

ADHESIVE SEALANT BIOMATERIALS

Clinical Series

K Lau
D A Waller

Dept. of Thoracic Surgery,
University Hospitals of Leicester

Use of TissuePatch3™ to enhance Aerostasis in Lung Volume Reduction Surgery

Pre-operative status

A 61 year old female ex-smoker with severe COPD, who was limited to walking 100 yards on the flat, was considered for lung volume reduction surgery. Her pulmonary function tests showed a FEV1 of 0.56 (28% predicted); she was hyperinflated with a TLC of 159% predicted and RV 279% predicted. HRCT of the chest demonstrated predominantly apical centrilobular emphysema, and perfusion scan showed perfusion Q-score of 5% in the right upper zone.

Surgical procedure

The patient was placed in the right lateral decubitus position and thoracoscopy was carried out with three ports. The right upper lobe was remodelled with an Echelon 60 stapler (Ethicon) buttressed with Seamguard® (Gore).

Treatment with TissuePatch3

Two pieces of 50×100mm TissuePatch3(TP3) were divided longitudinally into four 25×100mm strips. They were introduced into the chest through a VATS port mounted on a pair of Roberts forceps. They were positioned and draped over the staple line where they provide further reinforcement of the staple line seal, especially at the cut edge which is not protected by the buttress.

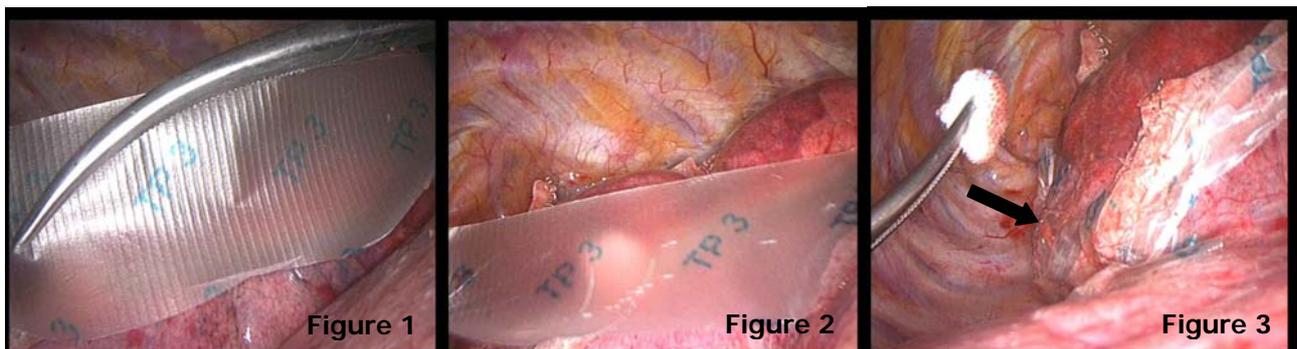


Figure 1 Insertion through VATS port

Figure 2 Orientation on tissue with logo readable

Figure 3 Patch positioned (arrow) over staple line and adhesion encouraged using dry "peanut". Note earlier patch application in foreground.

Progress

Following extubation, the patient did very well with no detectable air leak as measured on a quantitative drainage system Digivent® (Millicore), and was discharged home after 10 days.

Surgeon opinion of TissuePatch3

TissuePatch3 is easy to handle compared to liquid sealants and requires no preparation time. It appears effective at attenuating air leaks in patients with severe emphysema whose lung tissues are thin and prone to tearing upon re-expansion, especially where there is increased tension such as from a staple line. We may consequently be able to reduce reliance on buttress materials along the staple line. In our short experience, patients with placement of TP3 have significantly fewer air leaks than those before and as yet there has been no incidence of gross surgical emphysema, both of which occasionally complicate LVRS patients, with significant morbidity and cost implications.