LETTERS

Thoracic ultrasound in malignant pleural effusion: a real world perspective

Qureshi and colleagues achieved impressive results using thoracic ultrasound (TUS) to predict malignant pleural effusion in their recent study.\(^1\) TUS in their hands compared reasonably well with pleural CT.

However, we suggest that pleural CT still remains the gold standard and cannot be replaced by TUS except in situations where access to pleural CT is difficult. First, even in their expert hands, six out of the seven false-negative TUS examinations were resolved by pleural CT. The priority in the real world is to reduce the time to pleural CT which is the definitive investigation. In our experience, TUS is complementary to pleural CT but more helpful and informative after the CT to aid pleural intervention due to information from two different imaging modalities.

Secondly, this study was performed in a tertiary pleural centre by an extremely experienced internationally renowned thoracic radiologist and another thoracic radiologist with a special interest in pleural disease. In these circumstances, our study suggests criteria which may be useful for the diagnosis of malignant pleural disease.\(^1\)

Once again, we would like to thank the authors of the letter for their interest in our study.

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Competing interests: None.

Provenance and peer review: Not commissioned; not externally peer reviewed.

Accepted 18 May 2009


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Authors’ reply

We would like to thank Drs Medford and Entwistle for their letter in response to our recent Thorax publication.\(^1\) We entirely agree that pleural CT is the gold standard not only in terms of malignant pleural disease but also for intraparenchymal, mediastinal and distant disease. We would suggest that the priority in the “real world” is prompt diagnosis and subsequent management of the pleural effusion, with CT as currently the most useful technique. However, the widespread use of thoracic ultrasound may mean that it is readily available (eg, in the outpatient respiratory clinic) and, given the high diagnostic yield of thoracic ultrasound for malignant pleural disease, may allow patients with clear-cut evidence of malignancy (eg, gross pleural nodularity) to be triaged directly to thoracoscopy or image-guided biopsy. The high proportion of mesothelioma and malignant pleural disease seen in our study is indeed a result of the tertiary nature of our practice, and this will influence the sensitivity and specificity of the test. It is for this reason that we recommended that the diagnostic use of ultrasound for malignant pleural effusion should be assessed in a non-tertiary centre for the results to be more widely applied to practice. The prevalence of tuberculosis (TB) in our area of practice is also low, and ultrasound should be evaluated in this context in a higher prevalence area.

We agree with the authors of the letter that the skill of the operator is an important issue. The results of our study are not intended to apply to level 1 Royal College of Radiology (RCR)-trained chest physicans,\(^2\) for whom ultrasound is a valuable technique to diagnose the presence of effusion and aid intervention. However, physicians with increasing experience (eg, level 2) may be able to achieve a reasonable diagnostic sensitivity for malignant pleural effusion using ultrasound—this requires prospective testing and will be an interesting question for future studies. In addition, although we agree that measurements of pleural thickening, diaphragm assessment, etc. are not currently routinely conducted by sublevel 3 RCR operators, this may change with increasing subspecialisation and experience of respiratory physicians with an interest in pleural disease. In these circumstances, our study suggests criteria which may be useful for the diagnosis of malignant pleural disease.\(^1\)

Longitudinal changes in gastro-oesophageal reflux from 3 months to 6 months after lung transplantation

Gastro-oesophageal reflux (GOR) and microaspiration are implicated in the pathophysiology of asthma, chronic obstructive pulmonary disease, interstitial lung disease and chronic lung allograft dysfunction.\(^1\) Aspiration, which is often asymptomatic, has been identified as a treatable allograft injury that may affect mortality.\(^2\)

The potential for thoracic mechanical changes caused by advanced lung disease to predispose to reflux has been highlighted.\(^2\)

Although aspiration could cause lung damage, alternatively reflux might represent a secondary event. Longitudinal data are lacking,\(^3\) so we have undertaken a prospective study of reflux in lung transplantation.
This allowed investigations in patients where thoracic mechanical changes associated with advanced lung disease had improved. We hypothesised that reflux was prevalent and could develop at different times following transplantation in patients with good allograft function.

Methods

Between November 2007 and November 2008, 14 newly transplanted lung recipients were assessed with pH impedance monitoring (Ohmega, MMS, Utrecht, The Netherlands). Most patients tolerated the assessments but reported discomfort. A representative subset was verified by independent observers (AGNR, AJB). All patients were receiving treatment with proton pump inhibitors (Ohmega, MMS, Utrecht, The Netherlands).

Results

Nine patients were assessed for GOR at 3 and 6 months after lung transplantation using pH impedance; five patients refused a second test. The majority of assessments were abnormal, with marked variability with time following transplantation (fig 1). Notably, in four of nine patients overall assessments for reflux that were normal at 3 months became positive at 6 months (fig 1, table 1 in online supplement). All patients received standard immunosuppression at similar levels (n = 4) or decreased levels (n = 5) during the period of assessment (table 1 in online supplement).

Discussion

This is the first longitudinal study of reflux following transplantation which shows that, although repeated measurements are practicable, they were not tolerated by all patients with only 9/14 agreeing to a second test in this series. High levels of GOR were seen, with marked variability in the first 6 months after transplantation. Most patients studied had received two donor lungs. Our results therefore suggest that reflux can occur in allograft recipients without frankly abnormal lung mechanics at a time of tapered-down immunosuppression.

GOR assessment is becoming adopted across lung transplant units due to its high prevalence and a suggested survival benefit of fundoplication. Reproducibility has not been assessed in the lung transplant population but, in normal subjects, impedance monitoring has been shown to be at least as reproducible as pH monitoring. Our results suggest that reflux may develop following negative initial assessments, but it is also possible that patients with reflux may improve with time. This emphasises that repeat assessments of GOR may be an advisable component of post-transplant follow-up. Our series demonstrates that multiple catheter-based assessments are unpopular with some patients, highlighting a need for identifying markers of GOR and aspiration which are specific and well tolerated.

Although this represents the first longitudinal measurements of reflux following transplantation, our study was descriptive, not powered to detect changes with time and did not evaluate mechanisms. Further larger longitudinal studies are necessary. Such translational studies may be relevant to improving outcomes in lung transplantation and other lung and airway pathophysiology.

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Funding: European Society for Organ Transplantation (AGNR), British Lung Foundation (AGNR), The Medical Research Council (PC, CW).

Competing interests: None.

Ethics approval: Patient consent and ethical approval obtained.

AR and CW made equal contributions.

Provenance and peer review: Not commissioned; not externally peer reviewed.

Table 1 is published online only at http://thorax.bmj.com/content/vol64/issue11

Accepted 2 June 2009


REFERENCES


Attitudes of patients towards a hospital-based rehabilitation service for obesity hypoventilation syndrome

Obesity hypoventilation syndrome (OHS) is characterised by a body mass index of $>30$ kg/m$^2$, with either diurnal or nocturnal hypoventilation in the absence of any other explanation for this. If left untreated, OHS can be associated with significant morbidity and mortality. Currently, the mainstay of treatment for OHS is non-invasive ventilation. Pulmonary rehabilitation (PR) is an established form of treatment for patients with chronic obstructive pulmonary disease (COPD). PR is increasingly offered to patients with various other chronic respiratory diseases, and a similar programme with particular emphasis on obesity can reasonably be expected to benefit patients with OHS.

At Papworth hospital, we have been interested in developing a multidisciplinary rehabilitation programme for patients with OHS and performed a questionnaire-based survey investigating the likelihood of patients participating in such a programme. Patients were identified from the hospital database. A letter outlining the proposed rehabilitation programme (visiting the hospital twice a week for 8–12 weeks for a series of sessions involving supervised exercise, dietary advice and educational classes) and a short anonymous questionnaire were sent to 96 patients with OHS. The questionnaire required the patients to specify how likely they would be to attend the programme, if offered, and the reasons that might prevent them from attending. The patients were also asked if they would be more likely to attend the rehabilitation if travel was arranged and, if so, whether they would prefer the hospital to arrange transport or to be reimbursed for their own arrangements. The questionnaire included a section for any comments patients had.

Forty-six (48%) patients returned the questionnaire. Of these responses, 14 (30%) patients would either be “very likely” or “likely” to attend the rehabilitation programme, with 20 (43%) patients being “not at all” likely to attend. Travelling to the hospital was found to be the most significant concern amongst the group, with 27 (59%) patients saying the distance or travelling involved would prevent them from attending the programme. Out of these 27 patients, 11 (41%) would still not attend if their travel was arranged for them. Inconvenience (9%) and lack of spare time (15%) were also cited as reasons that prevented participation in the programme. Travelling was mentioned most frequently (37%) as well as patients reporting that the proposed rehabilitation programme would conflict with existing commitments such as work or child care (24%), that it would be more convenient if carried out in a local healthcare facility (13%) and that they needed more information in order to decide whether to attend (11%).

Given that the most common concern amongst patients was the travel required to attend the programme, one might predict that offering to help patients with their travel arrangements would increase the likelihood of attending rehabilitation. However, despite offering two options of travel assistance—arranged by the hospital or reimbursement for their own arrangements—41% of patients would still not attend.

This survey suggests that patients with OHS are poorly motivated to attend a rehabilitation programme. Providing more information about the benefits of exercise and diet-based interventions and a local service with adequate travel arrangements may increase the attendance at such programmes.

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Competing interests: None.
Provenance and peer review: Not commissioned; not externally peer reviewed.
Accepted 7 June 2009
Longitudinal changes in gastro-oesophageal reflux from 3 months to 6 months after lung transplantation


Thorax 2009 64: 1005-1007
doi: 10.1136/thx.2009.117879

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