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Case No. 1

Medical History:

A 69 year old male with outlet obstruction from benign prostatic hypertrophy. Digital rectal examination: smooth 40 cc. prostate.

Images:

KUB: 4 cm bladder stone.

IVP: Post-void residue estimated at 150 cc. No dilation of the upper tract.

Biological Tests:

Blood Tests:

WBC:	6.1 K/uL	(4-11)
RBC:	4.85 M/uL	(4.7-6.0)
Hgb:	13.4 g/dL	(13.8-18.0)
Hct:	35.8%	(40-52)
PLT:	421 K/uL	(140-430)
Na:	144 mmol/L	(135-145)
K:	4.75 mmol/L	(3.8-5.4)
Ca:	2.13 mg/dL	(8.4-10.2)
INR:	1.07	(0.88-1.2)
PTT:	26.3 sec.	(<30)
Creatinine:	1.51 mg/dL	(0.8-1.5)
PSA:	3.5 ng/mL	(0-3.5)

Urine Tests:

pH:	7	(5.0-8.5)
Nitrite:	Negative	
Leucocytes:	Positive	
Erythrocytes:	Positive	
Urine Culture:	Negative	



Main Tasks:

Fragmentation and extraction of the stone.
Learning to handle the tools.
Recommendation for TURP.

*Created in collaboration with Dr. Yoram Siegel,
Assaf Harofe Medical Center, Israel. Symbionix Ltd. (2001)*



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Case No. 2

Medical History:

A 55 year old male with three days of left flank pain following two ESWL treatments for left distal ureteral stone with no fragmentation. The patient has no fever. Physical examination shows lumbar tenderness.

Images:

KUB: Left distal ureteral stone.
IVP: Left kidney hydronephrosis grade I.
Right kidney normal.

Biological Tests:

Blood Tests:

WBC:	7.2 x 10 ⁹ /L	(3.8-10.6)
RBC:	4.43 x 10 ¹² /L	(4.4-5.9)
Hgb:	13.9 g/dL	(13-18)
Hct:	34.2 l/L	(40-52)
PLT:	444 K/uL	(140-430)
Na:	128 mmol/L	(120-220)
K:	3.32 mmol/L	(3.5-5.2)
Ca:	2.35 mmol/L	(2.1-2.55)
INR:	1.12	(0.88-1.2)
PTT:	29.2 sec.	(<30)
Creatinine:	0.97 mg/dL	(0.7-1.3)

Urine Tests:

pH:	7	(5-8.5)
Nitrite:	Negative	
Leucocytes:	Negative	
Erythrocytes:	Negative	
Urine-Culture:	Negative	

Main Tasks:

Rigid Ureteroscopy
Fragmentation and extraction of the stone.
Learning to handle the tools.



Created in collaboration with MD PhD. M.S. Michel,

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Case No. 3

Medical History:

A 73 year old male was referred to the emergency room because of right flank pain and a fever of 40°C. History of TURP ten years ago for benign prostatic hyperplasia. Digital rectal examination is unremarkable.

Images:

KUB: Right mid- ureteral stone.

IVP: Right mid -ureteral stone with dilatation.

Biological Tests

Blood Tests:

WBC:	15.9 giga/L	(4.25-10.5)
Hgb:	14.0 g/100mL	(8.1-17.7)
Hct:	39.4%	(38-52)
PLT:	405 giga/L	(150-400)
Na:	134 mmol/L	(135-145)
K:	3.5 mmol/L	(3.5-5.0)
Cl:	93 mmol/L	(95-105)
INR:	1.07	(0.88-1.2)
Creatinine:	175 μ mol/L	(59-115)
Blood Culture:	Positive	

Urine Tests:

Urine Culture:	Positive	
RBC:	4.4 tera/L	(4.2-5.6)
Urea:	10.1 mmol/L	(3.0-8.0)

Main Tasks:

Ureteral navigation
Fragmentation and extraction of the stone.
Learning to handle the tools.



*Created in collaboration with Prof. Thierry Flam,
Department of Urology, Hospital Cochin, Paris, France. Symbionix Ltd. (2001)*



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Case No. 4

Medical History:

A 69 year old male who is suffering from right flank pain following repeated ESWL for a 12 mm renal pelvis stone. The patient has no fever, no lumbar tenderness, BP 170/90 mmHg. Previous IVP showed no hydronephrosis.

Images:

KUB: A 12 mm stone in the right upper ureter

IVP: Right hydronephrosis is seen.

Biological Tests:

Blood Tests:

WBC:	8.62 K/uL	(4-11)
Hgb:	14.0 g/dL	(13.5-18.0)
PLT:	150×10^3 U/L	(140-440)
Creatinine:	1.2 mg/dL	(0.8-1.5)

Urine Tests:

Urine culture:	Negative	
Erythrocytes:	None/HPF	(0-5)
Urea:	27 mg/dL	(19-43)



Main Tasks:

Ureteral navigation
Fragmentation and extraction of the stone.
Learning to handle the tools.

*Created in collaboration with Dr. Yoram Siegel,
Assaf Harofe Medical Center, Israel. Symbionix Ltd. (2001)*



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Case No. 5

Medical History:

A 54 year old male suffering from chronic right flank pain. Physical examination is unremarkable. The patient has no fever.

Images:

KUB: 16x12mm stone in the lumbar (L3) right ureter .

IVP: Grade 3 right ureteral hydronephrosis.

Biological Tests

Blood Tests:

WBC:	6.5 giga/L	(4.25-10.5)
RBC:	5.0 tera/L	(4.2-5.6)
Hgb:	9.5 g/100mL	(8.1-17.7)
Hct:	42%	(38-52)
PLT:	180 giga/L	(150-400)
Na:	140 mmol/L	(135-145)
K:	4.1 mmol/L	(3.5-5.0)
Ca:	2.4 mmol/L	(2.15-2.75)
INR:	1.07	(0.88-1.2)
PTT:	100%	(70-100)
Creatinine:	110 mmol/L	(59-115)

Urine Tests:

pH:	6.5	(6.5-7.4)
Nitrite:	Negative	
Leucocytes:	10,000/mL	(<8,000)
Erythrocytes:	10,000/mL	(<3,000)
Urine Culture:	Negative	



Main Tasks:

Avoiding ureteral damage.
Fragmentation and extraction of the stone.
Learning to handle the tools.

Created in collaboration with Prof E. Lechevallier, Department of Urology, Salvator Hospital, Marseille, France. Symbionix Ltd. (2001)



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Case No. 6

Medical History:

A 70 year old male patient with right renal colic.
The patient has had nocturia for the last 2 months.
History of ESWL two years ago for 12 mm stone in renal pelvis.

Images:

KUB: bilateral distal ureteral stones.

IVP:

5 min after IV contrast: Right distal ureteral stone with mild hydronephrosis.
30 min after IV contrast: Non-obstructive stone at the left ureteral orifice.

Biological Tests:

Blood Tests:

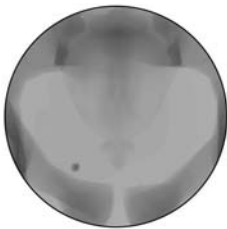
WBC:	11 giga/L	(4.25-10.5)
RBC:	4.4 tera/L	(4.2-5.6)
Hgb:	14 g/100mL	(8.1-17.7)
Hct:	39.4%	(38-52)
PLT:	200 giga/L	(150-400)
Na:	140 mmol/L	(135-145)
K:	4 mmol/L	(3.5-5.0)
Cl:	100 mmol/L	(95-105)
INR:	1.07	(0.88-1.2)
Creatinine:	101 μ mol/L	(59-115)

Urine Tests:

Urine Culture:	Negative
Urea:	5 mmol/L (3-8)

Main Tasks:

Extracting intramural stone.
Fragmentation and extraction of the stone.
Learning to handle the tools.



*Created in collaboration with Prof. Thierry Flam, Department of Urology,
Hospital Cochin, Paris, France. Symbionix Ltd. (2001)*



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Case No. 7

Medical History:

A 65 year old male, suffered from right flank pain and 39° C fever one month ago. Urine culture showed E. Coli x 10⁶ and an antibiotic treatment for pyelonephritis for 10 days was initiated. The patient has fever, physical examination shows lumbar tenderness.

Images:

KUB: Stone in right lower calyx.

IVP: Renal nonobstructive stone in the right lower calyx.

Biological Tests:

Blood Tests:

WBC:	9.1 x 10 ⁹ /L	(3.8-10.6)
RBC:	4.18 x 10 ¹² /L	(4.4-5.9)
Hgb:	12.4 g/dL	(13-18)
Hct:	39.8 l/L	(40-52)
PLT:	258 K/uL	(140-430)
Na:	141 mmol/L	(120-220)
K:	3.32 mmol/L	(3.5-5.2)
Ca:	2.35 mmol/L	(2.1-2.55)
INR:	1.19	(0.88-1.2)
PTT:	25.7 sec.	(<30)
Creatinine:	0.97 mg/dL	(0.7-1.3)

Urine Tests:

Urine:	Negative
Leucocytes:	Negative
Erythrocytes:	Negative



Main Tasks:

Flexible ureteroscopy
Kidney navigation
Fragmentation and extraction of the stone.
Learning to handle the tools.
This case is suitable for ESWL or PCNL treatment.

Created in collaboration with MD PhD. M.S. Michel, Department of Urology, University hospital Mannheim, Germany. Smbionix Ltd. (2001)



Case No. 8

Medical History:

A 65 year old male with recurrent urinary infections and hematuria. Blood occurs at the end of urination. The patient has finished 10 days of antibiotic treatment.

He has no fever, no lumbar tenderness and digital rectal examination shows a 40cc prostate.

Images:

KUB: No abnormalities are seen.

IVP: Bladder seen with filling defect and bladder outlet obstruction.

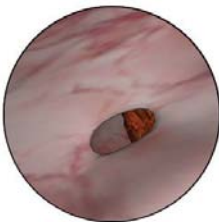
Biological Tests

Blood Tests:

WBC:	4.9*10 ³ U/L	(4.1-10.9)
RBC:	4.5*10 ⁶ U/L	(4-5.2)
Hgb:	11.2 g/100mL	(8.1-17.7)
Hct:	34.2%	(38-52)
PLT:	444 giga/L	(150-400)
Na:	128 mmol/L	(135-145)
Ca:	2.35 mmol/L	(2.15-2.75)
INR:	1.12	(0.88-1.2)
Creatinine:	0.8 mg/dL	(0.7-1.4)

Urine Tests:

pH:	5.0
Nitrite:	Negative
Leucocytes:	Negative
Erythrocytes:	Positive
Urine Culture:	E. Coli x10 ⁶
Urine cytology:	Negative



Main Tasks:

Identification of cysteine and bleeding from diverticulum.
Rule out the suspicion of a tumor in the bladder.
Recommendation for TURP.

*Created in collaboration with Associate Professor Margaret S. Pearle,
Department of Urology, The University of Texas Southwestern, Dallas. Symbionix Ltd. (2001)*



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Case No. 9

Medical History:

A 71 year old male suffering from left flank pain for a week and fever of 38.5°C.

The patient is after TURP.

Images:

KUB: Stone in left mid pole.

IVP: Left mid pole obstructing stone.

Retrograde pyelography: Left mid pole obstructing stone

Biological Tests

Blood Tests:

WBC:	6.7*10 ³ U/L	(4.1-10.9)
RBC:	4.2*10 ⁶ U/L	(4-5.2)
Hgb:	7.3 g/100mL	(8.1-17.7)
Hct:	34.2%	(38-52)
PLT:	350 giga/L	(150-400)
Na:	138 mmol/L	(135-145)
Ca:	2.55 mmol/L	(2.15-2.75)
PTT:	2.6 sec	(<30)
Creatinine:	1.2 mg/dL	(0.7-1.4)

Urine Tests:

PH:	5.5	(4.5-8.0)
Urine:	Negative	
Leucocytes:	Negative	
Erythrocytes:	Positive	



Main Tasks:

- Flexible Ureteroscopy
- Calculus Fragmentation
- Safe extraction
- Tool handling

*Created in collaboration with Associate Professor Margaret M. Pearle,
Department of Urology, The University of Texas Southwestern, Dallas. Symbionix Ltd. (2001)*



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Case No. 10

Medical History:

A 30 year old male suffering from acute right flank pain for 24 hours. He has no fever and no previous medical history.

Images:

KUB: 13 small stones in mid-portion right kidney.

IVP: Mid calyx diverticulum.

US and CT: Thin renal parenchyma.

Biological Tests:

Blood Tests:

WBC:	5.3 giga/L	(4.25-10.5)
RBC:	4.8 tera/L	(4.2-5.6)
Hgb:	9.0 g/100mL	(8.1-17.7)
Hct:	40%	(38-52)
PLT:	240 giga/L	(150-400)
Na:	142 mmol/L	(135-145)
K:	4.0 mmol/L	(3.5-5.0)
Ca:	2.5 mmol/L	(2.1-2.75)
INR:	1.07	(0.88-1.2)
PTT:	95%	(70-100)
Creatinine:	98 μ mol/L	(59-115)

Urine Tests:

pH:	7	(6.5-7.4)
Nitrite:	Negative	
Leucocytes:	5,000/mL	(<8,000)
Erythrocytes:	8,000/mL	(<3,000)

Main Tasks:

Kidney navigation
Flexible ureteroscopy
Open calyces diverticulum



Created in collaboration with Prof. E. Lechevallier; Department of Urology, Salvator Hospital, Marseille, France. Symbionix Ltd. (2001)