

Changes in pleural fluid output and pleural opacification on CXR following treatment are shown in Table 1.

In one patient treatment was discontinued after 1 dose due to a non-functioning drain and in one patient treatment was discontinued after the fifth dose due to heavy blood staining of the pleural fluid. There were no other treatment related complications. Only one patient required cardiothoracic intervention and all patients were discharged home.

Conclusions In keeping with the MIST2 trial, these data suggest that intrapleural tPA/DNase can safely be used to treat pleural infection. In this selected group of patients that failed to respond to conventional medical management tPA/DNase treatment led to further fluid drainage with an associated reduction in pleural opacification and a low requirement for cardiothoracic intervention.

Abstract S12 Table 1

	Pre tPA/DNase	Post tPA/DNase
Fluid output, ml - mean (range)	940 (20...1980)	3130 (435...8070)
Change in % CXR opacification - mean (range)	-	-24 (-8...-39)

S13 THE BACTERIOLOGY AND EPIDEMIOLOGY OF PLEURAL INFECTION – A REVIEW OF THE LITERATURE AND ITS RELEVANCE TO CLINICAL PRACTISE

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Introduction Pleural infection is described in the medical literature as far back as Hippocrates, yet even now the best management strategy remains uncertain. A rising case incidence places an increasingly significant burden on healthcare systems worldwide, with 65,000 patients per annum diagnosed with pleural infection in the UK and USA alone. It is increasingly accepted that pleural infection is a separate phenomenon to parenchymal lung infection, with its own epidemiology and bacteriology. This review sought to identify the data on pleural infection in adults published since 2000, to create a detailed up-to-date record on its bacteriology that might inform future research and guidelines.

Methods We searched the MEDLINE and EMBASE databases alongside the Cochrane Central Register of Controlled Trials using PubMed and OVID for studies relating to pleural infection in adults published since 2000. Studies were shortlisted for inclusion if they contained a record of confirmed microbiological diagnosis and methodology (using standard culture or nucleic acid amplification techniques); paediatric studies and tuberculous pleural infection were excluded. Studies were double-scored by clinicians with expertise in diagnosis and management of pleural infection to determine suitability and weighting.

Results Our initial search strategy identified 6126 references; of these, 2572 abstracts were relevant to respiratory practise and subsequently 136 papers were shortlisted for assessment of suitability for inclusion. Streptococcal species, notably the *anginosus* (*milleri*) group and *pneumoniae* are the most commonly identified pathogens in pleural infection as a whole. However, there is substantial variation in bacteriology according to where the infection is acquired – both “locally” (community vs. nosocomial) and “globally” (geographical location). The likelihood that many pleural infections are polymicrobial in nature, with the pathogenicity of different organisms being uncertain, is also raised.

Conclusions Pleural infection differs significantly in its bacteriology from parenchymal lung infection and according to where it is acquired. This has important implications for antibiotic choice and predicting morbidity and mortality. A high number of cases are undiagnosed using conventional culture and the role of techniques such

as nucleic acid amplification is promising but requires further clarification. Research is necessary to further define these bacteriological characteristics of pleural infection and inform future guidelines.

S14 THE BEST WAY TO SECURE A 12-FRENCH INTERCOSTAL CHEST DRAIN TO THE CHEST WALL

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Introduction and Objectives Dislodgement of intercostal chest drains (ICDs) is common, affecting up to 21% of ICDs.¹ Why ICDs dislodge is not well understood. The optimum technique for securing ICDs has never been the subject of a randomised trial.

Current BTS guidelines recommend ‘0’ or ‘1’ sutures and caution against excessive adhesive dressings. Adhesive dressings are nevertheless widely used, sometimes instead of sutures. This study aims to identify the best technique for securing ICDs.

Methods A chest wall model was developed using 7mm medium-density fibreboard with one hole for a 12-French ICD and four smaller holes for sutures. Appropriately qualified doctors secured ICDs to the model with their usual sutures and technique. Some doctors who used small sutures repeated the experiment using larger sutures. The force required to remove the ICD from the model was measured with a Newton metre. A maximum force of 100N was applied, as ICDs snapped at forces over 110N. The force needed to detach ICDs fixed to the experimenter’s chest using adhesive dressings was also measured.

Results Using ‘1’ sutures, ICDs remained attached even at 100N ‘0’ sutures snapped at 86N ‘2/0’ sutures were most commonly used, but snapped at 57N ‘3/0’ and ‘4/0’ sutures were the least effective; the drain slipped at 25N and 20N respectively.

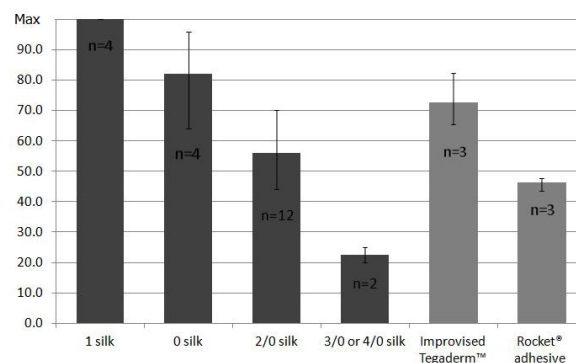
Individual doctors using the same technique with larger sutures (‘1’ or ‘0’ instead of ‘2/0’) attached ICDs more securely (92N vs 57N, $p=0.03$) though the number of sutures, technique and doctor’s experience had no effect. ICDs detached painlessly from Rocket® dressings at 47N. An improvised tegaderm® dressing was more secure but detached painfully from the skin at 73N ($p=0.03$). The force required didn’t diminish over 48 hours.

Conclusions ‘1’ sutures may be the best way to secure an ICD however the force required to pull sutures from the skin is unknown and knots may loosen over time. Using larger sutures improved ICD fixation. Adhesive dressings secure ICDs with similar strength to sutures and may represent an important alternative or adjunct, particularly in patients with fragile skin.

Reference

1. Davies HE et al. Respiriology (2008)13:603–607.

Force (in newtons with range) required to detach intercostal chest drains secured by sutures or adhesive dressings



Abstract S14 Figure 1