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Tuygun C[1], Imamoglu A[1], Keyik B[2], Alisir I[1], Yorubulut M[3]

1. *Department of Urology, Diskapi Yildirim Beyazit Training and Research Hospital, Ankara, Turkey,* ***2.*** *Department of Radiology, Diskapi Yildirim Beyazit Training and Research Hospital, Ankara, Turkey,* ***3.*** *Integra Medical Imaging Center, Ankara, Turkey*

SIGNIFICANCE OF FIBROSIS AROUND AND/OR AT EXTERNAL URINARY SPHINCTER ON PELVIC MAGNETIC RESONANCE IMAGING IN PATIENTS WITH POSTPROSTATECTOMY INCONTINENCE.

Hypothesis / aims of study: To determine the clinical importance of fibrosis on pelvic magnetic resonance imaging in patients with postprostatectomy incontinence (PPI) due to sphincteric incompetence.

Study design, materials and methods Urethral and periurethral fibrosis was determined by pelvic magnetic resonance imaging in patients who did (n = 22) or did not (n = 14) have urinary incontinence after transurethral resection, transvesical prostatectomy, or radical retropubic prostatectomy. In the study group, patients with PPI were evaluated by history, voiding symptoms, physical examination, urinalysis, urine culture, pad weight/3 days, validated International Consultation on Incontinence Questionnaire Short Form (ICIQ-SF), cystoscopy and urodynamic studies. In the control group, patients with no PPI were evaluated by history and voiding symptoms. After evaluation, patients with no lower urinary tract symptoms such as urinary incontinence were accepted as patient with no PPI. The relation between fibrosis and the duration of incontinence, pad weight, symptom score, cystoscopy findings, and urodynamic findings was examined. Analysis of data was done with SPSS 11.5 (Statistical Software Package) program. Kruskal-Wallis variance test was used for statistically evaluation and p<0, 05 test results were accepted as significant.

Results: Fibrosis was seen in all patients (22 of 22) in the study group and in 4 of 14 patients in the control group (p<0.001, figure 1). All the patients with severe fibrosis had undergone radical retropubic prostatectomy (p<0.001, table 1). Similar to the etiology for incontinence, no relation was found between the severity of fibrosis and the duration of incontinence, pad weight, symptom score, cystoscopy findings, or urodynamic findings (table 2). However, the duration of incontinence was shorter in patients with mild fibrosis, clinically.

Interpretation of results: Fibrosis was seen around and/or at the EUS by pelvic MRI in all of patients with PPI objectively and its development was not depending on operation type. Also, we determined mild and moderate fibrosis, mostly in patients who had undergone TUR and TVP operations, whereas severe fibrosis was seen only in patients who had undergone RRP. It means that direct sphincteric injury or fibrosis development at the EUS (membranous fibrosis) is more common after TUR and TVP, fibrosis around the EUS (periurethral fibrosis) is more common after RRP. Surprisingly, we determined fibrosis in CG as mild in 3, moderate in 1. We postulated that, this condition may be ‘’benign surgical sign’’ because it was seen in asymptomatic peoples. Also, fibrosis was determined at various grades by pelvic MRI in all patients. It means that fibrosis had a high incidence on developing sphincter dysfunction. Despite all of the patients had undergone same type of operation, while some of the patients have had no fibrosis, certain of the patients have had severe fibrosis as well as incontinence. We postulated that direct sphincter injury and poor wound healing or both may give rise to much more severe fibrosis. Lastly, no statistical significant difference found between duration of incontinence and severity of fibrosis, on the other hand, patients with mild fibrosis were determined shorter of this period than the others, clinically (12 mo. vs. 24 mos.). These findings may refer that progression of fibrosis continues even after one year and results in the failure of endourethral bulking agent treatment if this operation made before one year and therefore, multiple injections will be necessary overtime because of migration of injected agents.

Concluding message: The results of our study have shown that the incidence of fibrosis is much greater in patients with PPI than in patients without PPI. Consequently, we believe that fibrosis plays an important role in the development of PPI because it may have a negative effect on external urethral sphincter function.

SG, (n=22)	No fibrosis, n (%)	Mild fibrosis, n (%)	Moderate fibrosis, n (%)	Severe fibrosis, n (%)
TUR		4 (40)	2(25)	
TVP		3 (30)	3(37)	
RRP*****			2 (25)	8 (100)*****
CG, (n=14)				
TUR	3 (30)	1 (10)		
TVP	2 (20)	2(20)		
RRP	5 (50)		1 (12.5)	

Table 1. Distributions of severity of fibrosis in SG and CG patients.

Etiology of PPI, (n=22)	TUR(6)	TVP(6)	RRP(10)	p	Severity of fibrosis, (n=22)	Mild (7)	Moderate(7)	Severe (8)	p
Clinical									

parameters									
Duration of incontinence (mo.)**	18 (9–24)	23 (7–36)	23 (7–28)	0.79		12 (7–24)	24 (7–24)	24 (12–28)	0.099**
Pad weight (mg/daily)	650 (200–1000)	850 (600–1000)	900 (300–1000)	0.49		700 (200–1000)	1000 (600–1000)	900 (500–1000)	0.387
Symptom score	18.5 (16–21)	21 (19–21)	19 (16–21)	0.14		20 (16–21)	21 (16–21)	19 (16–21)	0.524
VLPP (cmH2O)	10 (5–15)	7.5 (5–15)	7.5 (5–20)	0.831		10 (5–15)	10 (5–15)	5 (5–20)	0.646

Table 2. Distributions of clinical parameters

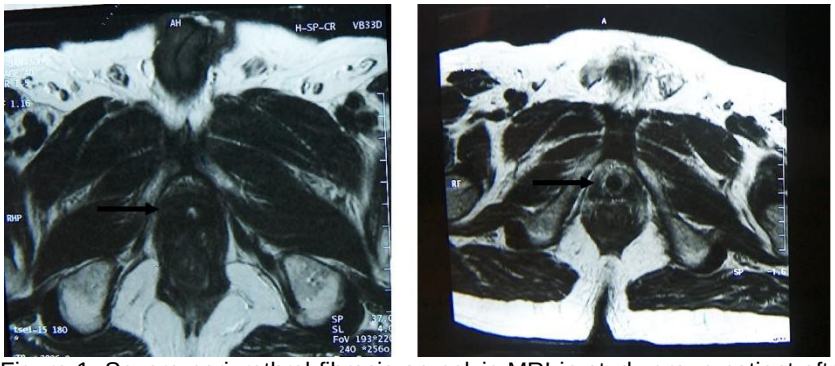

Figure 1. Severe periurethral fibrosis on pelvic MRI in study group patient after RRP on the left image. No periurethral fibrosis on pelvic MRI in control group patient after RRP on the right image.

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Is this a clinical trial?	**Yes**
Is this study registered in a public clinical trials registry?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Diskapi Yildirim Beyazit Traninig and Research Hospital**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**