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Malignant ureteral obstruction: effectiveness of current management

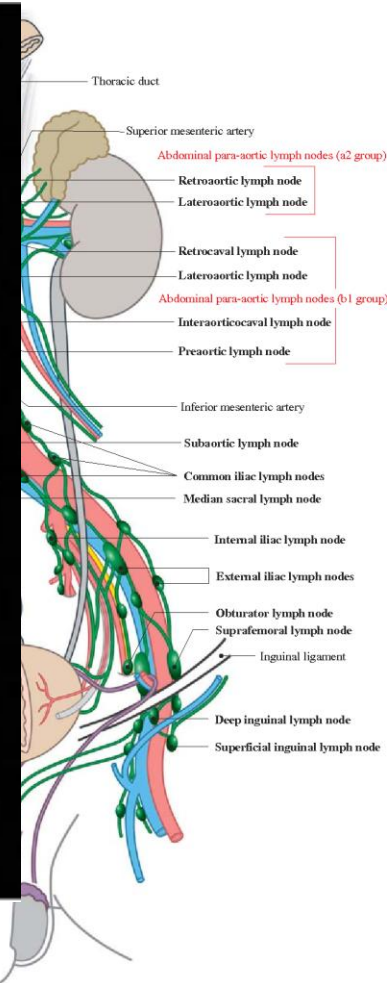
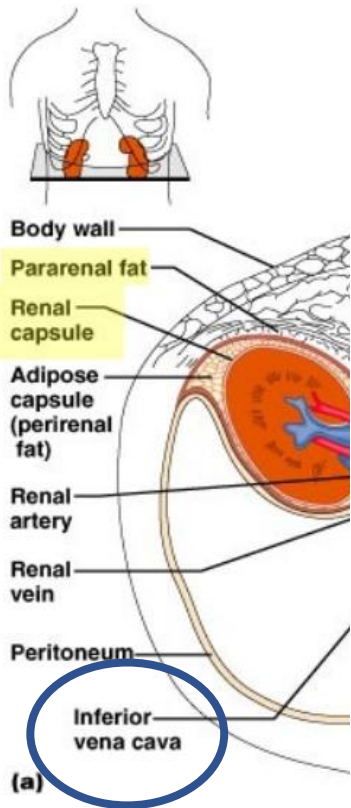
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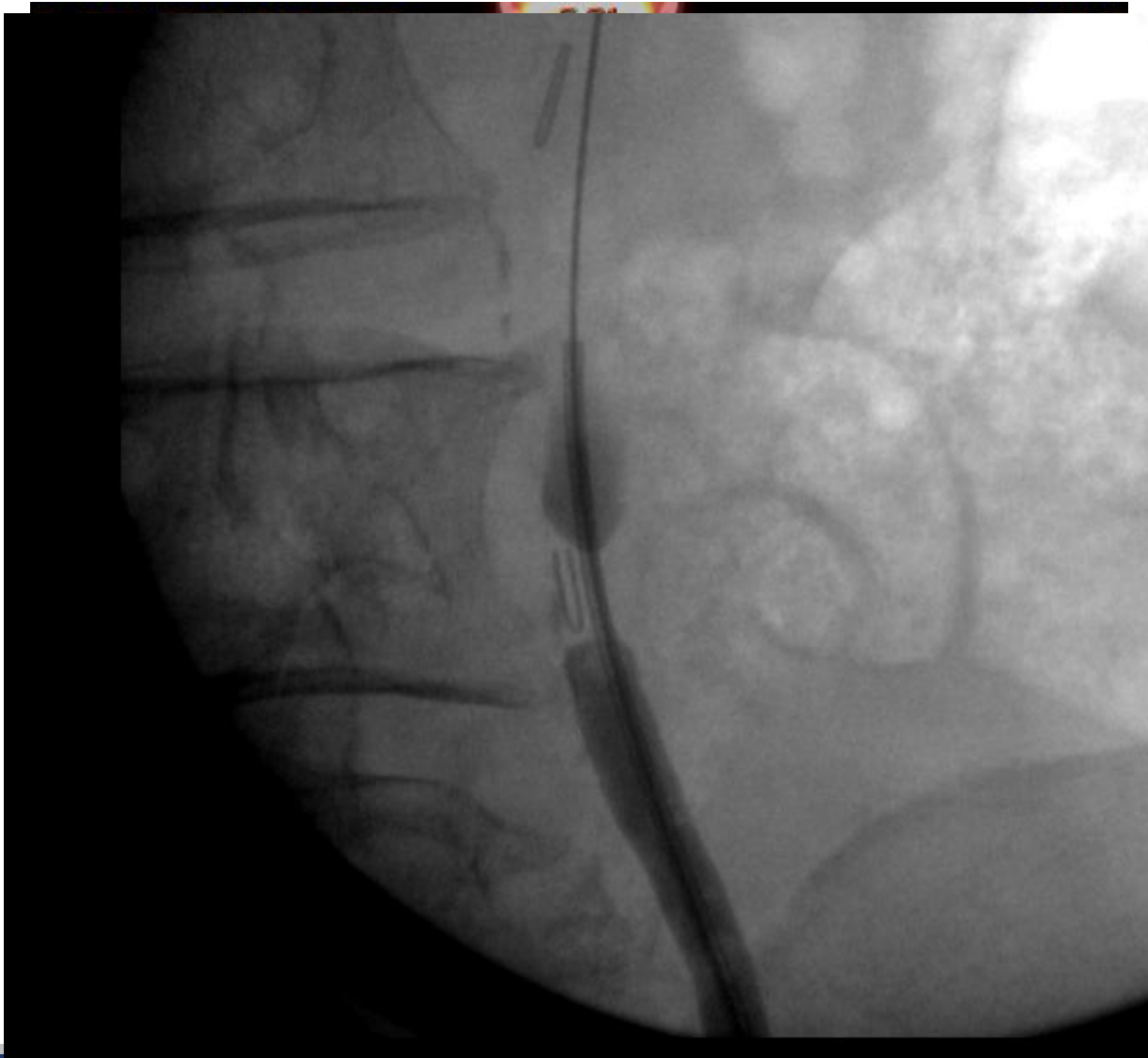
Severance

Malignant ureteric obstruction (MUO)

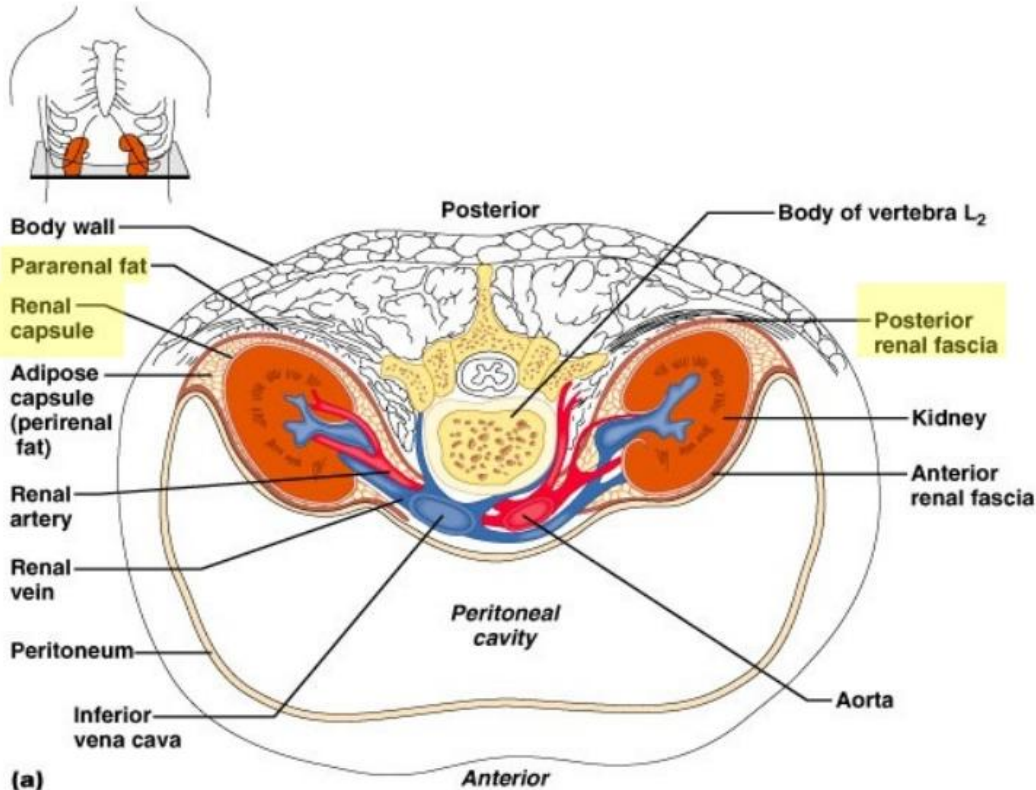
: Extrinsic ureteral obstruction secondary to malignancy



Malignant ureteric obstruction (MUO)



MUO: pain



Symptom of hydronephrosis

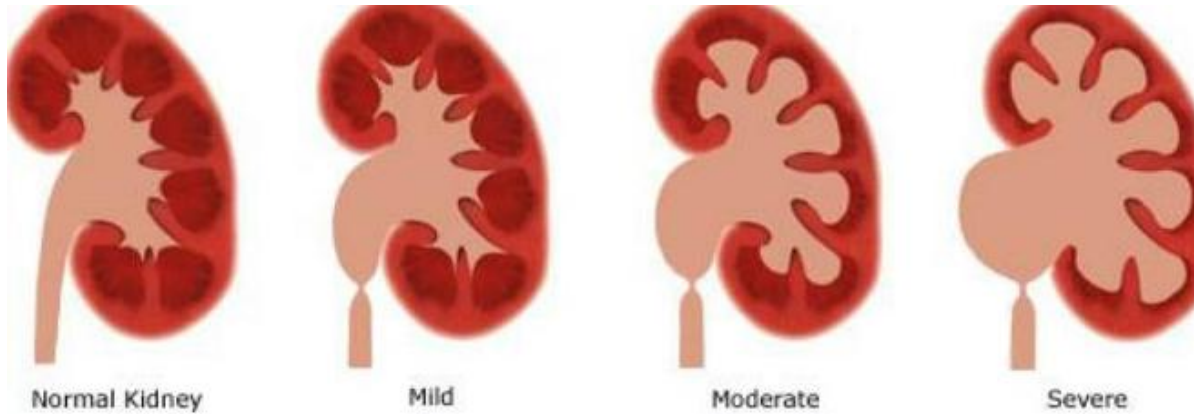
Acute:

Colicky pain comes and goes
Its intensity may cause the person to writhe or roll around or pace in pain

Chronic:

unilateral dull aching loin pain

MUO: renal failure



Hydronephrosis

- Increased renal pelvis pressure
- Damage of nephrons and collecting tubule
- **Decreased GFR**



short survival rate
difficulty in CTx

Urinary diversion for MUO

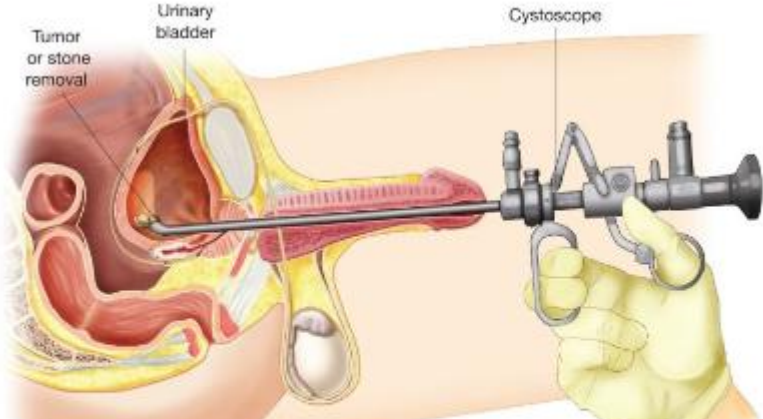
Catheter

- Double J ureteral stent
- Percutaneous nephrostomy catheter (PCN)
- Metal ureteral stent

Operation

- Ureter segmental resection and ureteroureterostomy
- Ureteroneocystostomy
- Ileal ureter
- Ileal conduit, ureterocutaneostomy

Double J ureteral stent



Double J ureteral stent

1. **More difficult in male patients** (d/t urethral length, angle, prostate)

2. Regular exchange per 3 months (obstruction and infection)

3. Hematuria

- Hydration
- Irrigation
- PCN

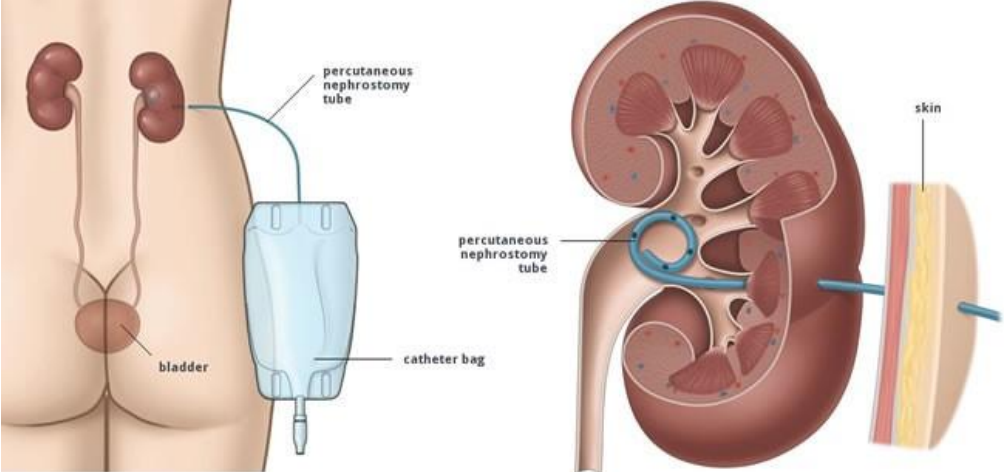
4. Irritation voiding Sx

- Frequency, urgency, dysuria
- Anticholinergics
- A blocker

5. Infection

- Vesicoureteral reflux
- Medication (voiding function)
- PCN

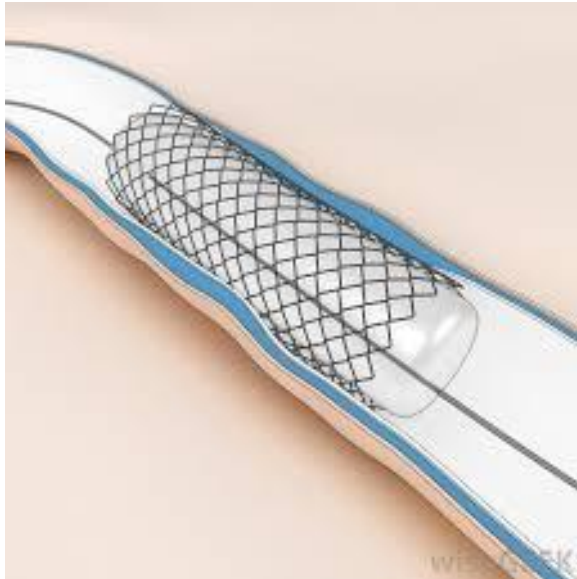
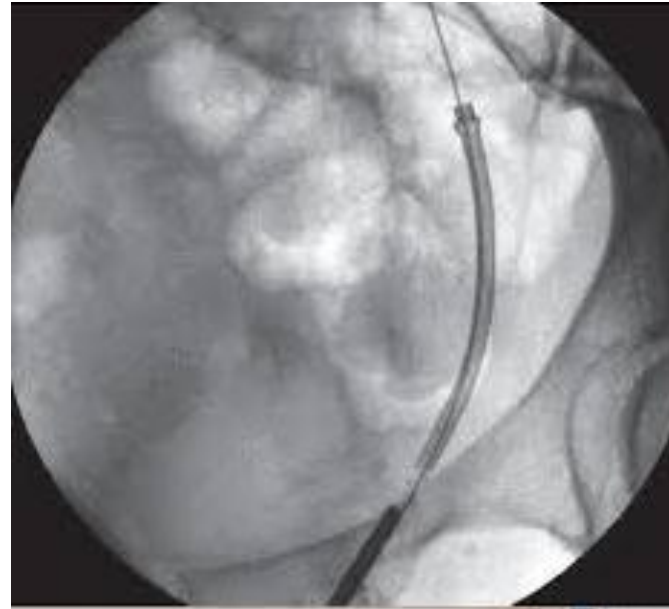
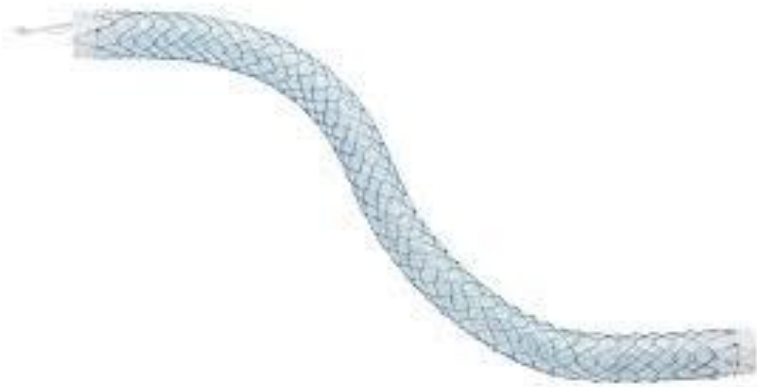
Percutaneous nephrostomy catheter (PCN)



Percutaneous nephrostomy catheter (PCN)

- 1. Management of PCN catheter and urine bag**
2. Back pain
3. Infection (skin, APN)
- 4. Catheter obstruction and dislodged tube**
5. Regular exchange per 3 months (obstruction and infection)
6. Opportunity of antegrade DJ stent insertion

Metal ureteral stent



Early Application of Permanent Metallic Mesh Stent in Substitution for Temporary Polymeric Ureteral Stent Reduces Unnecessary Ureteral Procedures in Patients With Malignant Ureteral Obstruction

Ki Hong Kim, Kang Su Cho, Won Sik Ham, Sung Joon Hong, and Kyung Seok Han

Metal ureteral stent

1. Stent migration
2. Hematuria
3. Irritation voiding Sx
4. Infection
5. Fistula (ureteroenteric, vaginal, arterial)

Study group	Journal and year	Patients (ureters)	Stent	Type of study	Follow up, months mean (range) or range	Patency rate	Complications
Kim JH et al. [13]	Korean J Urol 2012	18 (20)	Uventa	P	7.3 (3–15)	100%	Irritative bladder symptoms $n = 2$, mild lower abdominal pain $n = 2$, haematuria $n = 3$
Chung kJ et al. [10]	J Endourol 2013	54 (71)	Uventa	R	11 (1.25–28.6)	Primary 64.8% Overall 81.7%	Pain $n = 30$, Secondary migration $n = 2$, LUTS $n = 5$, acute pyelonephritis $n = 2$
Kim KH et al. [1]	Urology 2015	40 (40)	Uventa	R	8.57 (not reported)	77.5%	Not reported
Kim MD et al. [31]	J Endourol 2016	44 (50)	Uventa	R	30.9 (8.1–49)	26.5%	Ureteric injuries $n = 9$, ureteroarterial fistula $n = 3$, ureteroenteric fistula $n = 3$, ureterovaginal fistula $n = 1$, bleeding $n = 1$, stone encrustation $n = 2$, migration $n = 2$

Malignant ureteric obstruction (MUO)

All MUO must be treated?

Which patient will be treated ?

Decompression for MUO

1. European Association of Urology (**EAU**) and the American Urological Association (**AUA**) guidelines **recommend decompressing** the urinary systems.
2. **Individualized consideration** must be given to the risks and benefits of decompression.
3. There is **a lack of consensus** of opinion as well as strong evidence to support the decision process.
4. The **National Institute for Health and Care Excellence** guidelines concluded that patients should be offered decompression, but that **the option of 'no intervention' should also be discussed.**

Palliative Tx for Prostate Cancer in EAU guideline

2.1.2.2 Ureteric obstruction

Ureteric obstruction is most frequently caused by tumour compression or infiltration within the true pelvis (7-10). In most cases, obstruction is primarily asymmetrical. It is good practice to drain symptomatic hydronephrosis at once, and to drain only one kidney (the less dilated and better appearing kidney or the one with the better function, if known) in asymptomatic patients. A nephrostomy tube is superior to a double-J stent for drainage. Antegrade ureteral stenting through the nephrostomy site can also be attempted when the patient desires an internal diversion. Palliative radiotherapy can be offered as an alternative treatment for ureteric obstruction with a response rate of 62%.

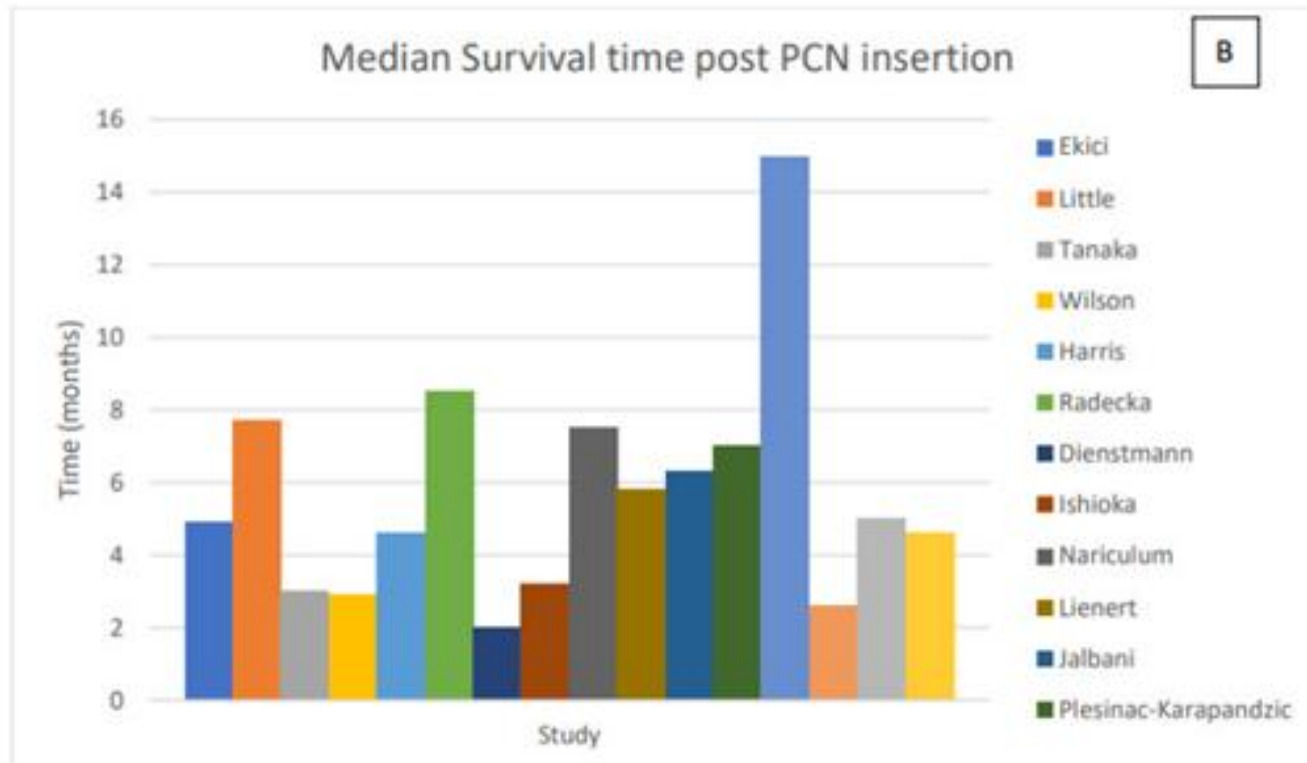
- ✓ Only one kidney (better function)
- ✓ PCN is superior to a DJ stent
- ✓ Antegrade stenting can be attempted when the patient desires an internal diversion

Malignant ureteric obstruction (MUO)

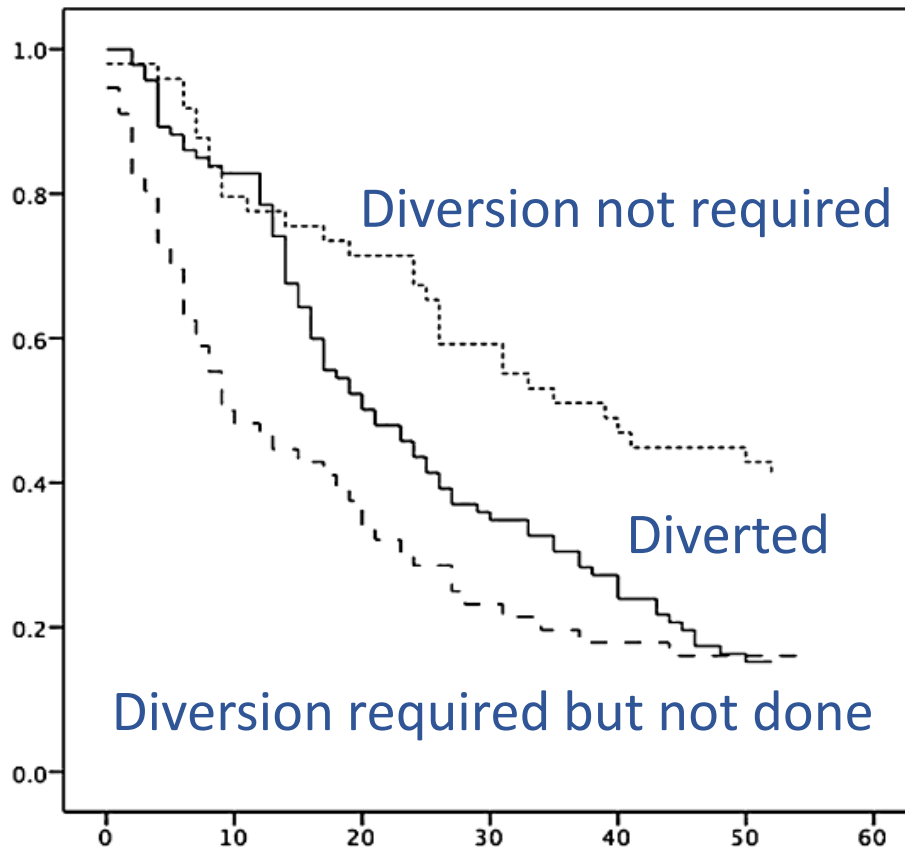
Survival data

Outcomes Related to Percutaneous Nephrostomies (PCN) in Malignancy-Associated Ureteric Obstruction: A Systematic Review of the Literature

Francesca J. New ¹, Sally J. Deverill ² and Bhaskar K. Somani ^{1,*}



Impact of palliative urinary diversion by percutaneous nephrostomy drainage and ureteral stenting among patients with advanced cervical cancer and obstructive uropathy: A prospective cohort



The outcome with ureteric stents for managing non-urological malignant ureteric obstruction

In Gab Jeong, Kyung Seok Han, Jae Young Joung, Ho Kyung Seo and Jinsoo Chung
Urologic Oncology Clinic, National Cancer Center, Goyang, Korea

Accepted for publication 11 June 2007

- 86 patients with a non-urological MUO were treated by stenting.
- Of the 86 patients, 54 (63%) died with a mean survival time of 8.6 months, and 41 (48%) died within 1 year.
- Upper ureteric obstruction and no chemotherapy after stenting were independently associated with a poor prognosis.

A prognostic model for survival after palliative urinary diversion for malignant ureteric obstruction: a prospective study of 208 patients

Maurício D. Cordeiro, Rafael F. Coelho, Daher C. Chade, Rodrigo R. Pessoa, Mateus S. Chaib, José R. Colombo-Júnior, José Pontes-Júnior, Giuliano B. Guglielmetti and Miguel Srougi

Uro-Oncology Group, Urology Department, University of Sao Paulo Medical School and Institute of Cancer Estate of Sao Paulo, Sao Paulo, Brazil

- 208 patients with MUO were treated by stenting or PCN
- Median survival was 144 (0–1084) days
- The number of events related to malignancy (≥ 4) and ECOG index (≥ 2) were associated with short survival on multivariable analysis

A prognostic model for survival after palliative urinary diversion for malignant ureteric obstruction: a prospective study of 208 patients

Fig. 1 Risk-stratification model for treatment decisions.

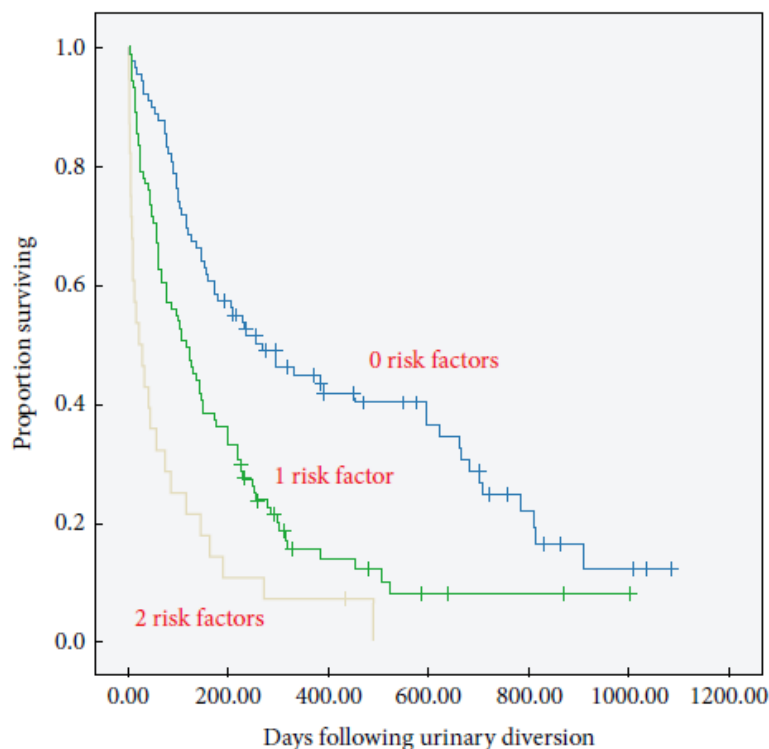


Table 3 Variables associated with short survival on multivariable analysis.


Variable	Relative risk	95% CI	P
No. of events related to malignant dissemination (≥ 4)	2.157	1.345–3.458	0.001
ECOG index (≥ 2)	2.564	1.309–5.023	0.006

Table 4 Kaplan-Meier estimates of survival at 1, 6 and 12 months by survival-risk group.

Survival-risk group*	1 months, %	6 months, %	12 months, %
Favourable (0 factors)	94.4	57.3	44.9
Intermediate (1 factor)	78.0	36.3	15.5
Unfavourable (2 factors)	46.4	14.3	7.1

*Risk factors for survival were number of events related to malignant dissemination (≥ 4) and ECOG index (≥ 2).

Clinical Outcomes After Urinary Diversion for Malignant Ureteral Obstruction Secondary to Non-urologic Cancer: An Analysis of 778 Cases

Ji Eun Heo, MD, Dae Young Jeon, MD, Jongsoo Lee, MD, Won Sik Ham, MD, PhD, Young Deuk Choi, MD, PhD, and Won Sik Jang, MD 

Department of Urology, Urological Science Institute, Yonsei University College of Medicine, Seoul, Republic of Korea

Methods:

We retrospectively reviewed 778 patients with non-urological malignancies who underwent **ureteral stenting** or **percutaneous nephrostomy** for ureteral obstruction between **2006 and 2014**. The variables for **predicting overall survival** were identified by Cox regression analysis.

Inclusion

- ✓ >18 yrs
- ✓ **MUO**
- ✓ **inoperable non urologic cancer**
- ✓ DJ stent or PCN

Exclusion

- ✓ Previous urological surgery
- ✓ **Bladder metastases**
- ✓ Urinary stones or urinary fistula
- ✓ Incomplete follow up

Results:

Table 1. Patient characteristics

Parameter	Value
No. patients	778
Age, years (median [IQR])	57 (47-65)
Male, N (%)	295 (37.9)
Type of malignancy, N (%)	
Upper gastrointestinal cancer	316 (40.6)
Lower gastrointestinal cancer	176 (22.6)
Gynecological cancer	181 (23.3)
Other	105 (13.5)
Previous treatment, N (%)	
Surgery	501 (64.4)
Chemotherapy	595 (76.5)
Radiotherapy	170 (21.9)
Events related to malignant dissemination	
Yes, N (%)	715 (91.9)
Number of events (median [IQR])	2 (2-3)
Comorbidity	
Yes, N (%)	253 (32.5)
Number of comorbidity (median [IQR])	0 (0-1)

- ascites
- pleural effusion
- metastasis

Results:

Type of Urinary diversion, N (%)

Ureteral stenting	522 (67.1)
right	194 (24.9)
left	174 (22.4)
both	154 (19.8)
Percutaneous nephrostomy	256 (32.9)
right	95 (12.2)
left	92 (11.8)
both	69 (8.9)

Preoperative laboratory results (median [IQR])

Blood urea nitrogen, mg/dL	16.3 (11.7-26.9)
Creatinine, mg/dL	1.10 (0.81-1.90)
eGFR, mL/min/1.73 m ²	59 (32-79)
Hemoglobin, mg/dL	10.5 (9.5-11.6)
Albumin, g/dL	3.5 (3.0-4.0)

Subsequent therapy, N (%)

Chemotherapy	447 (57.5)
Radiotherapy	107 (13.8)

Results:

- **Renal function was recovered immediately and at 2 weeks** after urinary diversion ($p < 0.001$).

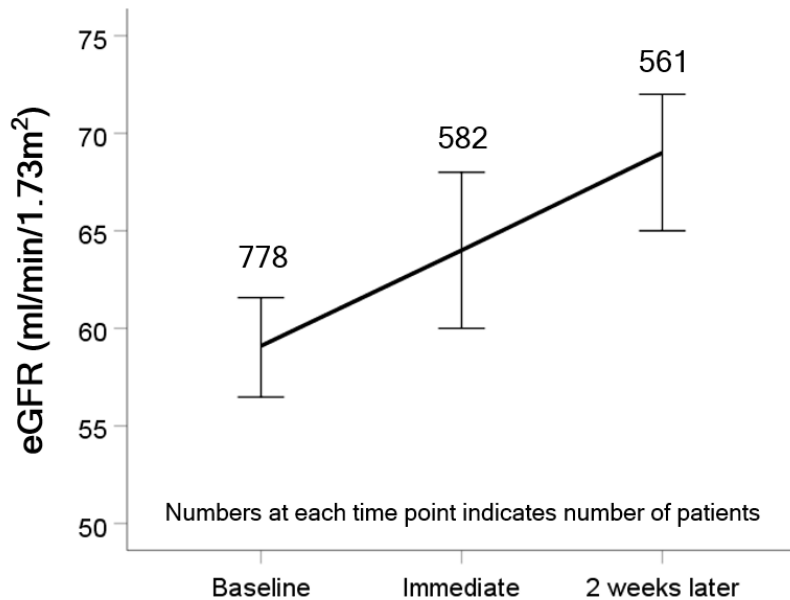


Figure 1. Change in estimated glomerular filtration rate according to each time point before and after urinary diversion

- **The median survival was 5 months** (IQR 2-12) and 708 patients died.

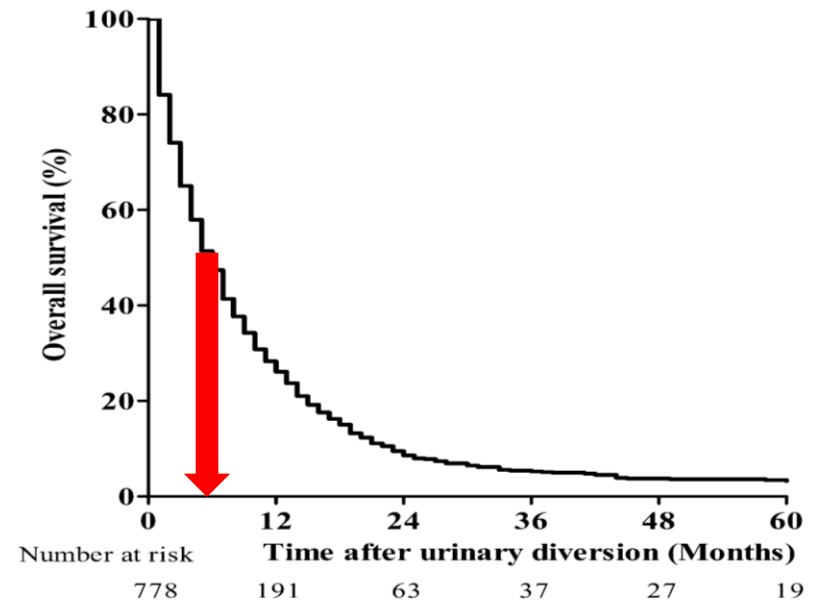


Figure 2. Kaplan-Meier curve of overall survival

Results:

- Patients who have performed **chemotherapy after diversion** had a **survival gain of 7 months** compared to patients without chemotherapy ($p < 0.001$).
- **Type of diversion (stent or PCN)** was not related with survival ($p = 0.451$).

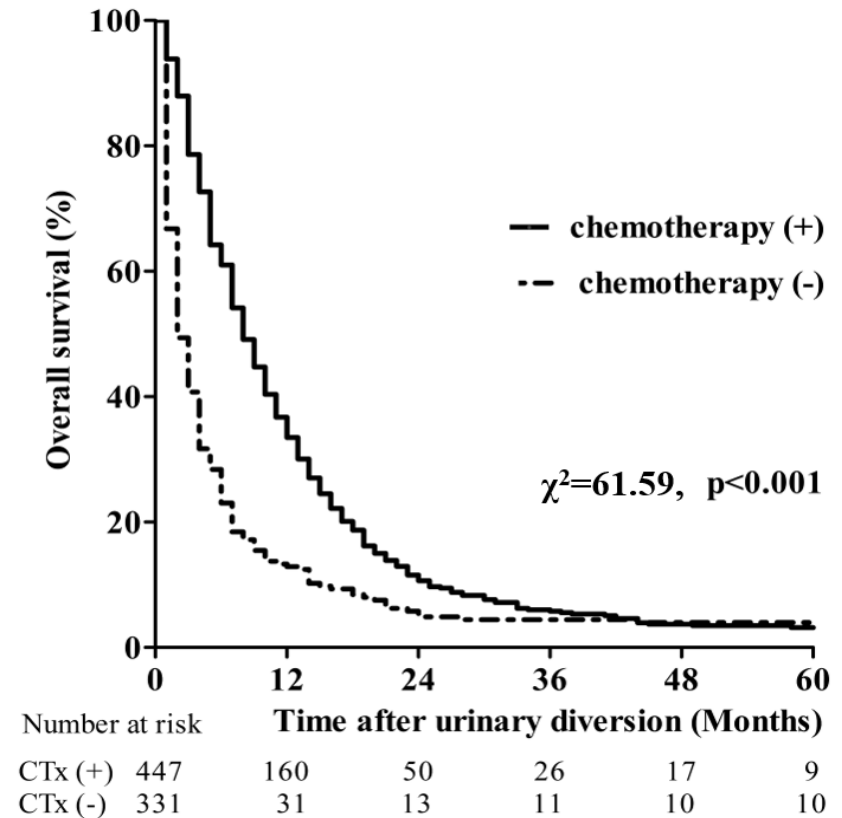


Figure 3. Survival curve according to chemotherapy following urinary diversion

Results:

Table 2. Cox regression analysis of predictors for OS

	HR	Multivariate 95% CI	p value
Gender			
Female	1	(Reference)	
Male	1.221	(1.045-1.428)	0.012
Previous treatment			
Chemotherapy	1.489	(1.232-1.801)	<0.001
Radiotherapy	0.656	(0.537-0.801)	<0.001
Number of events related to malignant dissemination	1.321	(1.254-1.392)	<0.001
Preoperative laboratory results			
eGFR (≥ 60 vs < 60 ml/min/1.73m ²)	1.249	(1.069-1.460)	0.005
Hemoglobin (≥ 10 vs < 10 mg/dL)	1.244	(1.056-1.467)	0.009
Albumin (≥ 3 vs < 3 g/dL)	1.366	(1.126-1.658)	0.002
Subsequent therapy			
Chemotherapy	0.428	(0.363-0.506)	<0.001
Radiotherapy	0.657	(0.520-0.831)	<0.001

Malignant ureteric obstruction (MUO)

Complications

The outcome with ureteric stents for managing non-urological malignant ureteric obstruction

In Gab Jeong, Kyung Seok Han, Jae Young Joung, Ho Kyung Seo and Jinsoo Chung
Urologic Oncology Clinic, National Cancer Center, Goyang, Korea

Accepted for publication 11 June 2007

TABLE 4 A comparison of the clinical outcomes with other series

Ref	n	Type of malignancy, NUM/UM	Failure of stenting, %	Stent failure %	Median survival, months	Period of study, year
[2]	103	44/59	51	NA	3.7	1986–97
[4]	39	36/3	27	44	NA	1998–2000
[6]	90	83/7	5	42	NA	1987–2002
[7]	157	135/22	15	24	11.1	1990–2004
[8]	28	28/–	8	25	15.3	1997–2000
Present	86	86/–	15	16	8.6	2001–2006

- The risk of failure for stent insertion significantly increased with male gender and the presence of bladder invasion.

타 장기종양에 의한 요관폐색에서 요관부목 유치의 성공률과 임상양상

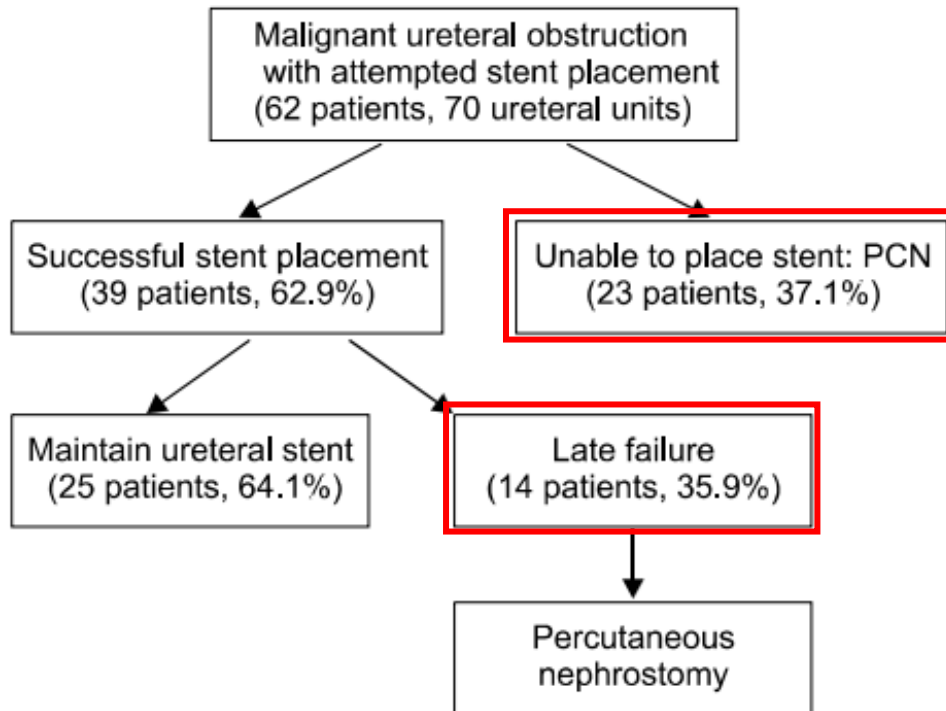
The Clinical Characteristics of Malignant Ureteral Obstruction Secondary to Non-genitourinary Malignancy

Jea Whan Lee, Seung Chol Park, Ill Young Seo

From the Department of Urology, Wonkwang University School of Medicine, Institute of Wonkwang Medical Science, Iksan, Korea

대한비뇨기과학회지
제 49 권 제 1 호 2008

원광대학교 의과대학 비뇨기과학교실,
원광의과학연구소



결론

타 장기 종양에 의한 요관폐색의 치료로 요관부목을 성공적으로 유치하더라도 후기에 35.9%에서 요관부목의 유치가 실패하였다. 따라서 치료의 선택에 있어 충분히 환자와 보호자와의 교감이 필요하며 초기 요관부목 유치에 성공을 하였다 할지라도 진단 당시 요관폐색 증상이 없는 경우, 하부요관 폐색인 경우, 골반강내 암인 경우, 수신증의 정도가 심할수록 요관부목유치의 실패율이 높으므로 차후에 폐색이 올 수 있는 가능성이 많으므로 주의 깊게 관찰해야 한다. 본 연구를 통해 향후 요관폐색에서 더 많은 환자들을 통한 연구를 통해 예후인자에 대한 연구가 필요할 것으로 생각한다.

Malignant ureteric obstruction decompression: how much gain for how much pain? A narrative review



The ROYAL
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MEDICINE

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- The overall **complication** rate was **41%**.
- **25%** of patients spent remaining **lifetime in hospital**.
- **26%** (439/1658) of patients with **PCN** developed **UTI**.
- **14%** (26/180) of patients with **stents** placed developed **UTI**.
- **10%** (173/1658) of patients experiencing **dislodged** nephrostomies
- **7%** (113/1658) of patients developed **blocked** nephrostomies.
- In the 3 papers that reported **mortality**, the **overall rate was 5%** (4/82).

Malignant ureteric obstruction (MUO)

Quality of life

Malignant ureteric obstruction decompression: how much gain for how much pain? A narrative review



Joanna Prentice¹, Tarik Amer^{1,2}, Ali Tasleem³ and Omar Aboumarzouk^{1,2,4}

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Paper	Type	Date	Number and male/female average age	Tumour type	Stent/nephrostomy (N patients)	Grabstald percentage
Hubner et al. ⁵⁰	Retrospective	1986–1989	52 (31 F, 21 M) 67 (43–81)	Prostate 7% Bladder 25% Colorectal 28% Cervix 17% Ovarian 11% Other 2%	Stent 24, PCN 28	81%
Hoe et al. ⁶²	Retrospective	Not stated	Not stated	Colorectal 33% Cervix 5% Prostate 5% Bladder 5% Rest not stated	PCN 24	46%
Emmert et al. ²⁰	Retrospective	1990–1995	24 45.9 (30–79)	Cervical 100%	PCN 24	46%
Feng et al. ⁶⁷	Retrospective	1984–1996	37 (20 F, 17 M) 37–85 No mean	Prostate 27% Bladder 13% Colorectal 10% Cervix 32% Uterus 5% Ovarian 10%	Stent 22, PCN 15	82–87% classified into two groups

Grabstald ‘useful life’

- (i) little or no pain
- (ii) full mental capacity
- (iii) few complications
- (iv) the ability to return home for at least 2 months prior to death

- 60% of patients achieved a ‘useful life’ post decompression

Quality-of-Life Assessment After Palliative Interventions to Manage Malignant Ureteral Obstruction

Wayne Laurence Monsky · Chris Molloy ·
Bedro Jin · Timothy Nolan · Dayantha Fernando ·
Shaun Loh · Chin-Shang Li

✓ QoL: PCN vs. Stent

- 46 Pts
- FACT-BL scores
- Stent: urinary symptoms and pain
- PCN: more frequent tube changes

→ **No significant difference in QOL**

Percutaneous Nephrostomy in Patients with Tumors of Advanced Stage: Treatment Dilemmas and Impact on Clinical Course and Quality of Life

✓ QoL: pre vs. post PCN

- 270 Pts
- EORTC QLC-C30

TABLE 3. QUALITY OF LIFE STATISTICAL OVERVIEW BEFORE AND AFTER THE NEPHROSTOMY

<i>Malignancy</i>	<i>Mann-Whitney statistical analysis</i>	<i>Before nephrostomy</i>	<i>After nephrostomy</i>
Bladder	Score: 78–107 SD: 7.31 Mean: 94.5185 $P = 0.289$	Score: 78–107	Score: 78–106
Prostate	Score: 69–105 SD: 10.022 Mean: 87.9047 $P < 0.001$	Score: 79–105	Score: 69–102
Gynecological	Score: 71–105 SD: 7.187 Mean: 92.5185 $P = 0.98$	Score: 80–105	Score: 71–104
Colorectal	Score: 76–105 SD: 8.305 Mean: 92.6481 $P = 0.46$	Score: 77–105	Score: 76–104
Others	Score: 69–105 SD: 8.456 Mean: 88.4815 $P = 0.498$	Score: 78–105	Score: 69–103

→ No significant difference in QOL (exception of prostate cancer)

Take Home Message

- In cases of malignant ureteral obstruction, OS was poor.
- Patients who received chemotherapy after diversion had a survival gain of 7 months.
- There was no difference in the QoL for patients with or without PCN.
- The method of diversion should be carefully discussed with male patients or if there is bladder invasion.
- The overall complication risk is 41% and up to 25% of a patient's remaining life is spent in hospital.
- Patients with the poor prognostic factors should be discussed the option of “no intervention”.

Thank you

