**S13** ROLE OF FROZEN SECTION DURING MEDICAL THORACOSCOPY FOR DECISION MAKING IN A COUNTRY WITH DECREASING TB BURDEN

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**Rationale** On-site pathologic diagnosis of pleural disease during medical thoracoscopy (MT) is expected to be useful in diagnosis of pleural effusion with unknown etiology. There were only few studies investigating utility of a frozen section examination during MT. This study aimed to demonstrate the diagnostic performance of frozen section examination during MT in diagnosis of pleural malignancy or pleural TB.

**Methods** Medical records of patients who underwent medical thoracoscopy with frozen section examination between October 2017 and April 2023 in Incheon Saint Mary’s Hospital, the Catholic University of Korea were retrospectively reviewed. Final diagnosis of pleural diseases was classified into pleural malignancy, pleural TB and other benign pleuritis. Results of frozen section were classified into malignancy, atypical cells, chronic granulomatous inflammation, and other benign inflammation. Diagnostic performance of frozen section examination was investigated with each reference standard – the results of pleural tissue examination or final composite diagnosis of pleural disease.

**Results** A total of 444 patients were included. Number of patients with pleural malignancy, pleural TB and other benign pleuritis was 217, 59, 167, respectively. One patient was diagnosed ad pleural malignancy and pleural TB, concurrently. Among patients with pleural malignancy, non-small cell lung cancer – adenocarcinoma accounted for 66.5%. Among patients who showed atypical cells in frozen section, 44.4% were finally diagnosed as pleural malignancy. The frozen section result ‘malignant’ showed 84.3% (95% CI: 78.8–88.9) of sensitivity on diagnosis of pleural malignancy, and 83.5% (77.7–88.3) of negative predictive value (NPV). The frozen section results of ‘malignancy or atypical cells’ showed 96.8% (93.5–98.7) of sensitivity with 79.5% (72.7–85.3) of specificity. The frozen section result ‘chronic granulomatous inflammation’ showed 93.2% (83.5–98.1) of sensitivity on diagnosis of pleural TB, and 98.1% (95.1–99.5) of NPV (table 6).

**Conclusions** Frozen section examination during MT showed good sensitivity in diagnosis of pleural malignancy or pleural TB. With this diagnostic modality, diagnostic delay could be shortened and patients could be provided with adequate treatment such as pleurodesis or anti-TB medications, quickly.

**S14** A SURGE OF PAEDIATRIC THORACIC EMPYEMA: IDENTIFYING TRENDS AND LESSONS FROM THE UK INVASIVE GROUP A STREPTOCOCCUS (iGAS) OUTBREAK DURING 2022–2023

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**Introduction** We present a retrospective review as a specialist paediatric centre, managing empyema over an 8-year period, including an unexpected surge during the 2022–23 UK invasive Group A Streptococcus (iGAS) outbreak.


**Results** 86 patients were identified. Median age in the post-pandemic, pandemic and pre-pandemic eras were 4.4, 6.2 and 9.9 years respectively (p<0.0001, ANOVA). 61/84 patients had sterile cultures (73%). 16S PCR assays identified bacterial DNA in 90.7% (39/43) of cases. The most common microorganisms identified were Streptococcus pyogenes (n=23, 43.4%) and Streptococcus pneumoniae (n=16, 30.2%) with viral co-infection more frequently seen with these two species; as compared with all other species (12/39, 30.8%, 3/37, 8.1%).

Most concerning was the finding of viral co-infection in 45% (5/11) of cases with necrotising disease compared with 24% (10/42) without (p = 0.2, chi-sq). 48% (11/23) of patients required surgery (VATS/thoracotomy/decortication/resection) in the post-pandemic compared with 19% (11/57) pre-pandemic (p=0.0097, chi-sq). Median length of stay has also increased from 8 days pre-pandemic to 11 days post-pandemic (p=0.0532, Mann-Whitney U).

To date no mortalities from bacterial empyema were reported at our centre though there were deaths from iGAS without empyema.

**Conclusion** Our findings highlight 16S PCR as a diagnostic tool in empyema management as culture is frequently sterile. Association of viral co-infection on outcomes was substantial, correlating with higher necrosis rates, surgical intervention and prolonged hospital-stay. This suggests immunological naiveté amongst young-children after Covid-19 may be a crucial factor in the severity of follow-on bacterial superinfection. We advise attention to viral outbreak reports in the upcoming winter-flu season, which could signal another empyema outbreak. With good collaboration and prompt treatment, good outcomes should be expected.

**S15** SENSITIVITY OF SURGICAL PLEURAL BIOPSIES FOLLOWING A PREVIOUS NEGATIVE PLEURAL BIOPSY

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**Introduction and Objectives** Ultrasound-Guided (USG) and Local-Anaesthetic Thoracoscopy (LAT) Pleural Biopsies are performed to investigate pleural disease. Though often sufficient to make a diagnosis, biopsies can be indeterminate or negative, despite a clinical picture favouring malignancy. Such patients may be referred for surgical biopsies. The aim of this study was to determine the sensitivity of surgical biopsies following previous negative USG or LAT biopsies.

**Methods** We conducted a retrospective review of patients who underwent an USG or LAT biopsies at a tertiary centre between January 2017 and June 2023. Features and outcomes of those referred to surgery were recorded, including follow-up duration, initial histology, reason for referral and eventual diagnosis.

**Results** Eighty-five patients underwent USG biopsies and 115 had a LAT. Following MDT discussion, 18 were referred to surgery (8 USG biopsy, 10 LAT). Initial histology in these
were: 4 inadequate samples, 2 atypical cells, 10 benign fibrosis and 2 other benign findings. The surgical procedures undertaken included 15 video-assisted thoracoscopies, one robotic and two open biopsies. Mean post-surgical follow-up was 35.5 weeks.

Of the 18 patients who underwent surgical biopsies, there were three true-positives (all mesothelioma), four false-negatives (diagnosed with mesothelioma during follow up; 3 following USG biopsy, 1 following LAT) and 11 true-negatives (benign pleuritis). The sensitivity of a surgical biopsy for mesothelioma following a negative USG Bx or LAT was 42.9% (figure 1). The sensitivity of USG or LAT biopsies, for a malignant or non-malignant diagnosis, was 91% for either investigation.

All 4 with inadequate samples and both with atypical cells at initial biopsy were diagnosed with mesothelioma (3 at surgery, 3 during follow up). None of three patients with anterior mediastinal pleural thickening were diagnosed with a malignancy.

Discussion Surgical biopsies in a general cohort are highly sensitive (>0.9). Our findings suggest they are significantly less sensitive in those who with prior negative USG or LAT biopsy. However, sensitivity was good in the subgroup of patients with inadequate samples or atypical cells at initial histology. Further studies are required to devise the optimum pathway for investigating possible mesothelioma following negative USG or LAT biopsies.

'Shake it off' – Recovery from COVID-19

Abstract S15 Figure 1 Outcomes of 18 surgical referrals following Ultrasound-Guided Pleural Biopsies (USG Bx) and Local-Anaesthetic Thoracoscopy Pleural Biopsies (LAT Bx)

Abstract S16 Figure 1 Change in HRQ0L (EQ-5D-5L Utility Index) from pre-COVID to five months and one-year visits by presence or absence of pre-existing airway diseases. * p values calculated using student t-test