# **MESHES IN ANTERIOR REPAIRS: A SYSTEMATIC REVIEW AND META-ANALYSIS.**

### Hypothesis / aims of study

The last 10 years has seen an explosion in the number of commercially available meshes for prolapse surgery with little research evidence supporting their use. To date there have been no published systematic reviews looking at the use of mesh in anterior repairs. The aims of this study was to assess the objective recurrence and complications of adjuvant materials in the treatment of anterior vaginal wall prolapse

# Study design, materials and methods

Search strategy: MEDLINE, EMBASE, CINAHL, (up to September 2007), CENTRAL (The Cochrane Library, Issue 3, 2007), the Cochrane Incontinence Group Trials Register (September 2007) and the National Library of Health were searched.

Selection criteria, data collection and analysis: All reports which describe (or might describe) RCTs and quasi-randomised trials of the use of meshes or grafts in anterior vaginal wall prolapse surgery were obtained with no language restrictions. Two reviewers independently extracted data on the participant's characteristics, study quality, population, intervention, recurrence and complications. The data was analyzed using the Review Manager 4.2.8 software. The main outcome measures were objective recurrence and complications.

#### Results

Ten RCTs (1087 patients) were included in the systematic review. Meta-analysis showed a lower risk of objective recurrence after 1 year in the patients having an anterior repair with a biological mesh.

Table 1: Risk of recurrence after 1	vear.
-------------------------------------	-------

Mesh used	Odds Ratio	95% Confidence Interval
Biological	0.56	0.34 – 0.92
Synthetic mesh	0.44	0.21 – 0.89

Table 2: Number needed to treat to prevent recurrence at 1 year

	Number needed to treat	
Mesh	Number needed to treat	95% Confidence Interval
Biological	13	6.5 - 85.3
Synthetic mesh	6	3.0 – 33.8

The number needed to treat (NNT) with biological mesh to prevent recurrence at 12 months post operatively was 13 (95% CI 6.5 - 85.3) and with synthetic mesh was 6 (95% CI 3.0 – 33.8).

There was no significant difference in the risk of dysparenuia, voiding difficulties and prolapse symptoms. Importantly the re operation rates for prolapse did not appear to differ suggesting that the recurrent prolapse may have been less troublesome than the index prolapse.

The rate of mesh erosions was 0. 67% and 11.9% amongst studies using biological and synthetic meshes respectively.

		ure 1 – Meta-analysis of re gery using a mesh versus a			3		
I	Surg	gery using a mesn versus a	standard anterior rep	Jair			
Recurrence	as defined by Ba equal	to or greater than -1 at 12 mo	onths after anterior repa	air – using biologio	cal meshes		
Study or sub-category	Mesh n/N	Standard repair n/N	OR (fixed) 95% Cl	Weight %	OR (fixed) 95% Cl	Year	Quality
01 Sub-category Gandhi S	7/98	20/103	_	42.51	0.32 [0.13, 0.79]	2005	D
Meschia M et al	16/76	23/78	╺┺╼╾┥	42.07	0.64 [0.31, 1.33]	2007	A
Guerette NL	8/47	8/48		15.42	1.03 [0.35, 3.00]	2006	в
	221 ent), 51 (Standard repair)	229	•	100.00	0.56 [0.34, 0.92]		
Total events: 31 (Treatme	ent), 51 (Standard repair) :hi² = 2.80, df = 2 (P = 0.25)		2 0.5 1 2	100.00 5 10	0.56 [0.34, 0.92]		
Total events: 31 (Treatmo Test for heterogeneity: Cl	ent), 51 (Standard repair) :hi² = 2.80, df = 2 (P = 0.25)	), l <sup>2</sup> = 28.5%			0.56 [0.34, 0.92]		
Total events: 31 (Treatm Test for heterogeneity: Cl Test for overall effect: Z =	ent), 51 (Standard repair) hi <sup>p</sup> = 2.80, df = 2 (P = 0.25) = 2.28 (P = 0.02)	), l <sup>2</sup> = 28.5%	rs Mesh Favours s	1 I 5 10	0.56 [0.34, 0.92]		
Total events: 31 (Treatm Test for heterogeneity: Cl Test for overall effect: Z =	ent), 51 (Standard repair) hi <sup>p</sup> = 2.80, df = 2 (P = 0.25) = 2.28 (P = 0.02)	), I <sup>2</sup> = 28.5% 0.1 0. Favou	rs Mesh Favours s	1 I 5 10	OR (fixed) 95% Cl	Year	Quality
Total events: 31 (Treatm Test for heterogeneity: Cl Test for overall effect: Z =	ent), 51 (Standard repair) hi <sup>2</sup> = 2.80, df = 2 (P = 0.25) = 2.28 (P = 0.02) e at 12 months in anterio Mesh	), I <sup>2</sup> = 28.5% I I 0.1 0.: Favou or repairs - using synthetic me Standard repair	rs Mesh Favours s eshes OR (fixed)	1 1 5 10 standard repair Weight	OR (fixed)	Year	Quality
Total events: 31 (Treatm Test for heterogeneity: Cl Test for overall effect: Z = Recurrence	ent), 51 (Standard repair) hi <sup>2</sup> = 2.80, df = 2 (P = 0.25) = 2.28 (P = 0.02) e at 12 months in anterio Mesh n/N	), I <sup>2</sup> = 28.5% 1 T 0.1 0.: Favou or repairs - using synthetic me Standard repair n/N	rs Mesh Favours s eshes OR (fixed)	F F 5 10 standard repair Weight %	OR (fixed) 95% Cl		
Total events: 31 (Treatm Test for heterogeneity: Cl Test for overall effect: Z = Recurrence	ent), 51 (Standard repair) http = 2.80, df = 2 (P = 0.25) = 2.28 (P = 0.02) e at 12 months in anterio Mesh n/N 18/73 73 applicable	), I <sup>2</sup> = 28.5% 1 T 0.1 0.: Favou or repairs - using synthetic me Standard repair n/N 30/70 —	rs Mesh Favours s eshes OR (fixed)	5 10 standard repair Weight %	OR (fixed) 95% Cl 0.44 [0.21, 0.89]		

Study or sub-category	Mesh n/N	No Mesh n/N	OR (fixed) 95% Cl	Weight %	OR (fixed) 95% Cl
Voiding difficulties after using biological meshes	2/20	5/23		100.00	0.40 [0.07, 2.34]
Voiding difficulties after using synthetic meshes	8/81	8/70		100.00	0.85 [0.30, 2.40]
Dysparenuia at 12 months after using biological mesh	7/47	5/48	_	61.27	1.51 [0.44, 5.13]
Dysparenuia at 12 months after using synthetic meshes	0/49	2/42		38.73	0.16 [0.01, 3.51]
Prolapse symptoms after treating with synthetic mesh	7/70	3/79		100.00	2.81 [0.70, 11.34]
Prolapse symptoms after reating with biological mesh	9/98	13/103		100.00	0.70 [0.28, 1.72]
		0.1.2	0.5 1 2 5	5 10	
				ours standard repai	r

### Interpretation of results

The evidence for the use of mesh in anterior vaginal wall prolapse surgery shows a reduction of recurrence after 1 year but the evidence is weak. There was no evidence to suggest any difference in the risk of dysparenuia, voiding difficulties and recurrent prolapse symptoms in the two groups. Therefore despite an objective difference favoring the use of mesh there was no difference subjectively or in re-operation rates.

## Concluding message

Methodologically sound and sufficiently powered RCTs with longer follow up using a standardized method to determine success/failure is needed and we await the results of ongoing trials. Five year results may be a better end point and authors should be encouraged to publish these results.

Specify source of funding or grant	Birmingham Women's Health NHSTrust
Is this a clinical trial?	No
What were the subjects in the study?	None