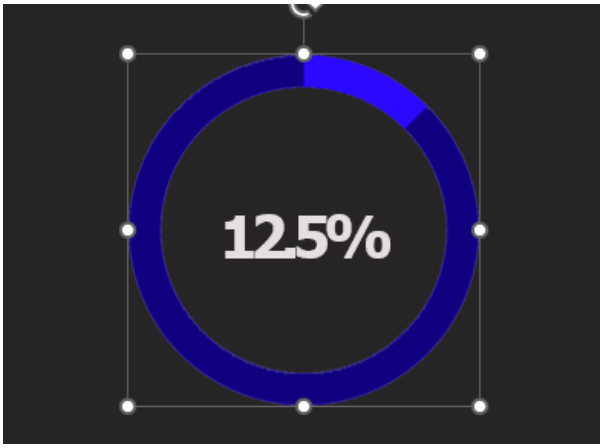
1. Cases should be posted in non-infected case OTs (theatre 1 and 5)
2. Should be posted as 1st case
3. Disposable draping with opposite

4. IV Augmentin and oral antibiotics continued for 3 days
5. Sterile drapes over the c arm
6. Inj. Vancomycin if neutropenic
7. Autoclaved OT dresses
8. Educating the staff nurse and patients about the handling

5.2. Post-Protocol Performance

Out of 16 total insertions post-protocol implementation.

- Only 2 infections(local)
- No malrotation
- No thrombosis



Following the strict implementation of the new insertion protocol in 2024, significant improvements in patient outcomes have been observed. Complication rate reduced from 23.5% to 12.5%.

6. Discussion

Definitely chemo port has advantage over the normal IV line access

Literature review classifies complication associated with chemo port as early vs late

Early (insertion related)	**Late (device related)**
Pneumothorax (0–56%)	Infective CRBSI 0–6 to 27%
Arterial puncture (3%)	Thrombotic 2–26%
Hemothorax ,arrhythmia	Mechanical occlusion0.8–5%
	Pocket issues: infection, skin erosion, hematoma

Over all any complication rate **7–12 %**

Device removal complication rate is **5–10 %**

Our audit showed device removal complication rate was **12.5%**

6.1. Reasons are multifactorial

- Breech in protocol adherence inside theatre
- Handling of port during chemo infusion
- Patients factors

6.2. Must be strong on these things

Flushing	**Dressing**
Flushing Protocol • Flush with 10-20 ml of normal saline. • Utilize the push-pause technique for optimal lumen clearance. • Add heparin 100U/ml if the port is not used weekly (as per hospital policy). • Frequency: Flush every 4 weeks if the port remains idle.	Dressing & Site Care • Change dressing every 7 days or immediately if soiled, loose, or damp. • Use Chlorhexidine for antisepsis during dressing changes. • Apply a transparent semi-permeable dressing to allow.

6.3. Patient Education: Empowering Self-Care

- Maintain sterile dressing for 24 hr (if no drainage). Change daily or as needed.
- Keep transplant dressing until wound healing is complete.
- Notify physician immediately for any complications: pain, fever, swelling, or unusual symptoms.

7. Conclusion

With all these steps we can further reduce our complication rate and meet the world standard soon.