Effectiveness and Safety of Small-Bore Intercostal Catheters Versus Large-Bore Chest Tubes for Free-Flowing Malignant Pleural Effusions at Ospital ng Makati

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ABSTRACT

Introduction: Malignant pleural effusion (MPE), a common complication of advanced malignancies, frequently necessitates drainage to alleviate symptoms and improve quality of life. However, the optimal size and type of pleural drain continues to be a subject of debate. This retrospective cohort study evaluated the effectiveness and complications of small-bore intercostal catheters (SBICs, ≤14 Fr) versus large-bore chest tubes (LBCTs, >20 Fr) in managing suspected and confirmed MPEs at Ospital ng Makati.

Methods: Patients with suspected and confirmed MPEs who underwent pleural drainage between January 2020 and December 2022 were divided into SBIC and LBCT groups based on the chest drain inserted. Demographic characteristics, complications (surgical site infection, pneumothorax, and dislodgement), and reintervention rates (tube reinsertion or additional procedures) were compared. Statistical analysis using Pearson Chi-Square tests assessed significant differences between groups.

Results: Patients managed with SBICs showed better tolerance, with no significant differences in complications between groups ($p > 0.05$). SBICs were associated with comparable reintervention rates to LBCTs (20.9% vs. 13.3%, $p = 0.400$). Majority of reinterventions were drain reinsertions, and although there were slightly more reinsertions for SBICs than for LBCTs, the difference was not statistically significant. Demographically, known malignancy correlated with SBIC insertion, while a history of pulmonary tuberculosis inclined towards LBCT use. No significant differences were observed in terms of infection, pneumothorax, or dislodgement rates. However, LBCTs remained essential for draining viscous pleural collections.

Conclusion: SBICs demonstrated equivalent safety and efficacy compared to LBCTs, aligning with guidelines favoring patient comfort. LBCTs remain crucial for specific conditions, such as empyema or highly viscous effusions. Future prospective studies with larger samples are recommended to refine indications for each catheter type and optimize patient-centric care.

Keywords*: Malignant pleural effusion, small-bore intercostal catheters, large-bore chest tubes*