Conclusion
We have confirmed previous findings that: GSI is associated with a reduction in total collagen, of premenopausal vaginal skin when compared to controls. In addition we have shown this reduction in collagen is also present between postmenopausal women and controls and verified that oestrogen therapy produces a fall in collagen in postmenopausal women. Our findings, although surprising, suggest that the reduction in total collagen associated with HRT may actually indicate an attempt, by the tissue, to return to its premenopausal collagen state. The collagen and elastin fibres of the ECM are embedded in an amorphous ground substance, of which proteoglycans are a constituent, which is essential for tissue organisation. The increase in proteoglycans, and associated reduction of collagen, in the GSI group may indicate a dilutional effect within the tissue. Interestingly, the ground substance in both groups appears to react differently to HRT possibly demonstrating an alteration in metabolism between the two groups. We intend to present additional findings, using indicators of collagen metabolism, to explain the changes seen between these groups.
1. *Br J Obstet Gynaecol* 1997; 104:994-997.
2. *Neurourol Urodynam* 1996; 15:327-8.

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Title (type in CAPITAL LETTERS, leave one blank line before the text):
ELECTROMYOGRAPHIC STUDY OF THE STRIATED URETHRAL SPHINCTER IN TYPE 3 STRESS INCONTINENCE: EVIDENCE OF MYOGENIC-DOMINANT DAMAGES

Aims of Study: Recently, several studies have reported evidences of partial denervation in the pelvic floor muscles in Stress incontinence(SI) patients, using electrophysiological and histomorphological methods. These results suggested that the denervation in the pelvic floor muscles possibly caused by childbirth vaginally is one of the etiological factors of type 2 SI accompanied with urethral hypermobility. Whereas, an etiology of another type of SI, that is type 3 SI considered due to intrinsic sphincteric deficiency remains unclear. We determined electromyographic features of the striated urethral sphincter in type 3 SI patients and evaluated the correlation of electromyographic changes with the clinical findings.
Methods: We performed electromyography(EMG) of the striated urethral sphincter muscle and urodynamic studies including Valsalva leak point pressure measurement in a total of 51 women, 41 female patients with type 3 SI due to intrinsic sphincteric deficiency(ISD) and 10 women with normal urinary control(NUC). EMG parameters evaluated were duration, amplitude, and number of phases in individual motor unit potentials(MUP) of the striated urethral sphincter at rest, and also an interference pattern at maximal voluntary contraction.
Results: In patients with SI, mean values of MUP parametersü}SD were duration 4.2ü}0.9 msec., amplitude 299.9ü}112.0 mV. and number of phases 4.1ü}0.7. The values in women with NUC were 5.2ü}0.3 msec., 428.2ü}25.6 mV., and 3.4ü}0.4, respectively. The MUP of SI patients showed significantly shorter duration (p=0.0014) , lower amplitude (p=0.0008) and larger number of phases (p=0.0022). 30 (73%) of the SI patients showed an obvious low amplitude (<350 mV)/short duration(<4.5 msec.)/polyphasic pattern and early recruitment of interference activity with low amplitude at voluntary contraction of the striated sphincter, both indicating existence of myogenic damages. These patients showing myogenic damages had significantly lower Valsalva leakpoint pressure (p<0.0001) and more leakage in pad weigh test (p=0.0101), compared with the SI patients without myogenic damage findings.

Conclusions: These results suggested that myogenic-dominant damages of the striated urethral sphincter may contribute to the etiology of ISD in the majority of type 3 SI.

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Title (type in CAPITAL LETTERS, leave one blank line before the text):

HOW DOES THE TVT ACHIEVE CONTINENCE?

Aims of Study

The tension- free vaginal tape (TVT) is now used worldwide for the surgical treatment of Genuine Stress Incontinence (GSI). Based on the "Integral Theory" (1), it is assumed that the TVT replaces defective ligamentous and muscular structures to restore normal anatomy and provide for midurethral "functional kinking". However, objective data so far is scarce (2). To elucidate the mode of action of the TVT, we assessed anatomy and function by ultrasound imaging and flowmetry and correlated this data with symptoms.

Methods

46 consecutive patients were seen on average 0.72 years (6w- 1.4 yrs) after TVT. Preoperative detrusor instability was not an exclusion criterion. A standardized questionnaire was filled in and a clinical stress test performed with a subjectively full bladder (median 367 ml). Translabial ultrasound was performed erect with a full bladder for documentation of stress leakage on colour Doppler (3) or clinical stress test. The patient was then asked to void for flowmetry.

Ultrasound was repeated supine to determine tape position and mobility. The TVT is strongly hyperechoic and easily observed on ultrasound. On Valsalva, images were taken and the position of bladder neck and superior tape margin determined relative to the inferoposterior symphyseal margin. Symptoms, Doppler/ stress test results and flowmetry data were compared with 1.) tape position relative to the internal urethral meatus, 2.) tape position relative to the symphysis pubis, and 3.) tape mobility on Valsalva.

Results

Table 1 gives symptoms and signs after average followup of 0.72 years. Table 2 summarizes bladder neck and tape position and mobility data; Table 3 correlates this data with incontinence and flowmetry. Compared to preoperative flowmetry, postoperatively the maximum and mean flow rates had dropped an average of 22 ($p<0.0001$) and 23 centiles ($p<0.0001$). A tight tape reduced the incidence of recurrent stress incontinence but also correlated moderately ($r= 0.313$, $p= 0.034$) with low maximum flow rate centiles. The lowest average flow rate centiles were seen with tapes that were close to the bladder neck in the horizontal plane, and remained above the symphysis on valsalva ($p= 0.026$).

	preop.		postop.	
	n	%	n	%
Stress Incontinence	46	100	9	20
Urge Incontinence	16*	38	23	50
Hesitancy/ poor stream	not available		24	52
Dry on Stress Test/ Doppler	0	0	41	89

Table 1: Symptoms and signs before and after TVT placement (n= 46, *n=42)

Bladder neck descent	2.2 cm	(0- 4.8)
Urethral rotation	57.4 deg	(10- 120)
Funnelling (n)	29	(63%)
Tape position rel. to symphysis (stress)	-0.5 cm	(1.5- -2.4)
Tape mobility on Valsalva (total)	1.9 cm	(0.7- 4.2)

Table 2: Bladder neck and TVT position and mobility data (n= 46). Means, range in parentheses

	SI	Max. flow rate centile
Tape tightness (horiz. dist. to bladder neck)	n.s.	p= 0.034
Tape tightness (horiz. dist. to symphysis)	p= 0.008	n.s.
Tape position (vert. dist. to symphysis (stress)	p= 0.004	n.s.
Tape mobility on Valsalva (horizontal)	p= 0.036	p= 0.087
"Pinching" on Valsalva	p< 0.00001	n.s.

Table 3: Correlation between tape position and mobility and postoperative incontinence and maximum flow rate (n= 46). All correlations are positive except for "pinching".