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Individual Research Project Presentations Day 10th June 2024, Kent and Medway Medical School.

How have chest drainage practices evolved since the time of Hippocrates? A social historical review.

Student:^a Abdullah Khaiyam | **Supervisor(s):**^b Dr Claire Parkin

Abstract

Background: Chest drainage is a life-saving procedure used to remove fluid or air from the pleural space. Hippocrates initially described this procedure, where he used a hollow tin drain to treat a patient with empyema. A literature review revealed that contemporary discussions around chest drainage focused more on its indications and complications, with less emphasis on its origin. This study sought to explore how history shaped modern practice of chest drainage, with focus on key developments and the individuals involved, over a period of four thousand years.

Methods: The nature of this study was qualitative social historical review. A diverse body of resources was accessed, including books, journal articles, website articles, guidelines and academic reports. These primary and secondary sources were thematically examined, and recurring ideas and patterns were identified. A chronological approach was taken, and the data was sorted into three overarching themes: pre-17th century, 18th-20th century, and modern-day. Within these major themes, developments in chest drainage practice, technique, or equipment were explored.

Results: Many developments were found. Key accomplishments include needle aspiration, closed underwater-seal systems, suction, and standardisation of chest tube sizes. Early debates about chest drainage centred on wound treatment and various types of chest tubes. As medicine advanced, fundamental principles such as negative intra-pleural pressure and siphon drainage were established, improving safety and efficiency. Yet, chest drainage was not generally adopted until the 20th century, when it gained popularity owing to its usage in World Wars and the influenza epidemic.

Conclusions: Chest drainage has undergone significant change since the time of Hippocrates. The necessity to drain undesirable fluid/air remains, but different modes of drainage now exist, and are practiced. Further research could concentrate on adapting chest drainage for disease-specific factors, or how guidelines for management of pleural disease have changed in recent years.

Keywords: Thoracic Drainage | Chest Drains | Thoracostomy | Hippocrates |

^a 4th Year Medical Student, Kent and Medway Medical School, Canterbury, United Kingdom

^b Associate Professor in Medical Education, Kent and Medway Medical School, Canterbury, United Kingdom

Main contact email: a.khaiyam983@kmms.ac.uk