

Transferable surgical skill for safer chest drain removal practice by nurses in the thoracic ward

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Background: There is limited evidence in the available literature about fluid leakage or air leakage following knot tying after chest drain removal. In the current practice, there are cases where re-suturing of the drain site is often required as knot, which is tied in conventional method, tends to slip. This study aims to assess the association of air leaks with post chest drain knotty method and to improve the knot tying method in chest drain removal.

Methods: This is an observational study conducted at the cardiothoracic centre, Golden Jubilee National Hospital, Glasgow throughout June and July 2022. Patients with chest drain postoperatively were recruited within these 2 months. Only full-time nurses in the thoracic ward were included in this study. This study excluded drain sites not sutured in purse string postoperatively. A survey was distributed to the recruited nurses before and after training to check the confidence level of their knot-tying method in comparison with the surgical knotty method. The presence of air leaks and fluid leaks were checked at the drain site pre- and post-chest drain removal at 1-hour and 4-hour interval. Chest X-ray results as per the radiologist's report on the PAC system were used to determine the presence of pneumothorax and the increase in the size of pneumothorax.

Results: There were 12 patients (mean age=59.6 years old) with 10 nurses recruited in the first stage and 5 patients

(mean age=62.8 years old) with 5 nurses in the second stage. Confidence level in nurses after the intervention was seen to have a slight decrease from 8.8 to 8.2. In the first cycle, 42% of patients had residual pneumothorax visible on chest X-ray before chest drain removal. In terms of post-chest drain removal, a repeat chest X-ray showed 25 % of patients with persistent residual pneumothorax, while 17 % of patients were found to have increased air space or pneumothorax. In the second cycle, 60% of patients were found to have residual pneumothorax in pre-chest drain removal with no further increase in pneumothorax after post-drain removal.

Conclusion: This study found that the surgical knot-tying method is associated with reduced air leak or recurrent pneumothorax in post-operative chest drain removal in comparison to the conventional knot-tying method.

Biography

My name is Paul Van Siang Lian Mang, currently a foundation year 2 doctor working at the GP placement in Glasgow, Scotland. I am originally from Yangon, Myanmar. My journey in medicine began with pursuing pre-clinical year at International Medical University in Malaysia and continued my clinical year at the University of Glasgow from where I graduated with MBChB in 2021. Additionally, I have B.Sc in Biomedical Science (Hons) with a psychology minor before joining medical school.

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