DOES THORACOSCOPY HAVE ADVANTAGES OVER OPEN SURGERY FOR ASYMPTOMATIC CONGENITAL LUNG MALFORMATIONS? AN ANALYSIS OF 1626 RESECTIONS

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Aim: The apparent incidence of antenatally-diagnosed congenital lung malformations (CLM) is rising (1 in 3000) and the majority undergo elective resection even if asymptomatic. The thoracoscopic approach has been popularised, with early series reporting high conversion rates and significant complications. A large number of high-volume case series exist since the only other published meta-analysis (data from pre-2010) on this subject. We aimed to perform systematic review/meta-analysis of outcomes of thoracoscopic vs open excision of asymptomatic CLMs.

Methods: Systematic review according to PRISMA guidelines. Data was extracted for all relevant studies (2004-2016) and Rangel quality scores calculated by 2 independent reviewers. Analysis was on 'intention to treat' basis for thoracoscopy. Meta-analysis was performed using the add-on package METAN of the statistical package STATA14TM, p<0.05 considered significant.

Results: 36 studies were eligible, describing 1626 CLM resections (904 thoracoscopic, 722 open), there were no randomised controlled trials. Median Rangel score of included studies was 14/45 (IQR 6.5) indicating overall quality as 'poor'. 98/904 (11%) thoracoscopic procedures were converted to open. No deaths were reported.
Meta-analysis showed that regarding thoracoscopic procedures - total number of complications was significantly less (OR 0.63, 95%CI 0.43, 0.92; p<0.02, 12 eligible series, 912 patients, 405 thoracoscopic). Length of stay was 1.4 days shorter (95%CI -2.40, -0.37; p<0.01). Length of operation was 37mins longer (95%CI 18.96, 54.99; p<0.01). Age, weight and number of chest tube days were similar between the 2 groups.

The studies were not heterogeneous with respect to total number of complications (I² 30%, p=0.15) and there was no evidence of publication bias.

Conclusions: A reduced total complication rate favours thoracoscopic excision over thoracotomy for asymptomatic antenatally-diagnosed CLMs. Although operative time was marginally longer, and open conversion may be anticipated in 1/10, the overall length of hospital stay was reduced by more than 1 day.