



PROACTIVE CHEST TUBE MANAGEMENT

FOR ENHANCED RECOVERY AFTER LUNG SURGERY (ERAS) IN 1 MINUTE

- Facilitate Recovery
- Reduce Length of Stay
- Improve Patient Comfort

Evidence-based approach

RECOMMENDATIONS WERE DEVELOPED COVERING TOPICS IN THE ENTIRE PATIENT JOURNEY FROM REFERRAL TO DISCHARGE:

ERAS® Society & ESTS¹ Lung Surgery Guidelines

Preadmission	Preoperative	Perioperative	Postoperative
<ul style="list-style-type: none"> — Information, education and counselling — Perioperative nutrition — Smoking cessation and alcohol dependency management — Anaemia management — Pulmonary rehab. and prehab. 	<ul style="list-style-type: none"> — Preoperative fasting and carbohydrate treatment — Pre-anaesthetic medication 	<ul style="list-style-type: none"> — VTE prophylaxis — Antibiotic prophylaxis and skin prep. — Temperature control — Anaesthetic protocol — Fluid management — AF prevention — MIS 	<ul style="list-style-type: none"> — Chest drain management — Urinary drainage — Early mobilization and adjuncts to physiotherapy



PAIN, IMMOBILITY & SIDE EFFECTS

The goals of early mobilization and opioid-sparing analgesia are more readily achieved once chest tubes have been removed.² **Tim Batchelor**

! MANAGEMENT OF CHEST TUBES REMAINS A CRITICAL ASPECT in the postoperative course influencing the recovery phase and hospital stay.¹

Focus on proactive chest tube management

According to ERAS principles, chest tube management should be approached in an evidence-based way **and conservative removal strategies abandoned.**²

1

The routine application of external [wall] suction should be avoided.¹

The question of whether external suction or its absence has a beneficial effect on clinical outcomes has been the subject of several systematic reviews and clinical guidelines.¹

However, **regulated suction** [as provided by digital devices] reduced the chest tube duration by 1.1 days and the length of hospital stay by 1 day after lobectomy.³



2

A single tube should be used instead of 2 after a routine anatomical lung resection.¹

Chest tubes are painful and inhibit respiratory function. Traditionally, thoracic surgeons have used two chest tubes to drain the pleural space after lobectomy¹.



The **use of a single chest tube** is associated with **less pain** and **reduced chest tube duration** without increasing the risk of recurrent effusion.^{4,5,6}

3

Chest tubes can be removed safely even if the daily serous effusion is of high volume (up to 450 ml/24 h).¹

The **amount of pleural fluid** output observed daily influences the timing of chest tube removal.¹



Studies have shown that more aggressive chest drain removal is safe.^{7,8}



CHEST DRAINS & LENGTH OF STAY

A detailed analysis identified the duration of chest drain as the single most important determinant of length of stay.⁹

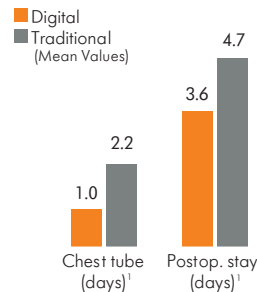
Eric Lim

4

Digital drainage systems favour early patient mobilization and objectively quantify the volume of air leak.¹

The ability to store information and display trends in air leak over time allows **more informed decision-making** about chest tube removal and **reduces inter-observer and clinical practice variability**.¹⁰

Both **chest tube duration and length of hospital stay** were found to be **shorter [with Thopaz+]** after lung resection.³



DIGITAL DRAINAGE

Digital drainage systems are light, compact and mobile.

The built-in suction pump favors **early patient mobilization**.¹²



! Since **wall suction limits patient mobility**, its routine application should be avoided.²

Higher levels of **patient satisfaction** [with Thopaz+] paralleled the objective clinical benefits.³

DRAINS & PATIENT SATISFACTION

We found that patients managed with the electronic device Thopaz+ had a more positive perception of the chest drainage system, in particular related to its comfort, portability, and convenience for personnel and patients compared with those managed with the traditional device.³

REFERENCES: 1 Batchelor TJP, et al. Eur J Cardiothorac Surg 2018;doi:10.1093/ejcts/ezy301. 2 Batchelor TJP, J Thorac Dis 2023;15(2):901-908. 3 Pompili C et al. Ann Thorac Surg 2014;98(2):490-6. 4 Alex J, et al. Ann Thorac Surg 2003;76:1046-9. 5 Gómez-Caro A, et al. Eur J Cardiothorac Surg 2006;29:562-6. 6 Okur E, et al. Eur J Cardiothorac Surg 2009;35:32-5. 7 Cerfolio RJ, et al. J Thorac Cardiovasc Surg 2008;135:269-73. 8 Bjerregaard LS, et al. Eur J Cardiothorac Surg 2014;45:241-6. 9 Lim E, J Thorac Cardiovasc Surg 2018;155:1853-4. 10 McGuire AL, et al. Interact Cardiovasc Thorac Surg. 2015; 1-5. 11 Pompili C et al. Interact Cardiovasc Thorac Surg 2011; 13(5):490-3. 12 National Institute for Health and Care Excellence (2018) Thopaz- portable digital system for managing chest drains [Medical technologies guidance [MTG37]]. Updated 2022. 13 Rathinam S et al. J Cardiothorac Surg 2011;6:59. 14 Cooke DT et al. Thorac Surg Clin 2013;23:17-24. 15 Edlich R et al. The American Journal of Surgery 1985; (149):295-298.

Improving outcomes and streamlining care – clinically proven

THOPAZ+ DIGITAL CHEST DRAINAGE AND MONITORING SYSTEM*

Thopaz+ is a light, compact device with silent, built-in suction pump, so does not need to be attached to wall suction. The sensor measurements allow for objective quantification of air leak and fluid drainage.

- Improves inter-observer agreement due to precise air leak monitoring^{10,13}
- Allows for definition of evidence-based protocols
- Favors early patient mobilization¹
- Reduces chest tube duration^{3,11,13}
- Provides higher patient satisfaction^{3,13}
- Shortens hospital stays^{3,11,12}
- Reduces hospital costs^{11,12}

*Monitoring of fluid drainage, air leak and pressure



THE INNOVATIVE CLOTSTOP® CATHETER**:

The unique silicone drains are designed to defeat clot build-up yet remain soft and pliable. The ClotStop® coating encourages continuous flow and easy, gentle removal.

- Promotes patient comfort with a soft material enables the patient to move freely.¹⁴
- Helps to minimize the risk of clot formation and thus preventing occlusion of the catheter.¹⁵
- Extensive portfolio of chest tubes, from small to large, thoracic to mediastinal.



Medela AG
Lättichstrasse 4b,
6340 Baar,
Switzerland
www.medela.com

CE 0123

**Axiom Medical Inc.
19320 Van Ness Ave.,
Torrance,
CA 90501
www.axiommed.com

CE 0413