

group 1 and 15.5% (n=7) in group 2. The differences were not statistically significant. No association was found between surgical outcomes and postoperative (1 week) values of bladder neck position (Dx, Dy and BN-bone).

#### Conclusions:

The postoperative position of the bladder neck does not appear to influence the outcome of colposuspension for the treatment of GSI. However, if the preoperative bladder neck position is considered, increasing bladder neck elevation is associated with subjective failure (perhaps by causing tearing of the fascia due to excessive tension). Limited bladder neck elevation (26mm or less) is not associated with a greater chance of failure. This encouraging finding might have important implications in the prevention of postoperative voiding dysfunction and detrusor instability.

#### References

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ULTRASOUND IMAGING OF URETHRAL FUNNELLING

#### AIMS OF THE STUDY

One of the factors participating in the etiology of genuine stress incontinence (GSI) are changes in the structure of muscle in and around urethra and pelvic floor. These cause the changes in the position of the bladder neck and proximal urethra and increase their mobility. Ultrasound is one of the methods for the monitoring of lower urinary tract and is an integral part of urogynecological examination. A limiting factor of ultrasound examination compared to urethrocytography is a significantly worse imaging of the urethra funnelling. Ultrasound contrast media (CM), which are used for Hysterosalpingocontrast sonography /HyCoSy/, overcome this disadvantage.

The aim of our study was to find optimal possibilities of ultrasound imaging of proximal urethra and its changes (funnelling).

#### PATIENTS AND METHODS

58 women with urodynamically proved stress incontinence were included into our study. For the 1<sup>st</sup> stage, 28 women in supine position at rest, during Valsalva and squeezing without Foley catheter, the bladder was filled to 300 ml, perineal ultrasound was performed. For the perineal examination a curved array probe 5 MHz and for the introital examination in the 2<sup>nd</sup> stage, sector probe 7 MHz (Acuson 128 XP 10) were used. We evaluated the mobility of urethra and funnelling.

Funnelling was described as an enlarged distance between the inner edges of proximal urethra during Valsalva and we documented it by the measurement of the width of the inner orifice of the urethra at rest and during Valsalva.

The perineal examination was repeated, this time using contrast medium (Echovist 300, Schering) instilled into the bladder. Then, the funnelling, defined as the leak of the contrast medium into proximal urethra during Valsalva and other parameters were examined by ultrasound.

In the 2<sup>nd</sup> stage, 30 women were examined. We began as in the first group but without the CM. We tried to diagnose the typical changes of the inner orifice of the urethra, as detected by examination using a contrast medium in the 1<sup>st</sup> stage of the study, this time using common ultrasound examination. Following perineal ultrasound, an additional introital examination, with higher magnification of the image was performed. We monitored changes in the proximal urethra (width of the inner orifice and change in its shape), at rest and during Valsalva.

#### RESULTS

Mobility of the urethra did not differ from values common in incontinent patients as published in previous studies. The values were also identical in examination with echo-contrast. In the 1<sup>st</sup> group of women, funnelling of the urethra was diagnosed 7x by examination without using contrast medium, and 25x using contrast medium Figure 1. If funnelling was diagnosed without using contrast medium, it was always subsequently confirmed by examination using contrast medium. If we compare both methods during perineal ultrasound examination, then the examination without a contrast substance has 100% specificity, but only 28% sensitivity compared to examination with contrast substance.

The width of the inner orifice of urethra was, on average, 6.9mm at rest and 9.3 mm during Valsalva for women with funnelling Table 1. For patients without funnelling, the width of the orifice at rest was the same, but the distance between the edges of urethra did not increase during Valsalva, in some cases they were even closer. In the 2<sup>nd</sup> group of women, funnelling was diagnosed 9x

during perineal examination and 24x during introital examination Figure 2. The width of inner orifice of the urethra was, on average, 6.81mm at rest and 9.15 mm during Valsalva. Measuring error was 0.53 mm.

**CONCLUSION**

Ultrasound examination is an important part of urogynecological examination. The use of contrast medium significantly improves the diagnostic possibilities of perineal ultrasound examination. Detailed monitoring of proximal urethra during introital examination increases the diagnostic possibilities of urethra funnelling without using contrast medium. Combination of dynamic examination with optimal visualising of the behavior of the bladder neck gives us new opportunities for monitoring incontinence and the understanding its pathophysiology.

Table No. I.  
Width of the urethra orifice for women with funnelling

	rest	Valsalva xD	
CM, n=25			
x	6.9±0.53	9.1±0.55	2.18
s	1.25	1.38	0.58
WCM, n=24			
x	6.81±0.51	9.15±0.56	2.42
s	1.32	1.44	0.48

CM= contrast medium, WCM= without contrast medium

Figure 1 – Funnelling with contrast medium

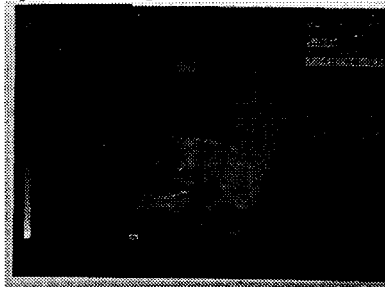
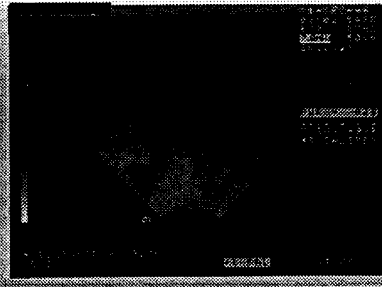


Figure 2 – Funnelling without contrast medium



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DEVELOPMENT OF THE STRIATED MUSCLE IN THE HUMAN INTRINSIC URETHRAL SPHINCTER (IUS)

Aims of Study

Transdifferentiation of smooth to skeletal muscle in the distal mouse esophageal muscle and in the rat intrinsic urethral sphincter (IUS) has been shown previously. To gain insight into the development and anatomical composition of the human intrinsic urethral sphincter we studied the expression of smooth and striated muscle and nerve fiber proteins, according to the age of gestation.

Methods

The IUS of 9 human fetuses autopsied after idiopathic intrauterine death was studied in 3 female and 6 male fetuses (gestational age 20 – 40 weeks; mean 29.8 +/- 7.1). Sections of the IUS were stained conventionally and immunohistochemically with antibodies to alpha - smooth muscle actin, desmin, actin, myogenin, neural cell adhesion molecule (N-CAM) and protein gene product 9.5 (PGP 9.5).