

An Initial Experience with a Synthetic Self-adhesive Patch (TissuePatch3) in Video-assisted Thoracoscopic Lung Volume Reduction Surgery (VATS LVRS)

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Objectives:

Prolonged postoperative air leak is a key complication after VATS LVRS for emphysema. We have previously used buttressed stapling in lung volume reduction surgery but have evaluated the novel use of TissuePatch3 (Tissuemed Ltd, Leeds, UK) which is a synthetic self-adhesive patch that forms an airtight support when applied onto the staple line. We have analysed the feasibility of applying TissuePatch3 by VAT and its effect on clinical outcome.

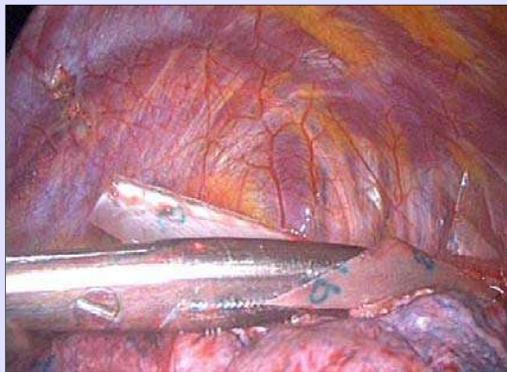


TissuePatch does not require advance preparation. It can be cut into the desired sizes just before use. A specifically designed applicator can be used to introduce the patch through the ports. The patch will then form a chemical bond with the lung surface to prevent leakage of air or fluid.

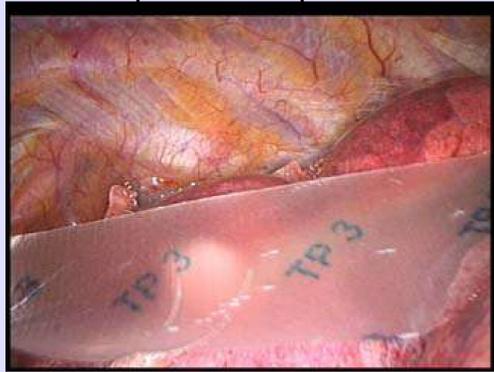
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Methods:

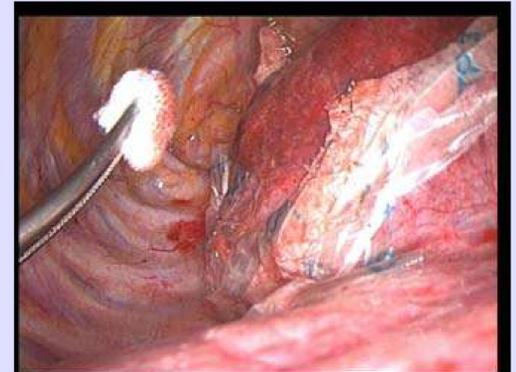
In the historical group (HG) since 1995 we have performed 158 unilateral VATLVRS procedures using buttressed staples: either Peri-Strips (Synovis Life Technologies Inc, St Paul MN, USA) or Seamguard (W. L. Gore & Associates, Flagstaff, Arizona). From June 2009 till May 2011 we used TissuePatch3 in 26 unilateral VATLVRS procedures (TPG). We used TissuePatch3 size 100*100mm or 50*100mm, divided into 3 or 4 smaller strips at the operation.



Insertion through VATS port.



Orientation on tissue with logo "TP3" readable.



Patch positioned over staple line and adhesion encouraged using dry "peanut"; sealing is achieved in 30 sec.

Results:

In the HG an average of 12 firings (11 buttressed) was used whilst in the TPG only 7 firings, reflecting changes in practice. There was no intergroup difference in ITU usage (11% vs 12%) or in-hospital mortality (8% vs 8%).

	HG	TPG	P
Number	158	26	
Age (yr) (median (range))	61 (39-73)	65 (44-74)	NS
Gender (F:M)	58/100	10/16	NS
Duration of surgery (mean+/-SD) (min)	71 (32)	50 (12)	P<0.01
Drain duration (mean+/-SD) (days)	16 (14)	18 (19)	NS
Drain duration (days) (median (range))	12 (2-76)	8 (2-75)	
Hospital stay (mean+/-SD) (days)	20 (22)	17 (20)	NS
Hospital stay (days) (median (range))	14 (4-197)	9 (4-95)	

Conclusion:

The use of TissuePatch3 is feasible in VATLVRS and may shorten operation time, duration of air leak and hospital stay. The cost of TissuePatch3 does not preclude the conduction of a randomised trial comparing its use with buttressed stapling.