

## PRACTICE PATTERNS OF TRANSVAGINAL MESH SURGERY FOR PELVIC ORGAN PROLAPSE IN JAPAN

### Hypothesis / aims of study

Female pelvic floor dysfunction had been an underestimated medical field in Japan until recently. Urologists began to use needle bladder neck suspension in 1980's and have shifted to midurethral slings since 1999. Regarding pelvic organ prolapse, vaginal hysterectomy with colporrhaphy and colpocleisis are traditionally performed by gynecologists whereas anterior colporrhaphy is often done by urologists. As no mesh kits for prolapse have been approved by the Japanese government, doctors began to cut soft polypropylene mesh into a similar shape as Prolift™ and to insert their arms through the obturator foramen and sacrospinous ligament using custom-made needles. We wanted to investigate the practice patterns of prolapse surgery and estimate the complication rates of mesh surgery in Japan.

### Study design, materials and methods

We handed out a questionnaire about prolapse surgery to the doctors attending the 4th annual meeting of Japanese Society of Tension-free Vaginal Mesh (JSTVM) in February 2010. The doctors were asked to mention their specialty, whether they perform mesh/non-mesh prolapse surgery and anti-incontinence surgery, techniques of non-mesh surgery, indication of mesh surgery, number of mesh surgery and complications, and preoperative evaluation. Statistical analysis was done by chi-square test (\*Differences between specialty at  $P < 0.05$ ).

### Results

Of the 258 members of JSTVM, 199 attended the 4th annual meeting, and a total of 118 (46% of members, 59% of attendants) completed the questionnaire. The mean age of respondents was 44.0 years (SD = 9.1), and 54 (46%) of them were gynecologists while 64 (54%) were urologists. Seven percent of gynecologists and 27% of urologists were not doing non-mesh surgery for prolapse. The techniques of non-mesh surgery showed remarkable differences between the gynecologists and urologists (Table 1). All urologists performed anti-incontinence surgery whereas 22% of gynecologists did not. Overall, 84% of the respondents performed mesh surgery in both the anterior and posterior compartments, 8% restricted it to the anterior compartment, and 8% planned to begin mesh surgery. Considering the operative indications, 97% performed mesh surgery on patients including initial cases, and 3% restricted it to recurrent or post-hysterectomy cases. A total of 11935 Prolift-type mesh surgery (5551 by gynecologists, 6384 by urologists) were done within 4 years and the complications included bladder injury (1.6%), rectal injury (0.3%), ureteral injury (0.1%), fistula (0.03%), bleeding requiring blood transfusion (0.2%) or vascular embolization (0.02%), mesh erosion (2.8%), and recurrence requiring reoperation (1.1%) (Table 2). Regarding the preoperative evaluation of prolapse, gynecologists performed more transvaginal ultrasound, cervical and endometrial cytology, while urologists performed more P-QOL questionnaire, residual urine examination, urodynamics, and cystography (Table 3). Both specialties seldom did anorectal examination such as defecography.

	Total (%)	Gynecologists (%)	Urologists (%)
None*	21 (18%)	4 (7%)	17 (27%)
Vaginal hysterectomy + colporrhaphy*	56 (48%)	44 (82%)	12 (19%)
Colporrhaphy	65 (55%)	33 (61%)	32 (50%)
Colpocleisis*	49 (42%)	35 (65%)	14 (22%)
Manchester*	35 (30%)	25 (46%)	10 (16%)
Sacrospinous fixation*	18 (15%)	13 (24%)	5 (8%)
McCall*	28 (24%)	23 (43%)	5 (8%)
Abdominal sacrocolpopexy	13 (11%)	8 (15%)	5 (8%)

Table 1: The techniques of non-mesh prolapse surgery.

	Total	Gynecologists	Urologists
Number of mesh surgery	11935	5551	6384
Bladder injury	196 (1.6%)	91 (1.6%)	105 (1.6%)
Rectum injury	37 (0.3%)	17 (0.3%)	20 (0.3%)
Ureteral injury	13 (0.1%)	9 (0.2%)	4 (0.06%)
Fistula	3 (0.03%)	2 (0.04%)	1 (0.02%)
Blood transfusion	25 (0.2%)	9 (0.2%)	16 (0.3%)
Arterial embolization	2 (0.02%)	0	2 (0.03%)
Vaginal mesh erosion	335 (2.8%)	154 (2.8%)	181 (2.8%)
Bladder mesh erosion	1 (0.008%)	0	1 (0.02%)
Reoperation due to recurrence*	135 (1.1%)	76 (1.4%)	59 (0.9%)

Table 2: The reported complications of Prolift-type mesh surgery (Sep 2005 - Feb 2010).

	Total (%)	Gynecologists (%)	Urologists (%)
POP-Q	86 (73%)	44 (82%)	42 (66%)
P-QOL questionnaire*	44 (37%)	14 (26%)	30 (47%)
Barrier test	42 (73%)	14 (26%)	28 (44%)
Uroflowmetry*	75 (64%)	15 (28%)	60 (94%)
Residual urine*	92 (78%)	29 (54%)	63 (98%)
Cystometry*	33 (28%)	4 (7%)	29 (45%)
Pressure-flow study*	25 (21%)	3 (6%)	22 (34%)
Cystography*	64 (54%)	12 (22%)	52 (81%)
Cervical cytology*	89 (75%)	53 (98%)	36 (56%)
Endometrium cytology*	67 (57%)	43 (80%)	24 (38%)
Transvaginal ultrasound*	55 (47%)	49 (91%)	6 (9%)
Transperineal ultrasound	19 (16%)	13 (24%)	6 (9%)
Transabdominal ultrasound*	37 (31%)	7 (13%)	39 (47%)
MRI	23 (20%)	6 (11%)	17 (27%)
Defecography	3 (3%)	1 (2%)	2 (3%)
Colon fiberscope	4 (3%)	1 (2%)	3 (5%)

Table3: Preoperative evaluation before prolapse surgery (including referral).

#### Interpretation of results

Although any voluntary survey has inherent weakness and bias, this study shows that Prolift-type mesh surgery is increasingly used by the Japanese gynecologists and urologists. Over 10000 cases of mesh surgery have already been done with relatively low rate of short to medium-term complications. There have been significant differences in the techniques of non-mesh surgery and preoperative examination between gynecologists and urologists. It is preferable for doctors who perform prolapse surgery to be trained in a range of procedures and examinations, or to be able to collaborate between specialties. Postgraduate training of urogynecology / female urology needs to be propelled.

#### Concluding message

Prolift-type mesh surgery is being accepted in Japan as a technique to support the increasing therapeutic needs for prolapse in a rapidly aging society. Cautious follow-up is necessary to determine the safety and efficacy of mesh prolapse surgery.

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<b><i>Is this a clinical trial?</i></b>	<b>No</b>
<b><i>What were the subjects in the study?</i></b>	<b>NONE</b>