

저 자 약 력


저 자 : 이 지 열

약 력 :

- | | |
|---------------|-----------------------------|
| 1989. | 가톨릭의대 졸업 |
| 1990. ~ 1994. | 가톨릭의대 성모병원 비뇨기과 전공의 |
| 2000. | 가톨릭의대 의학박사 취득 |
| 2000 ~ 2001 | 미국 Pittsburgh University 연수 |
| 1997 ~ 2002 | 가톨릭의대 성모병원 비뇨기과 전임강사, 조교수 |
| 2002 ~ 현재 | 가톨릭의대 부천 성가병원 비뇨기과장, 부교수 |

Voiding Dysfunction and Quality of Life after Orthotopic Neobladder : Its Evaluation and Management

가톨릭의대 / 이 지 열





Complication after Orthotopic neobladder

Radical Cystectomy

- Operative mortality : 1% – 3%
- Overall complication rate : 25% to 35%.
- Wound infections
- Gastrointestinal complications ; intestinal obstruction, fistula, rectal injury
- Erectile dysfunction

Neobladder

- Metabolic disturbance
- Incontinence
- Anastomosis Stricture
- Stone in Reservoir



Complication after Orthotopic neobladder

1. superior cosmetic appearance (without the need for a cutaneous stoma or urostomy appliance)
2. allowing for a more natural voiding pattern per urethra

↓

1. Far more technically demanding
2. associated with increased morbidity and mortality

-> *ileal conduit should remain the gold standard of urinary diversion?*

Evidence for clinical results



clinical results of orthotopic diversion are not only excellent, but also not associated with an obvious increase in perioperative morbidity and mortality compared with the standard ileal conduit

Stein et al, 1998 : clinical outcomes in 1054 patients

➡ no significant difference in perioperative mortality and complication rate when comparing these different forms of urinary diversion

	Orthotopic neobladder	Other form diversion
Perioperative mortality	3%	2%
Early Complication rate	30%	27%

➡ continent form of urinary diversion can be performed with clinical outcomes very similar to conduit urinary diversion

Evidence for clinical results

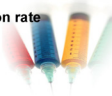
Gburek et al, 1998 : clinical outcomes of an orthotopic ileal substitute (Studer) with those of an ileal conduit form of urinary diversion


orthotopic ileal neobladder 62 men and 4 women
ileal conduit urinary diversion 66 men

	Neobladder	Conduit group/diversion
Late complication	21%(14)	11%
Reoperation rate	12%(8)	8%

➡ ileal neobladder urinary diversion, safe procedure with perioperative and long-term morbidity comparable to ileal conduit


Benson et al, 1992
no difference in hospitalization stay, complication rate, reoperation rate






Results from orthotopic neobladder

Author	Form	No. of Patients	Follow-Up	Mean Age	Mortality	Complications*		Continence		IC	Antireflux Mechanism
						Early	Late	Day	Night		
Bare	Carvey ileum	110	32 mo	62 years	1%	—	—	91%	74%	1%	Le Duc
Elmajan	Kock-ileum	295	42 mo	66 years	1%	7%	12%	87%	86%	8%	Nipple valve
Steven	Kock-ileum	166	32 mo	62 years	0%	12%	23%	98%	80%	32%	Nipple valve
Hudmann	"W"-ileum	383	37 mo	63 years	3%	15%	25%	96%	95%	6%	Le Duc
Hollowell	"W"-ileum	50	20 mo	62 years	2%	10%	20%	93%	86%	4%	Isoperistaltic "chimney"
Stein	T-Pouch-ileum	40	10 mo	67 years	2.5%	12%	—	80%	65%	0%	T-limb mechanism
Studer	Studer-ileum	200	30 mo	64 years	2%	—	—	90%	80%	0.5%	Isoperistaltic limb
Cancrini	Studer-ileum	96	28 mo	60 years	6%	6%	24%	98%	83%	—	Isoperistaltic limb
Tharoff	Main-ileocecal	61	46 mo	—	—	5%	18%	95%	86%	13%	Submucosal tunnel
Kolettis	Ileocecal (Le Bag)	38	14 mo	61 years	0%	8%	8%	91%	80%	3%	Le Duc and Bricker





Campbell's urology, 8th




Limitations in orthotopic bladder in Women

1. Routine resection of anterior vagina
➔ could lead to a pouch–vaginal fistula
2. Routine resection of urethra
3. Poor understanding of the continence mechanism in women





Continence mechanism in Women

1. Proximal urethra
Innervated via pelvic plexus
Often transected during a radical cystectomy
2. Mid– to lower third of urethra
Rhabdosphincter muscle
Innervated via pudendal nerves
Critical sphincter mechanism for continence in women




Wood. UCNA 2000; 27: 367–78




Preoperative Patient Selection

1. Age younger than 75 years old
2. Tumor located away from the bladder neck
3. Low risk of urethral recurrence
4. Tumor completely resectable
5. Low risk of metabolic disturbances
6. Highly motivated patient





Wood. UCNA 2000; 27: 367–




Optimal orthotopic bladder substitution


1. A large–capacity low–pressure reservoir
2. Minimal absorptive capacity for solutes
3. Nonrefluxing ureteral anastomosis
4. Normal urethral function after bladder neck removal
➔ not to be incontinent or hypercontinent

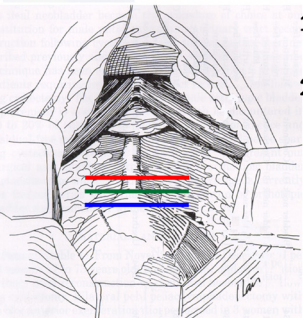



Operative techniques for satisfactory functional outcome

1. Nerve–sparing procedure
2. Leave adequate length of urethra to keep continence
3. Position the neobladder outlet most caudally
4. Perform omental flap interposition




 A clinical study: Adequate resection line



1. Proximal urethra
➔ High Continence rate
2. Urethrovessical junction or Bladder neck
➔ Risk of local tumor recurrence & hypercontinence


Hautmann. J Urol 1996; 155: 76-81

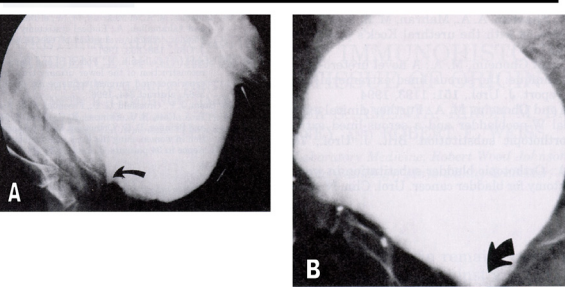
 most dependent (caudal) position of the neobladder outlet


Significant amounts of residual urine
– due to a mechanical rather than functional factor

Posterior displacement of the pouch
➔ urethrointestinal angulation
➔ a huge pouchcele
➔ hypercontinence & a lot of residual urine

Mikuma. J Urol 1997; 158: 1365-


 Voiding radiography of neobladder




 Urinary Diversion in St. Mary's Hospital, Seoul Korea

Jan 1990 – Dec 2001
Total 213 of radical cystectomy with urinary diversion
M : F = 176 : 37 (83% : 17%)

We investigated the **anatomical** and functional **outcomes** of the orthotopic neobladder in women.

 Patients

Since 1997
A total of 10 women with TCC of the bladder
Radical cystectomy with ileal neobladder
Mean age 64.8 (60-69)
Two groups
Initial 5 patients : neobladder **without** omental flap interposition
Last 5 patients : neobladder **with** omental flap interposition

 Method

- Interview
- 3-day voiding diary
- Urodynamic study
- Voiding radiography of neobladder
- MRI

Results: Major Complications

Neobladder related	
Ureteroenteric anastomosis	
Obstruction	1
Reflux	0
Urethral anastomosis	
Stricture	1
Inability to empty	0
Kidney	
Acute pyelonephritis	1
Renal/Ureteral calculus	0
Neobladder unrelated	
Bowel	
Paralytic ileus	1
Mechanical ileus	0
Deterioration renal function	0

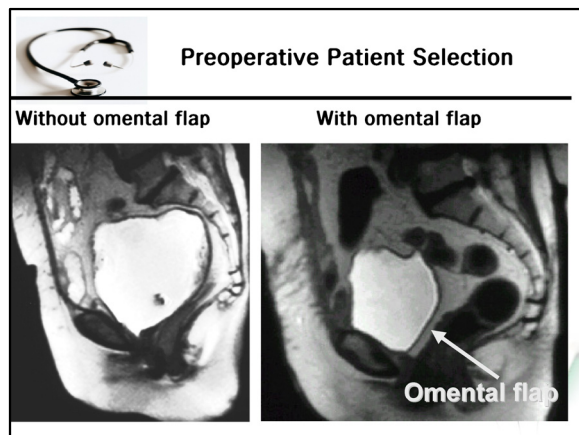
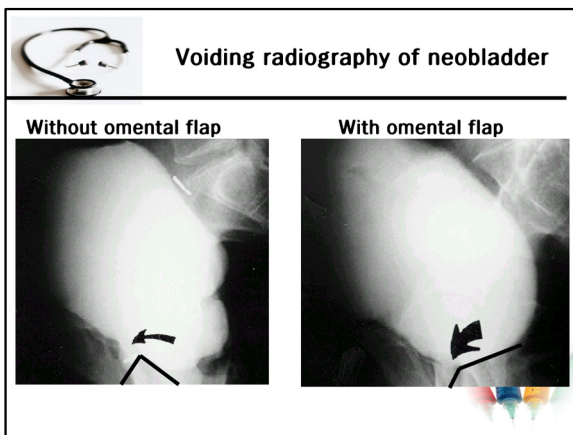
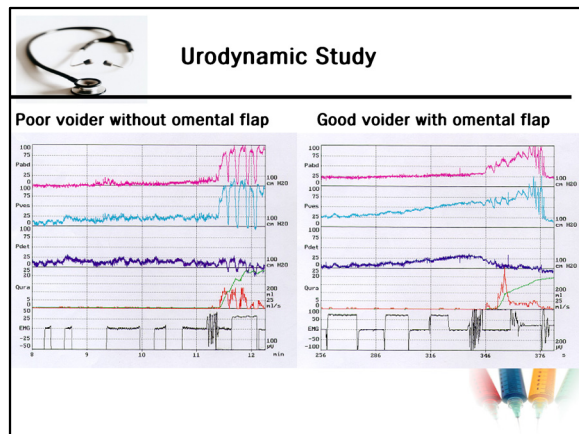
Interview & voiding diary

Omental flap	Daytime Continence	Nighttime continence	Post-void residual urine	Clean intermittent catheterization
Without (n=5)	3 (60%)	3 (60%)	120 ml	2 (33%)
With (n=5)	5 (100%)	4 (80%)	30 ml	0 (0%)

Urodynamic Study

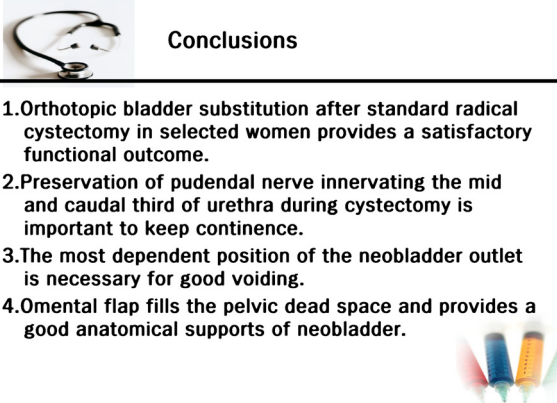
Omental flap	Max. capacity (ml)	Av. Pneo during filling (cm.water)	Pneo at opening (cm.water)	Qmax (ml/sec)	PneoQmax (cm.water)	PabdQmax (cm.water)
Without (n=5)	415 ± 42	14.8 ± 6.5	56.8 ± 18.6	12.5 ± 4.1	78.3 ± 10.6	93.9 ± 12.1
With (n=5)	384 ± 18	15.4 ± 5.6	34.2 ± 7.0*	17.9 ± 3.0*	66.4 ± 6.5	88.8 ± 5.6

*: P < 0.05



Conclusions

1. Orthotopic bladder substitution after standard radical cystectomy in selected women provides a satisfactory functional outcome.
2. Preservation of pudendal nerve innervating the mid and caudal third of urethra during cystectomy is important to keep continence.
3. The most dependent position of the neobladder outlet is necessary for good voiding.
4. Omental flap fills the pelvic dead space and provides a good anatomical supports of neobladder.



Quality of Life ? Comparison with normal

SF-36 health related QOL in patients with neobladder and age matched normative values in Japanese population

SF-36 Subscale	Mean 50-59 ± SD		Mean 60-69 ± SD		Mean Older Than 70 ± SD	
	Pts	Controls	Pts	Controls	Pts	Controls
No. pts	7		18		19	
Physical functioning	86.9 ± 14.9	87.6 ± 12.7	85.3 ± 13.1	82.6 ± 18.9	72.5 ± 23.7	70.6 ± 24.2
Role-physical	75.0 ± 30.8	89.6 ± 18.0	86.9 ± 23.0	84.7 ± 22.5	60.3 ± 33.9	74.6 ± 37.1*
Bodily pain	79.4 ± 20.3	72.5 ± 21.5	86.7 ± 16.9†	73.1 ± 23.8	68.7 ± 20.6	67.2 ± 24.9
General health	63.8 ± 23.2	82.2 ± 17.6	61.7 ± 14.7	82.3 ± 20.3	52.5 ± 17.7	58.5 ± 20.9
Vitality	58.6 ± 23.1	83.2 ± 19.7	65.6 ± 18.3	65.5 ± 21.4	60.6 ± 21.4	69.4 ± 21.6
Social functioning	78.1 ± 25.7	87.2 ± 17.6	88.8 ± 15.0	85.4 ± 21.0	81.9 ± 22.0	83.7 ± 22.3
Role-emotional	75.0 ± 33.0	88.7 ± 17.9	92.1 ± 17.0	86.3 ± 22.0	66.7 ± 25.7	78.9 ± 28.1
Mental health	66.9 ± 28.5	72.4 ± 18.9	76.7 ± 13.3	74.1 ± 20.0	70.1 ± 16.6	73.4 ± 19.0

* One-sample test p < 0.05.
† One-sample test p < 0.01.

1. Overall, no significant difference in any SF-36 scales between patients with an orthotopic neobladder and the age matched Japanese population.
2. 50 to 59-year-old patients, no significant difference in any SF-36 scale.
3. 60 to 69-year-old patients, mean bodily pain value was significantly higher.
4. older than 70 years, more likely to have a lower role-physical score.

TATSUAKI, J Uro, 2005

Quality of Life ? Comparison with normal

SF-36 health related QOL in male patients with neobladder, and age and sex matched normative Japanese population values

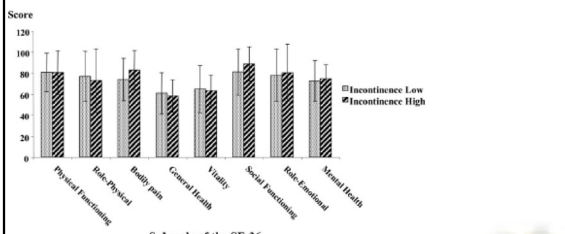
SF-36 Subscale	Mean 50-59 ± SD		Mean 60-69 ± SD		Mean Older Than 70 ± SD	
	Pts	Controls	Pts	Controls	p Value (sample test)	Pts
No. pts	5		14			17
Physical functioning	84.2 ± 16.6	88.7 ± 12.3	90.0 ± 8.30	84.3 ± 17.7	<0.05	75.3 ± 23.7
Role-physical	79.2 ± 26.1	92.4 ± 16.0	84.2 ± 11.2	86.2 ± 20.7	<0.05	61.1 ± 24.5*
Bodily pain	77.2 ± 21.8	74.2 ± 22.0	88.0 ± 14.2	73.2 ± 23.9	<0.01	63.9 ± 21.4
General health	58.5 ± 23.6	62.6 ± 17.7	68.2 ± 16.5	80.9 ± 19.9		57.6 ± 11.7
Vitality	57.3 ± 27.2	64.4 ± 18.9	69.2 ± 19.1	67.9 ± 30.9		62.2 ± 20.8
Social functioning	77.1 ± 27.9	80.0 ± 14.7	91.7 ± 11.1	85.5 ± 19.6		81.3 ± 22.8
Role-emotional	79.2 ± 29.7	91.8 ± 15.2	85.1 ± 8.80	86.6 ± 21.6	<0.001	68.1 ± 26.7
Mental health	61.7 ± 31.7	72.7 ± 18.6	77.5 ± 13.6	74.8 ± 19.1		70.9 ± 17.4

* One-sample test p < 0.01.

1. 50 to 59-year-old, no significant difference
2. 60 to 69-year-old male, more likely to have better QOL in physical functioning, role-physical and role-emotional besides bodily pain than the age matched control
3. older than 70 years, role-physical related QOL remained better than in the age matched Japanese population

TATSUAKI, J Uro, 2005

Quality of Life ? Comparison with normal

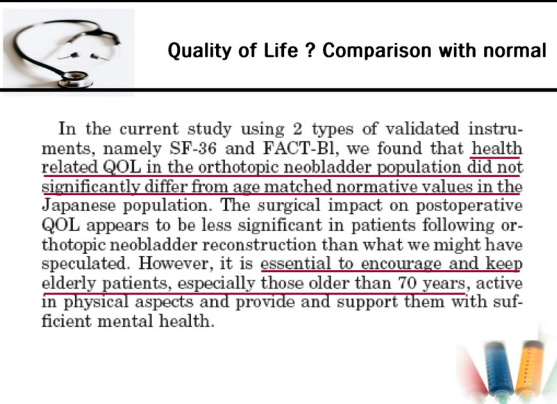


Effect of FACT-BI incontinence related QOL on health related QOL using SF-36. Health related and incontinence related QOL did not correlate significantly.

TATSUAKI, J Uro, 2005

Quality of Life ? Comparison with normal

In the current study using 2 types of validated instruments, namely SF-36 and FACT-BI, we found that health related QOL in the orthotopic neobladder population did not significantly differ from age matched normative values in the Japanese population. The surgical impact on postoperative QOL appears to be less significant in patients following orthotopic neobladder reconstruction than what we might have speculated. However, it is essential to encourage and keep elderly patients, especially those older than 70 years, active in physical aspects and provide and support them with sufficient mental health.



TATSUAKI, J Uro, 2005

Quality of Life? Comparison with ileal conduit

From 1995 to 1999, 230 patients underwent radical cystectomy : Rand 36-Item Health Survey(SF-36) & Functional Assessment of Cancer Therapy-General (FACT-G) questionnaires.

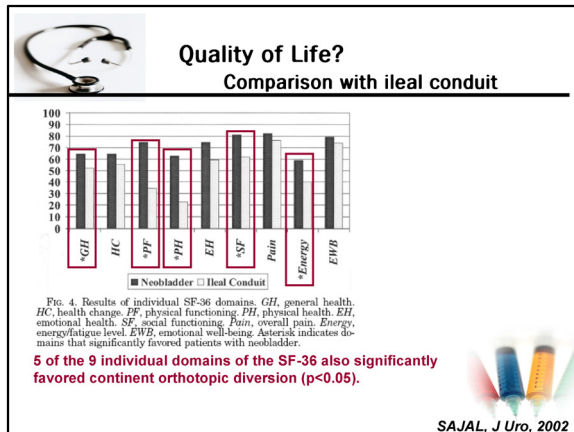
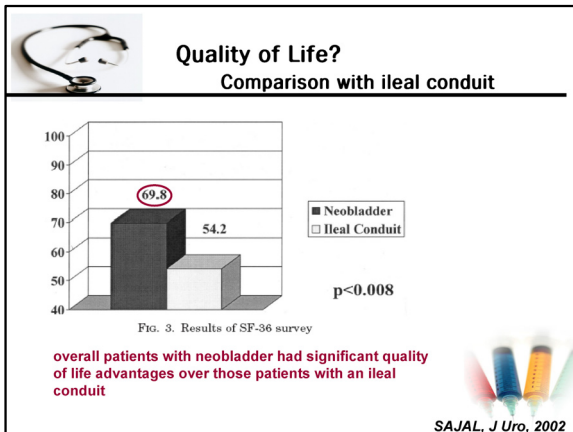
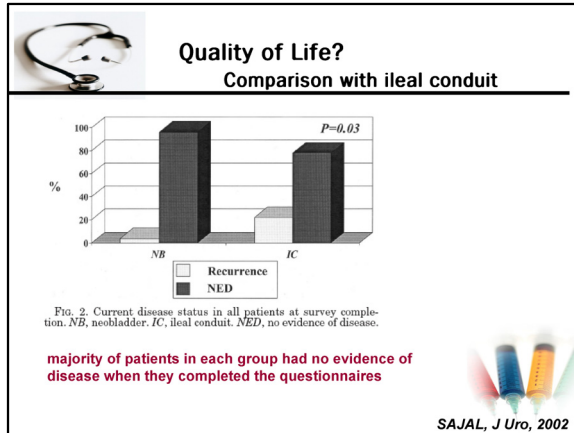
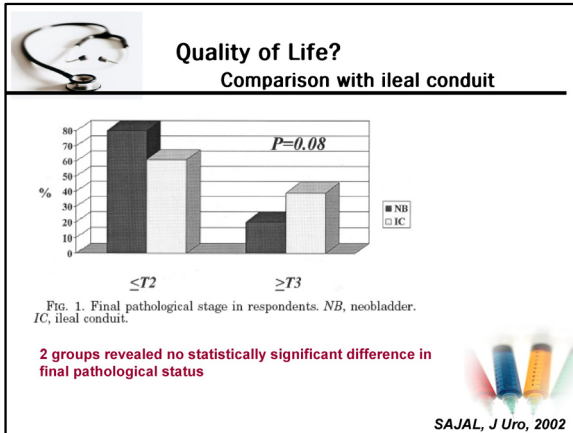
TABLE 1. Comparison of survey respondents and nonrespondents

	Respondents	Nonrespondents	p Value
No. pts.	72	40	
Mean age (years) ± SD	67.1 ± 9.7	64.0 ± 11.4	0.15
Mean yrs. followup ± SD	2.69 ± 1.48	3.05 ± 1.66	0.25
No. neobladder (%)	49 (68)	26 (65)	0.74
No. men (%)	58 (81)	33 (83)	0.8
No. final pathological stage T3 or greater (%)	19 (26)	11 (28)	0.9
No. disease-free (%)	65 (90)	39 (98)	0.26

TABLE 2. Demographic data on all respondents

	Overall	Neobladder	Ileal Conduit	p Value
No. pts.	72	49	23	
Mean age ± SD	67.1 ± 9.7	64.0 ± 8.6	73.6 ± 8.8	<0.001
No. men (%)	58 (81)	41 (84)	17 (74)	0.54
Mean yrs. followup ± SD	2.69 ± 1.48	2.75 ± 1.41	2.55 ± 1.64	0.35

SAJAL, J Uro, 2002

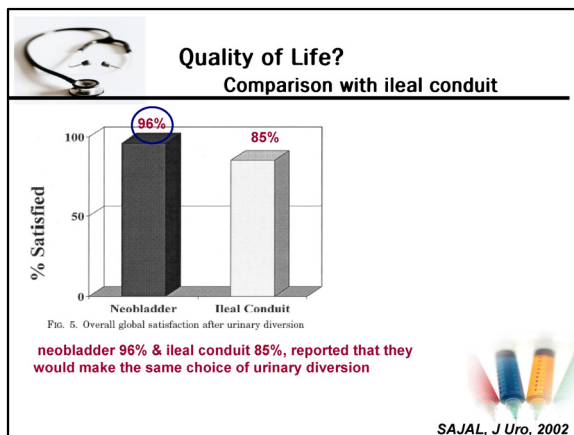


Quality of Life? Comparison with ileal conduit

comparisons only to patients free of disease

1. neobladder (p=0.01) & no evidence of disease (p=0.006) : higher quality of life Scores
2. younger patients (p=0.07) and females (p=0.16) : slight suggestion of higher quality of life scores
3. in this cohort patients with a neobladder had significantly higher quality of life scores even after adjusting for age, disease status and gender on multivariate analysis (p=0.04).

SAJAL, J Uro, 2002





Quality of Life?
Comparison with ileal conduit

Although our study had limitations due to sample size, differences in patient age in the 2 groups, retrospective methodology and the limitations of existing health related quality of life surveys, we believe that our results suggest that patients with a neobladder enjoy marginal quality of life advantages over those with an ileal conduit. As a result of these limitations, we have developed and are in the process of validating a new disease and treatment specific health related quality of life questionnaire for patients with bladder cancer who undergo radical cystectomy and urinary diversion. Further evaluations of health related quality of life in these patients should include a prospective design to evaluate further the impact of treatment and type of diversion using reliable and validated instruments.



SAJAL, J Uro, 2002



 가톨릭대학교 성가병원

경정애 주셔서 감사합니다.
 비뇨기과 이지열