Üroloji Disiplininde Ürolojik İşlemler- Cerrahiler ve İnfeksiyon

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Başkent Üniversitesi Tıp Fakültesi

Üroloji Anabilim Dalı

ABU (Asemptomatik Bakteriuri)

- Orta akım idrar 10^5 cfu/ml
  - Kadında 2
  - Erkek 1
- Kateter ile alınan idrarda 10^2 cfu/ml
- Premenaposal sağlıklı kadın % 1-5
- Sağlıklı yaşlı grup % 4-19
- D.mellitus % 1-27
- Gebelik % 2-10
- Yatalak yaşlı grup % 15-50
- Spinal kord travması % 23-89

Tedavi ? Ne zaman?

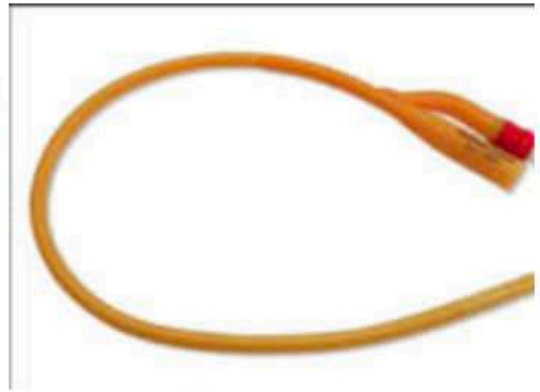
ABU açısından risk faktörlerine sahip gruplar

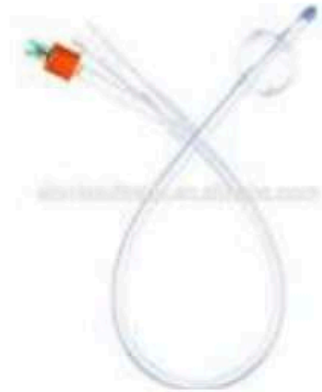
- Gebelik
  - Tedavi edilmeli süre 2-7 gün
- D.Mellitus
  - Kontrolü iyi olmayan hastalarda tedavi?
- Post-menapozal kadınlar
  - Pre- menapozal grupla aynı
- Yaşlı yatalak hastalar
  - Araştırmak ve tedavi etmek önerilmiyor
- Renal transplante grup
  - Tedavi önerilmiyor
- Disfonksiyone ve/veya rekonstrükte alt üriner sistemli hastalar
  - Tedavi önerilmiyor
  - E.coli kolonizasyonu semtomatik İYE da koruyor
- Üriner kateteri olan hastalar
  - İşlem yapılacaksa yada kateter değiştirilecekse tedavi yapılmalı

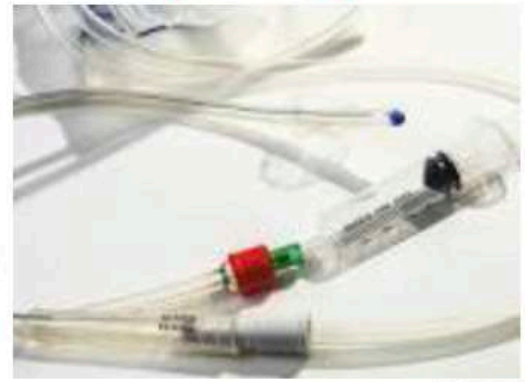
Summary of evidence	LE
Treatment of asymptomatic bacteriuria is not beneficial in the following conditions: • women without risk factors; • patients with well-regulated diabetes mellitus; • post-menopausal women; • elderly institutionalised patients; • patients with dysfunctional and/or reconstructed lower urinary tracts; • patients with renal transplants; • patients prior to arthoplasty surgeries.	 3b 1b 1a 1a 2b 1a 1b
Treatment of asymptomatic bacteriuria is harmful in patients with recurrent urinary tract infections.	1b
Treatment of asymptomatic bacteriuria is beneficial prior to urological procedures breaching the mucosa.	1a
Treatment of asymptomatic bacteriuria in pregnant women was found to be beneficial by meta-analysis of the available evidence; however, most studies are old. A recent study reported lower rates of pyelonephritis in low-risk women.	1a

Katetere bağlı İYE

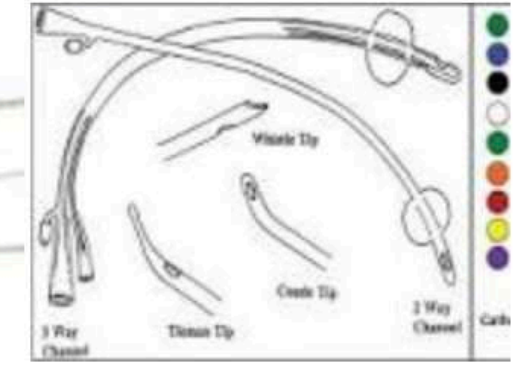
- Kateteri olan yada son 48 saat içinde kateter konan hastalar
- 10^3 cfu/ml
  - Çoklu ajanlı üropatojen ve çoklu ilaç dirençli
- Komplike İYE gibi tedavi edilmeli
  - Tedavi ile semptomlar hızlı düzeliyorsa 7 gün
  - Tedaviye geç cevap veren hastalar 14 gün
  - Ciddi olmayan olgularda 5 günlük levofloksasin
  - Üst sistem semptomları olmayan 65 yaş altı kadınlar 3 günlük tedavi
- Uzamış kateter çekiliminde 24 saatlik tedavi?
- 2 haftadan önce kateter konmuş hastalarda semptomatik İYE varlığında kateterin değiştirilmesi

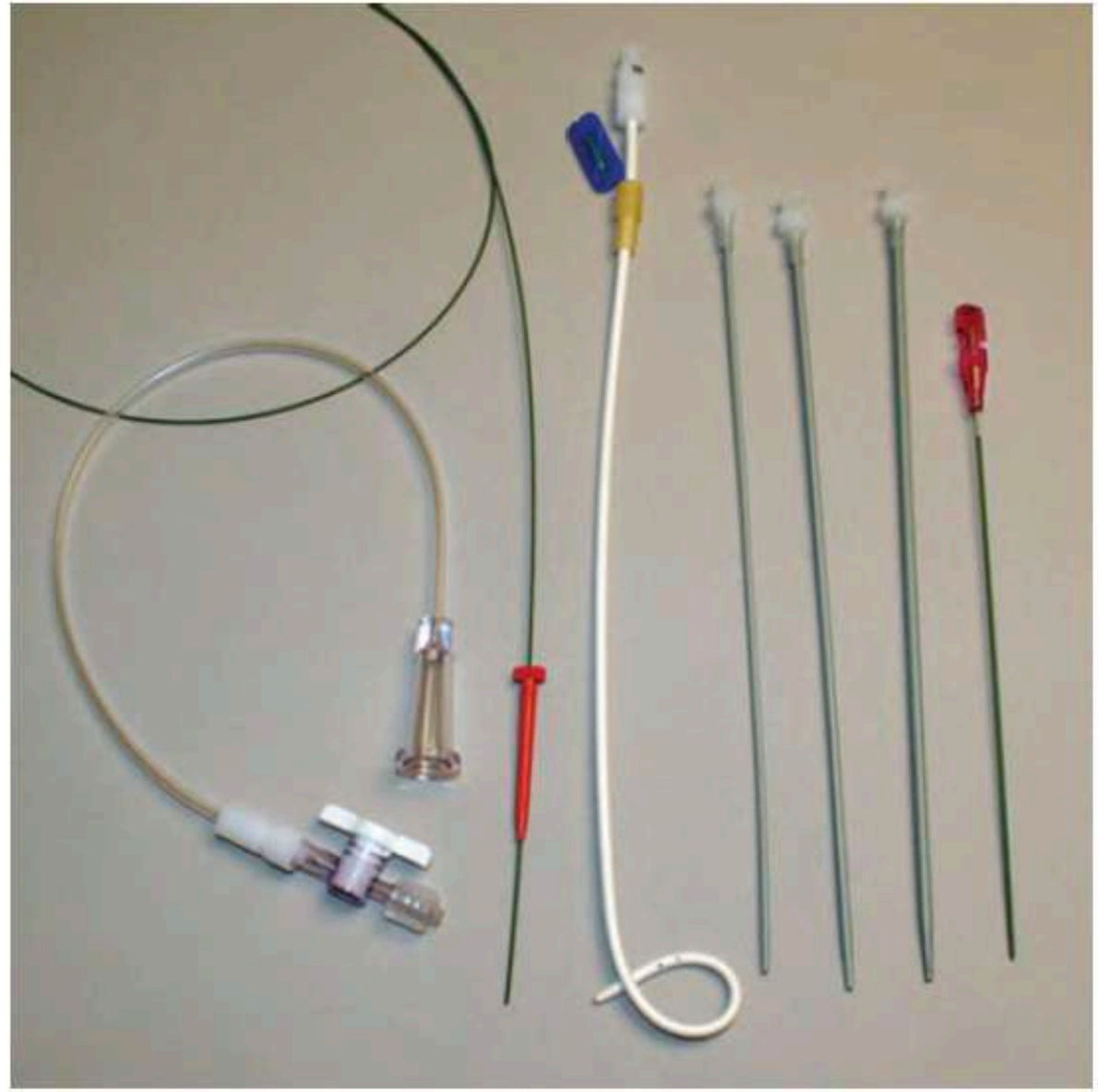



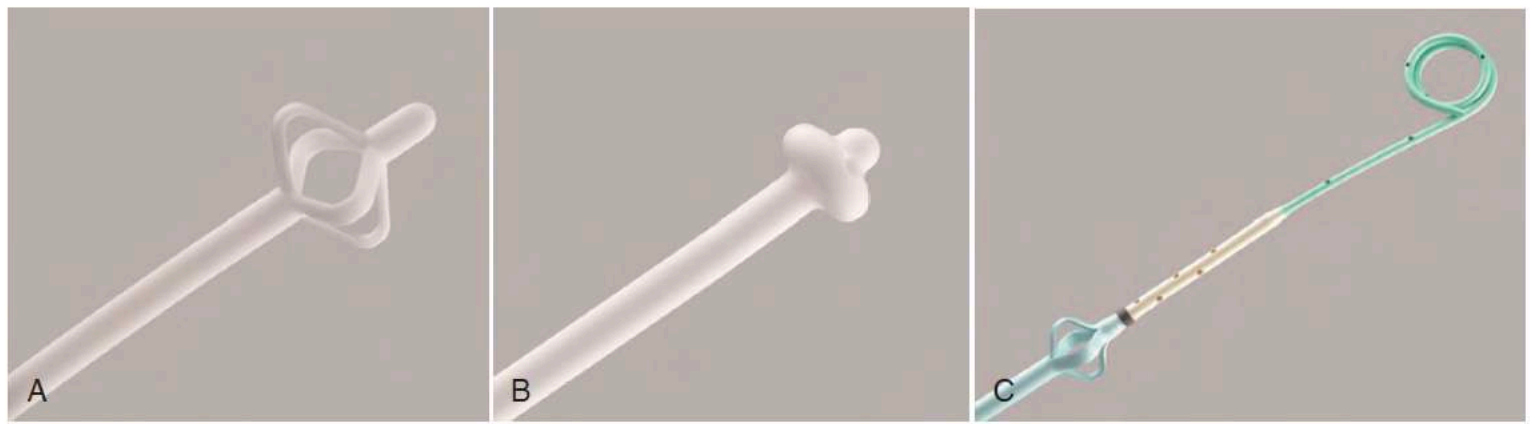


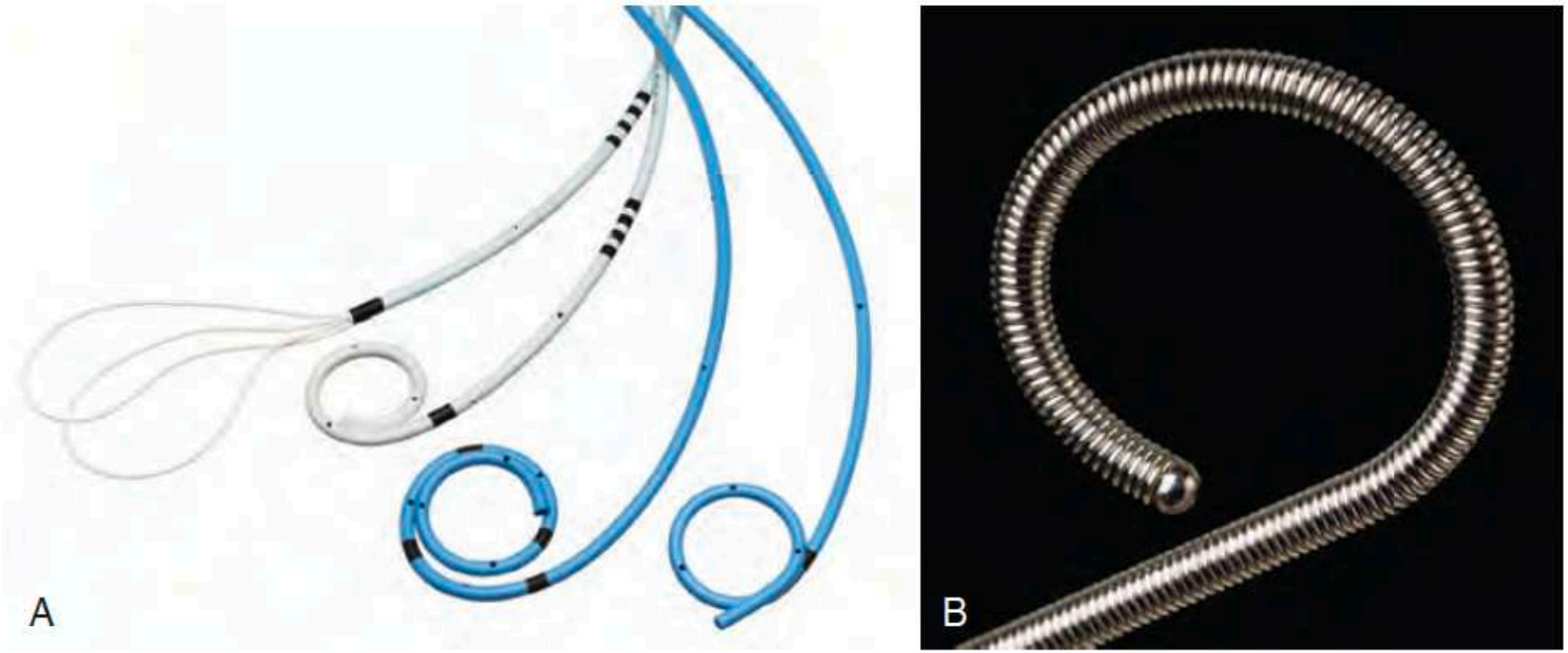







Whistle Tip
Coude Tip
3 Way Channel
Tiemann Tip
2 Way Channel




A
B
C


A
B

Kateter-stent teknolojisi

Üretral

- Lateks-kauçuk kısa süreli
- Silikon daha az dokuda inflamasyon
- Hidrofilik kaplı kateter-TAK
- Gümüş alaşım kaplı
- Antibiyotik içeren
  - 1 haftadan az süreli drenajlarda
- bakteri kaplı
  - Non-virulan E. coli

Stent

- Poliüretan
- Silikon
- Hibrit
- Eriyebilen
- mPEG-DOPA kaplı
  - Resistan E.coli tutulumunu engeller
- Klorhexidin kaplı stent
- Gümüş kaplı stent
- Antibiyotik kaplı stent

Kateter kalış süreleri

Üretral kateter

- Trans üretral cerrahi
  - 1-4 gün
- Açık prostatektomi/ radikal prostatektomi
  - 7-12 gün
- Üreter-böbrek taş cerrahisi
  - 1-4 gün

Nefrostomi

- Perkütan cerrahi
  - 1-3 gün

Üreter katater

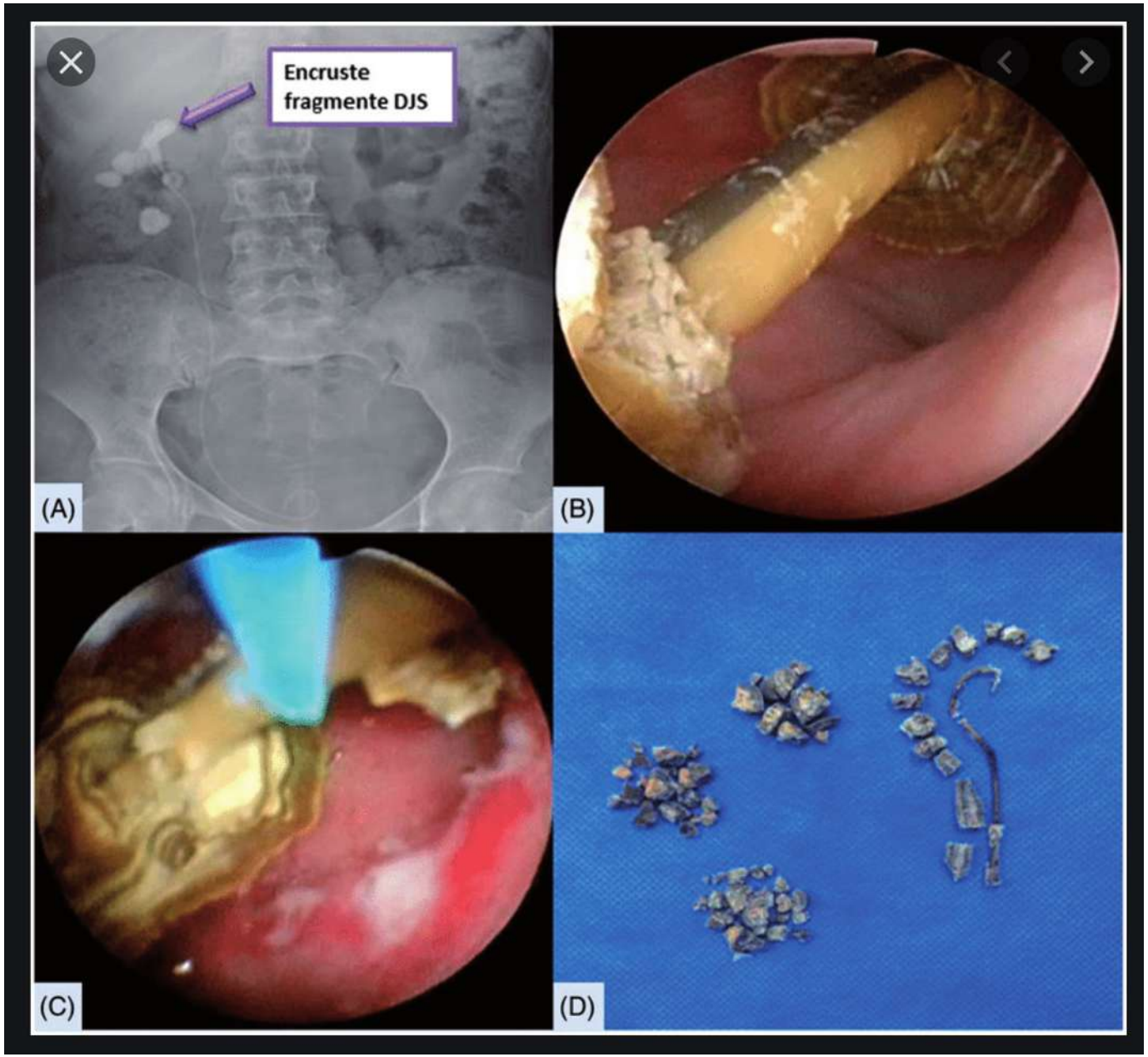
- Sistektomi- barsak rekonstrüksiyonu
  - 7-14 gün

Double J stent

- 2-6 hafta

Kalıcı stent ve kateterlerde değişim süreleri

- Üretral kateter
  - 3-6 hatfada bir
- Suprapubik kateter
  - 3-8 hafta
- Perkütan nefrostomi
  - 6-8 hafta
- Double J stent
  - 3-12 ay


Encruste
fragmente DJS
(A)
(B)
(C)
(D)

Ürodinamik inceleme

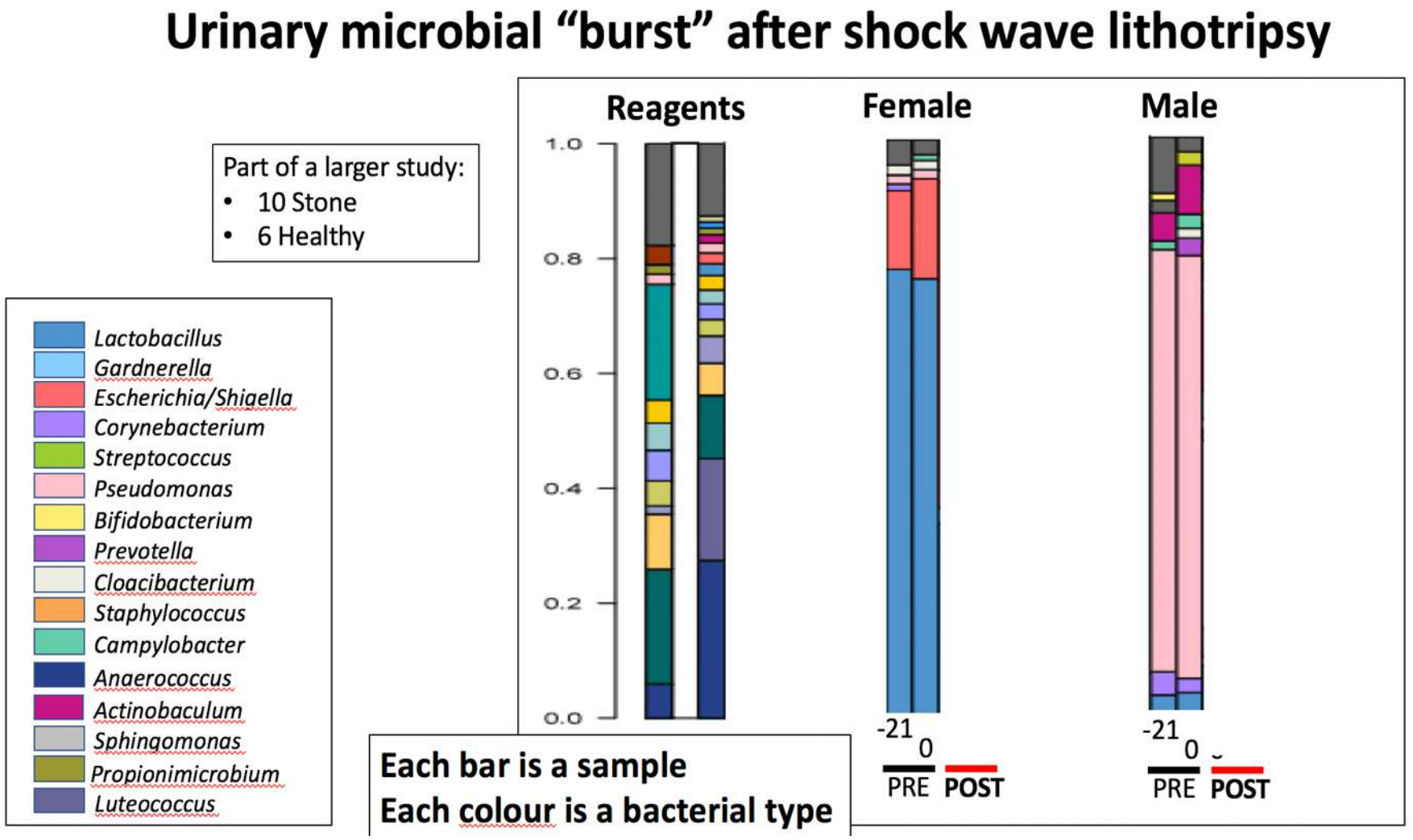
- İşlemin urotelyuma travmatik etkisi düşüktür
- İdrar kültürü temizse proflaksi verme
- PVR yüksek hastalar
- Spinal kord travması olan hastalar
- Tek doz profilaksi
  - TMP-SMX
  - Fluorokinolon

Sistoskopi

- Urotelyuma travmatik etki düşük
- EUA kılavuz profilaksi gerek yok
- AUA tek doz profilaksi
  - TMP-SMX

ESWL

- Profilaksisiz işlem sonrası İYE %26 ya kadar çıkıyor
- Tek doz tedavi?
  - TMP-SMX
  - Fluorokinolon
  - Sefalosporin

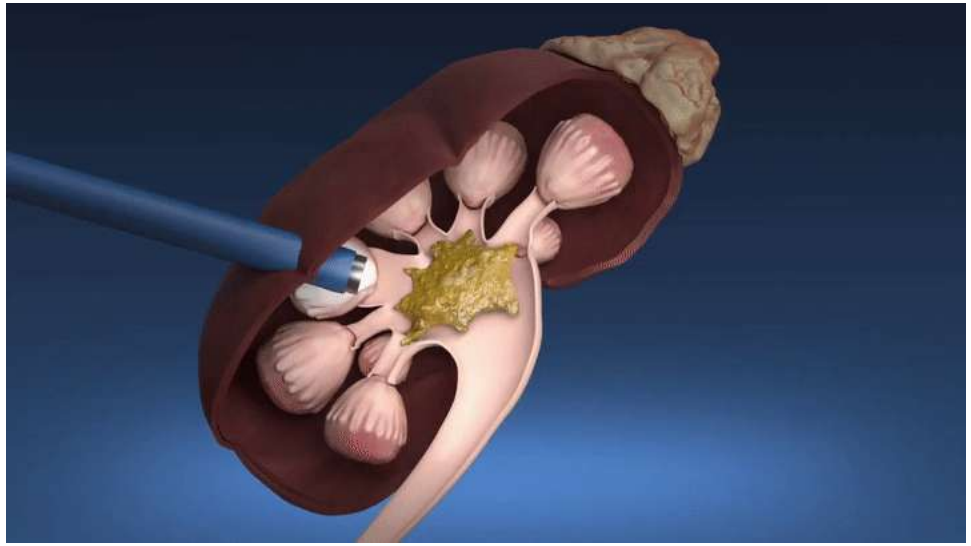


Trans-üretral rezeksiyon prostat/mesane

- Profilaksi ile cerrahi sonrası bakteriüri % 26 dan % 9 a düşüyor
- Septisemi ve CRP yüksekliği % 4.4 den % 0.9 azalıyor
- Tek doz uygulama yerine 2-5 günlük tedavi öneriliyor
- Kısa süreli tedevi ile bakteriyel resistans artmıyor
  - Fluorokinolon
  - Aminoglikosit
  - Sefalosporin
  - TMP-SMX

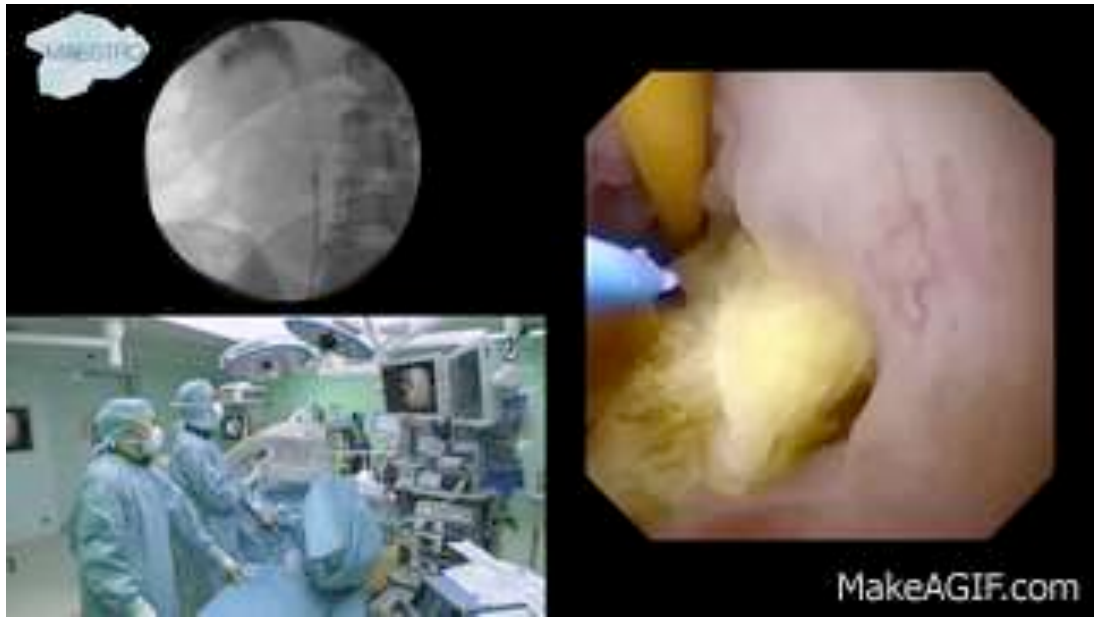
Perkütan Böbrek Cerrahisi

- Taş/darlık/tümör
- Renal parankim hasarı
- Basınçlı irrigasyon
- Enfekte taş tedavisi
- Tek doz vs 3 günlük seftriakson tedavisi arası fark yok
- Orta kanıt düzeyinde tek doz ilaç yeterli



Üreteroskopi

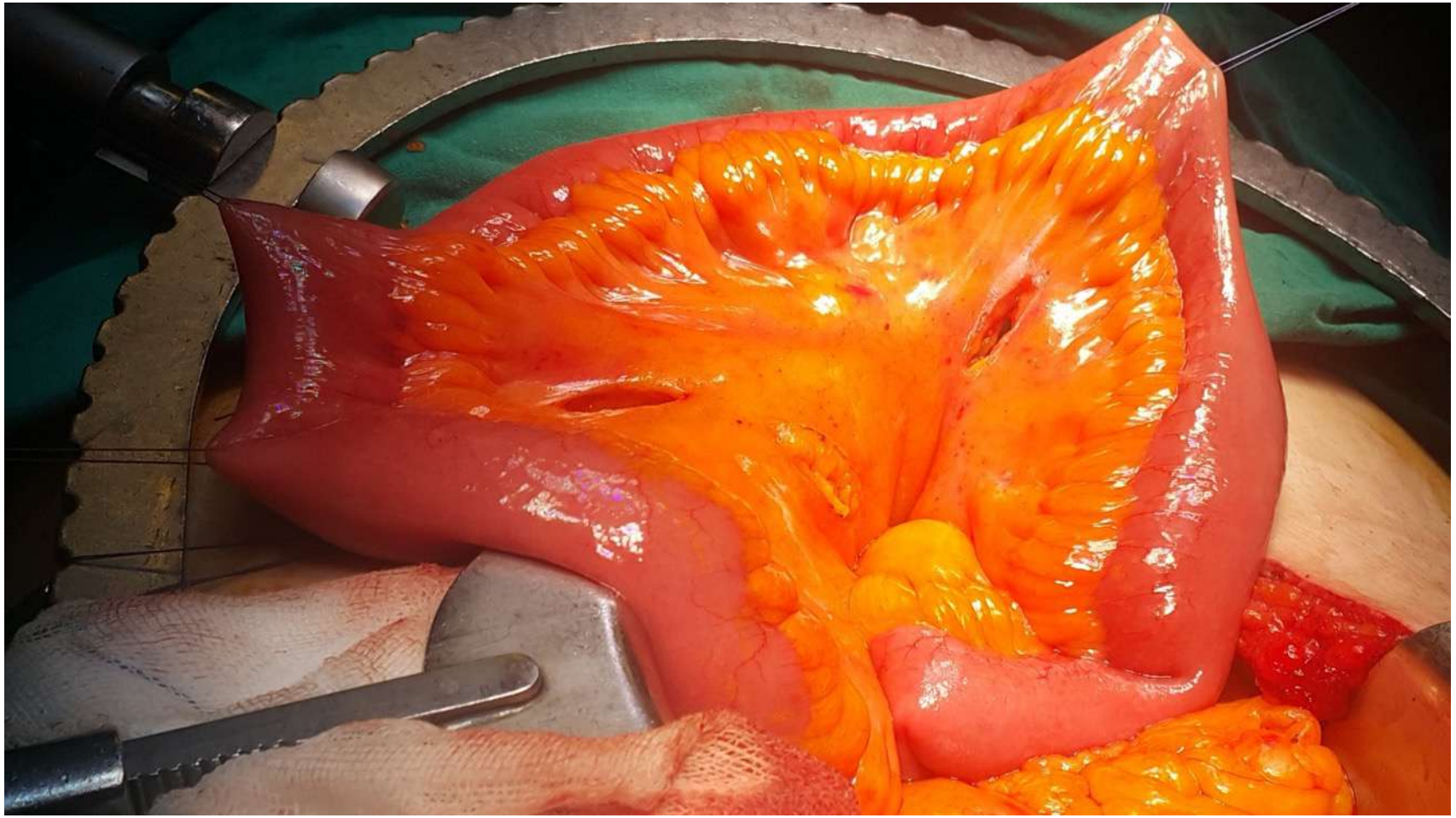
- Fleksibl üretereskopik böbrek taşı cerrahisi
- Endoskopik üreter taşı cerrahisi
- İdrar kültürü temiz
- Tek doz tedavi yeterli

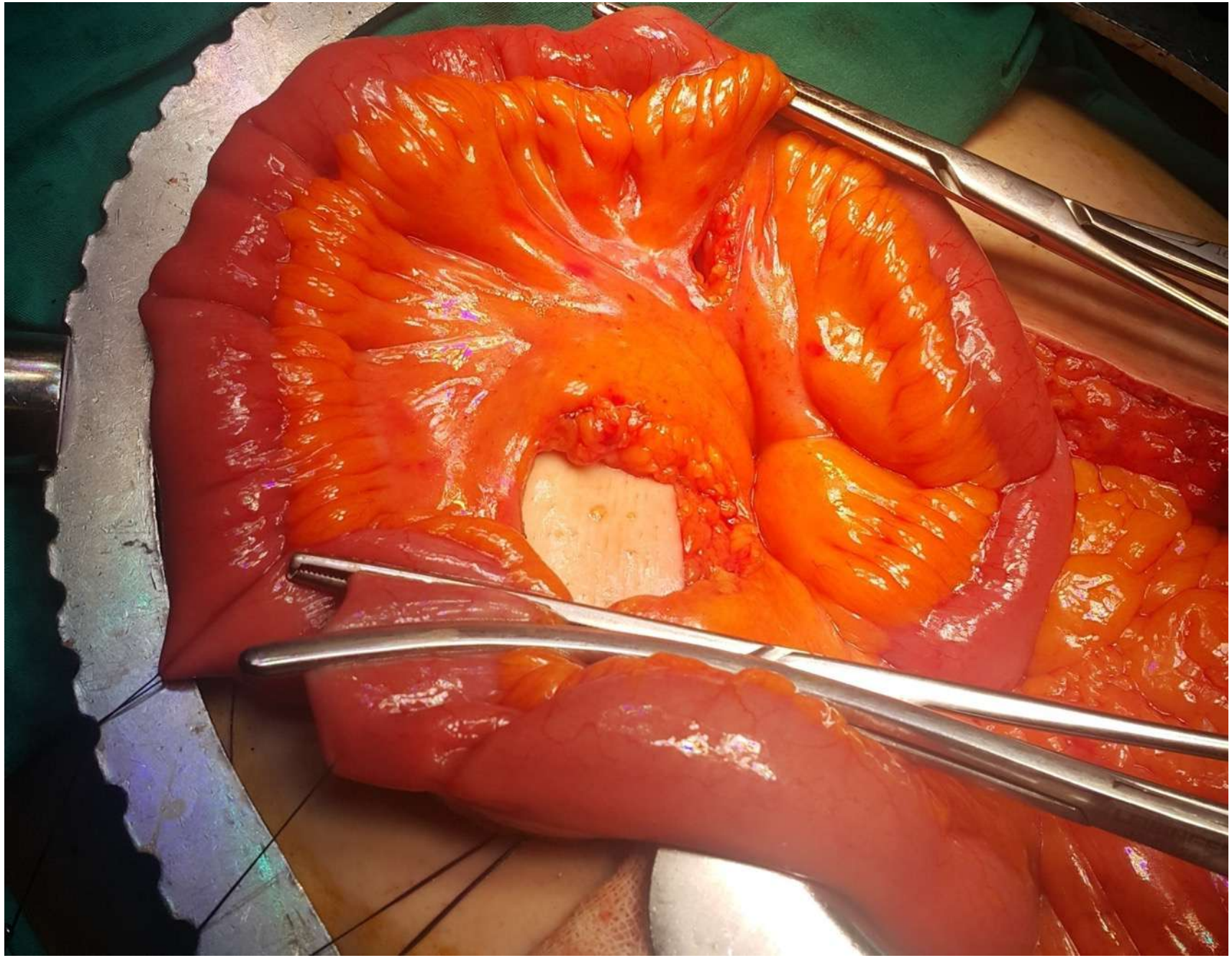


Açık/laparoskopik cerrahi

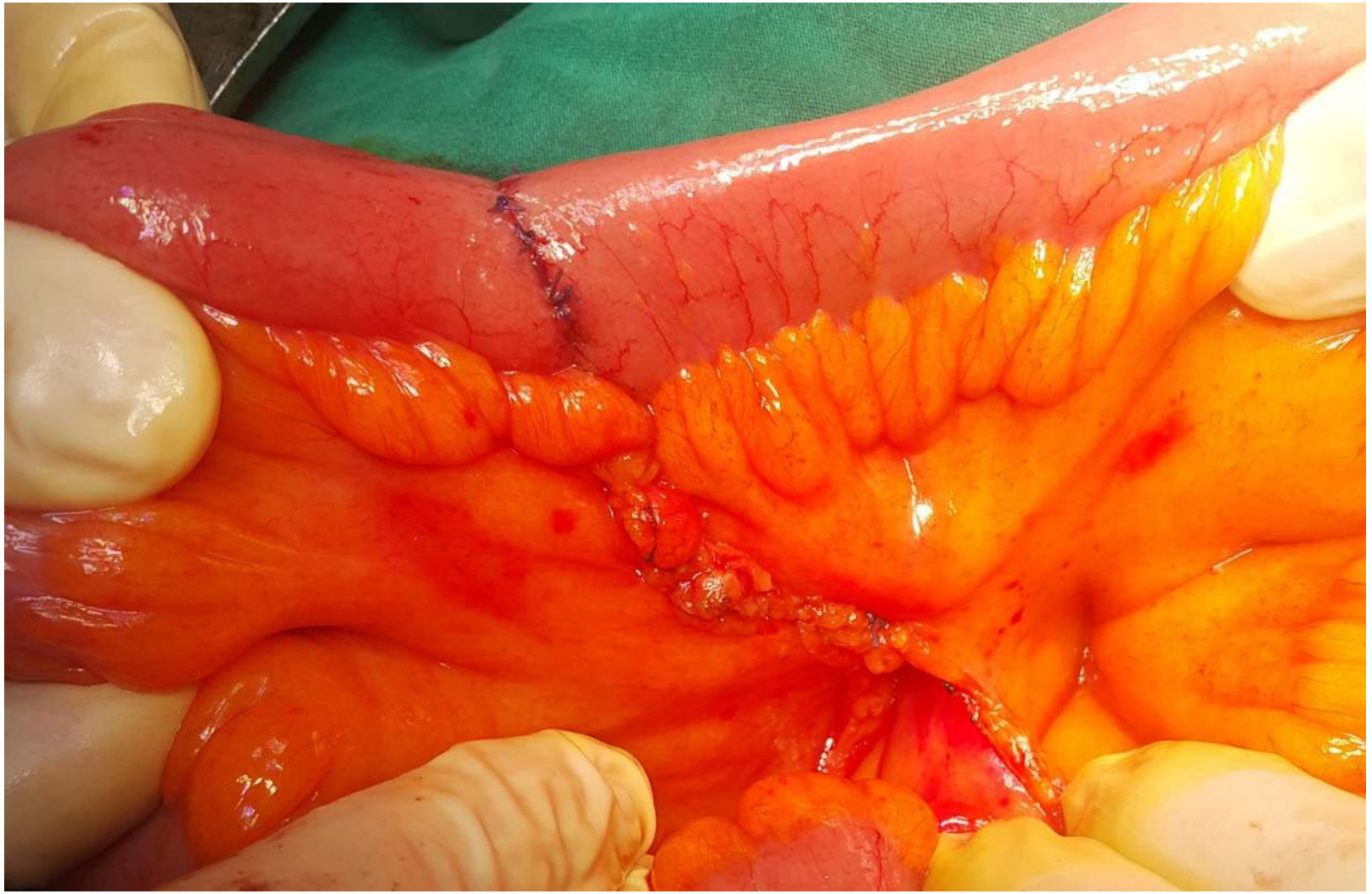
- Temiz
  - Radikal nefrektomi
- Temiz kontamine
  - Elektif üriner sisteme girilen tüm cerrahiler
- Kirli
  - Enfekte üriner sisteme girilen cerrahiler
- Barsak kullanılan rekonstrüktif cerrahiler
  - 2. kuşak sefalosporin (anaerobik etki)
  - Oral neomisin-metranidazol 18-24 saat önce

İleum Mezenterinin İşaretlenmesi

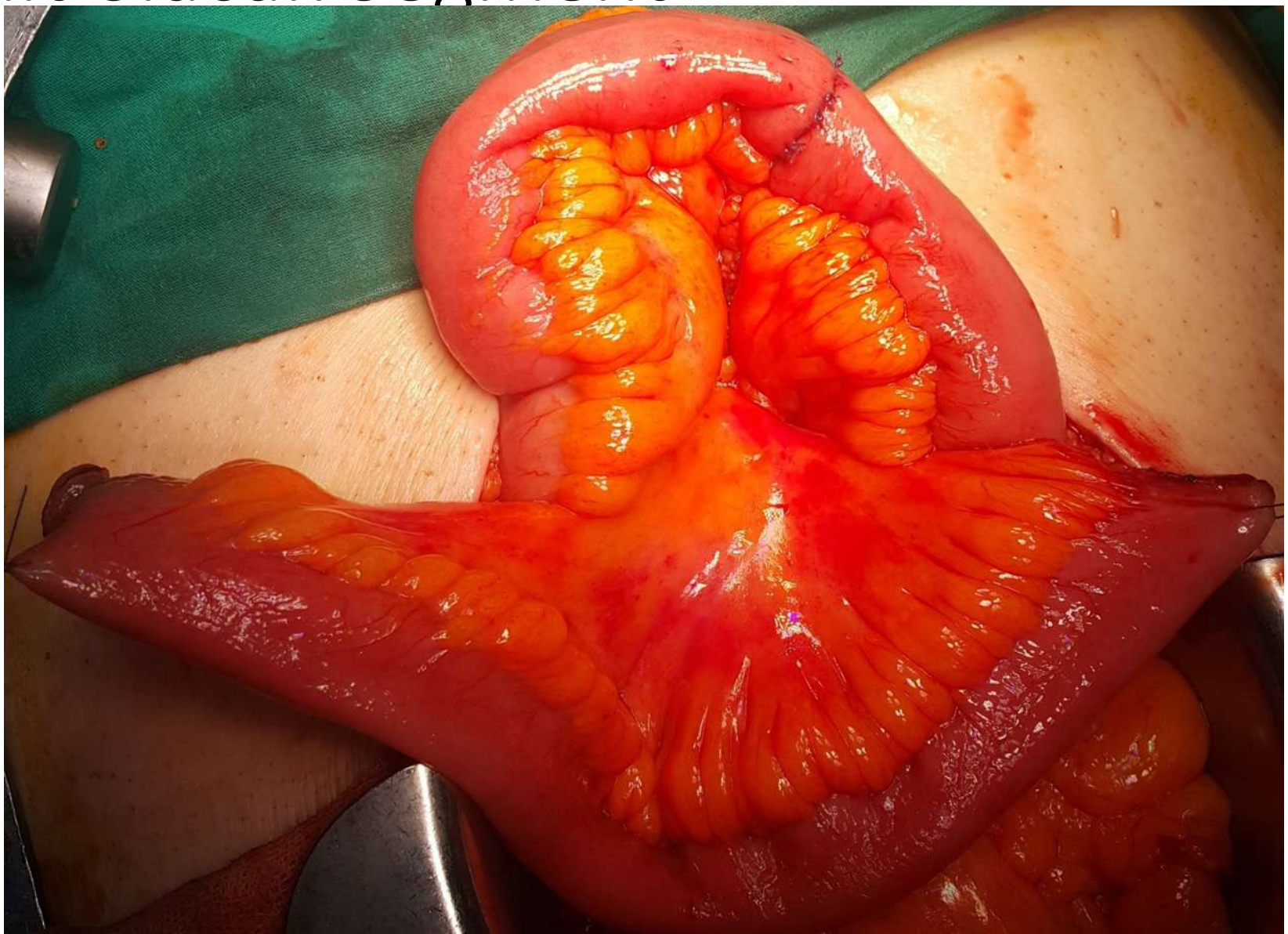




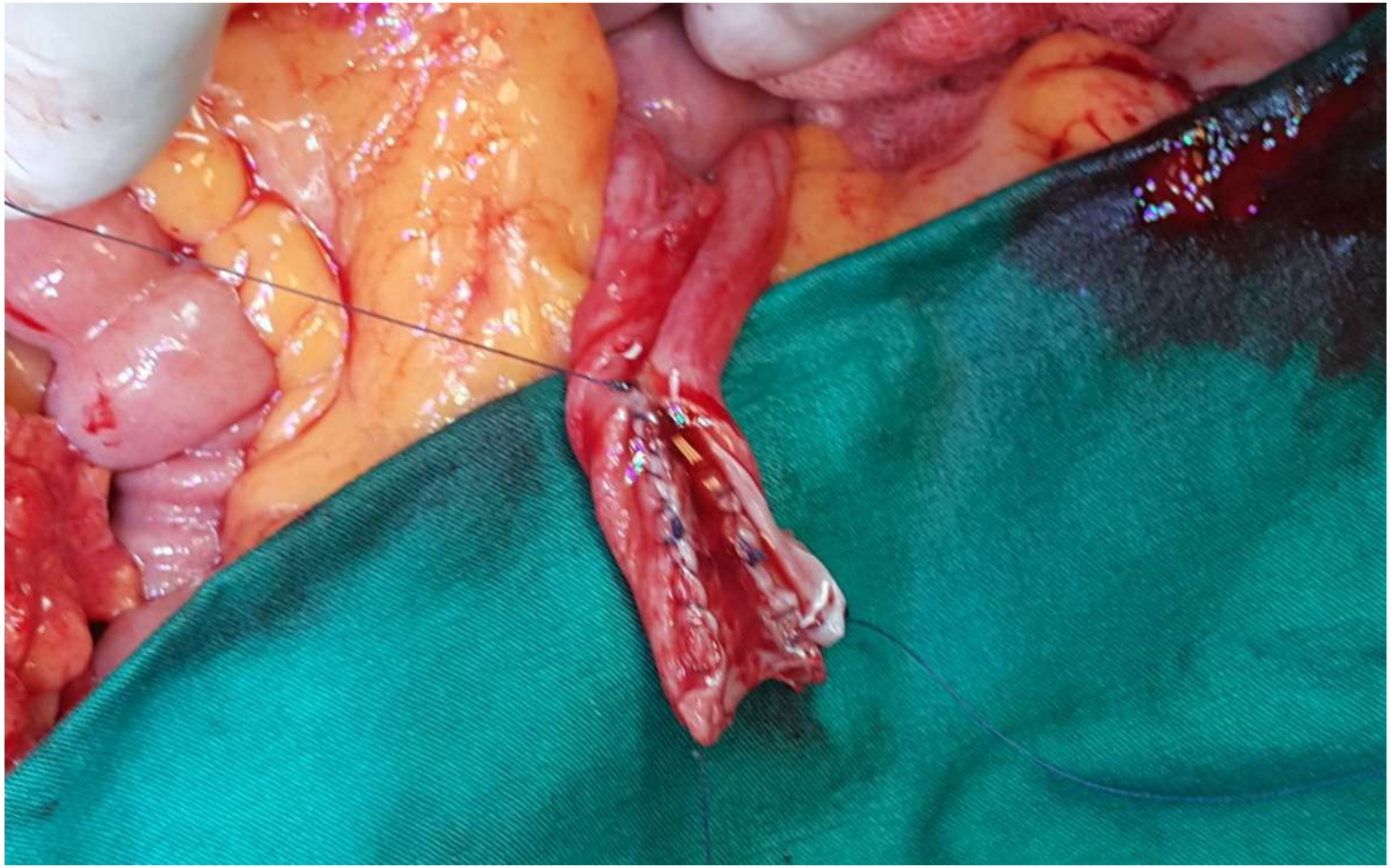
Anastomozun Tamamlanması



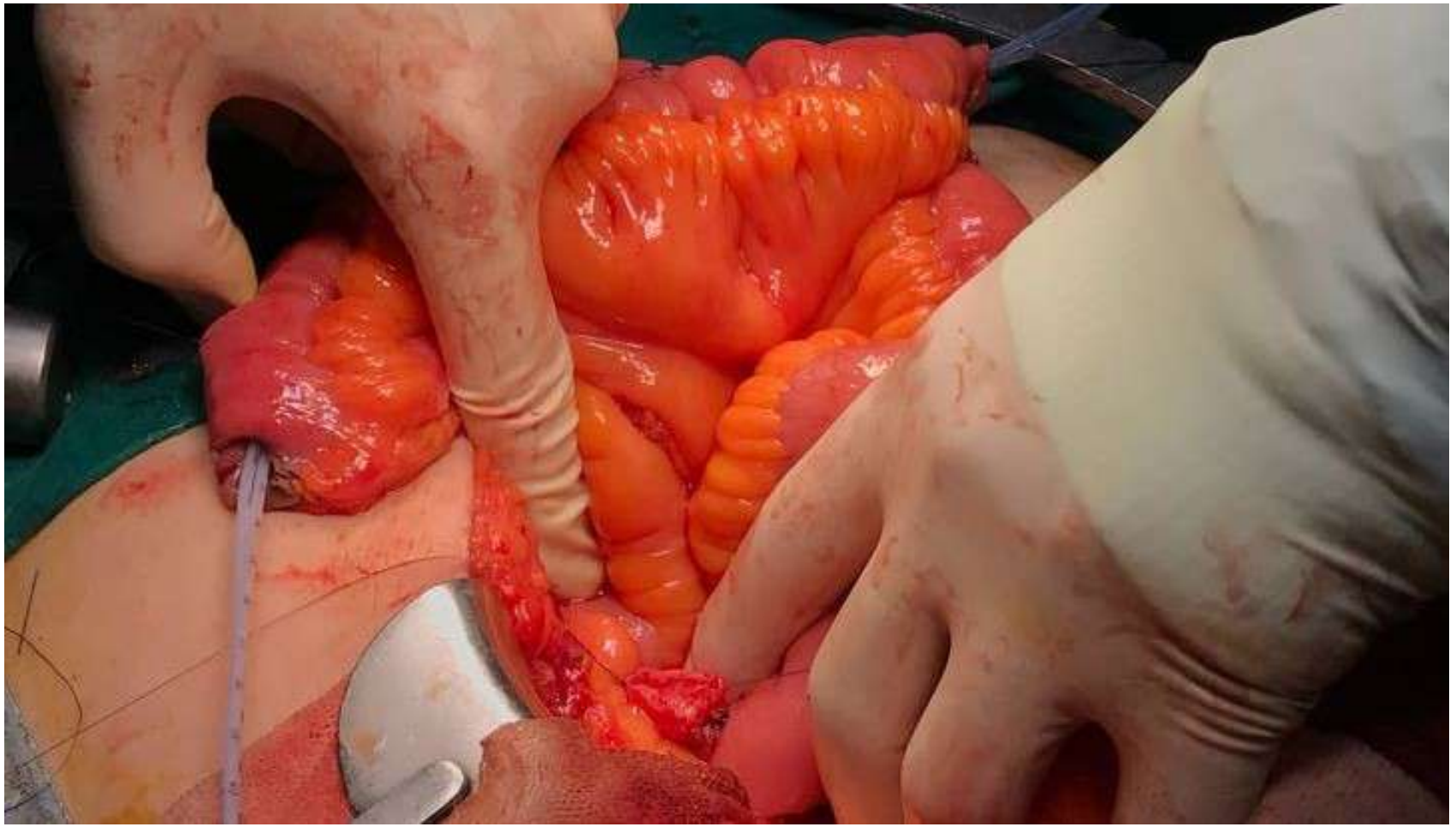
Konduit olacak Segment



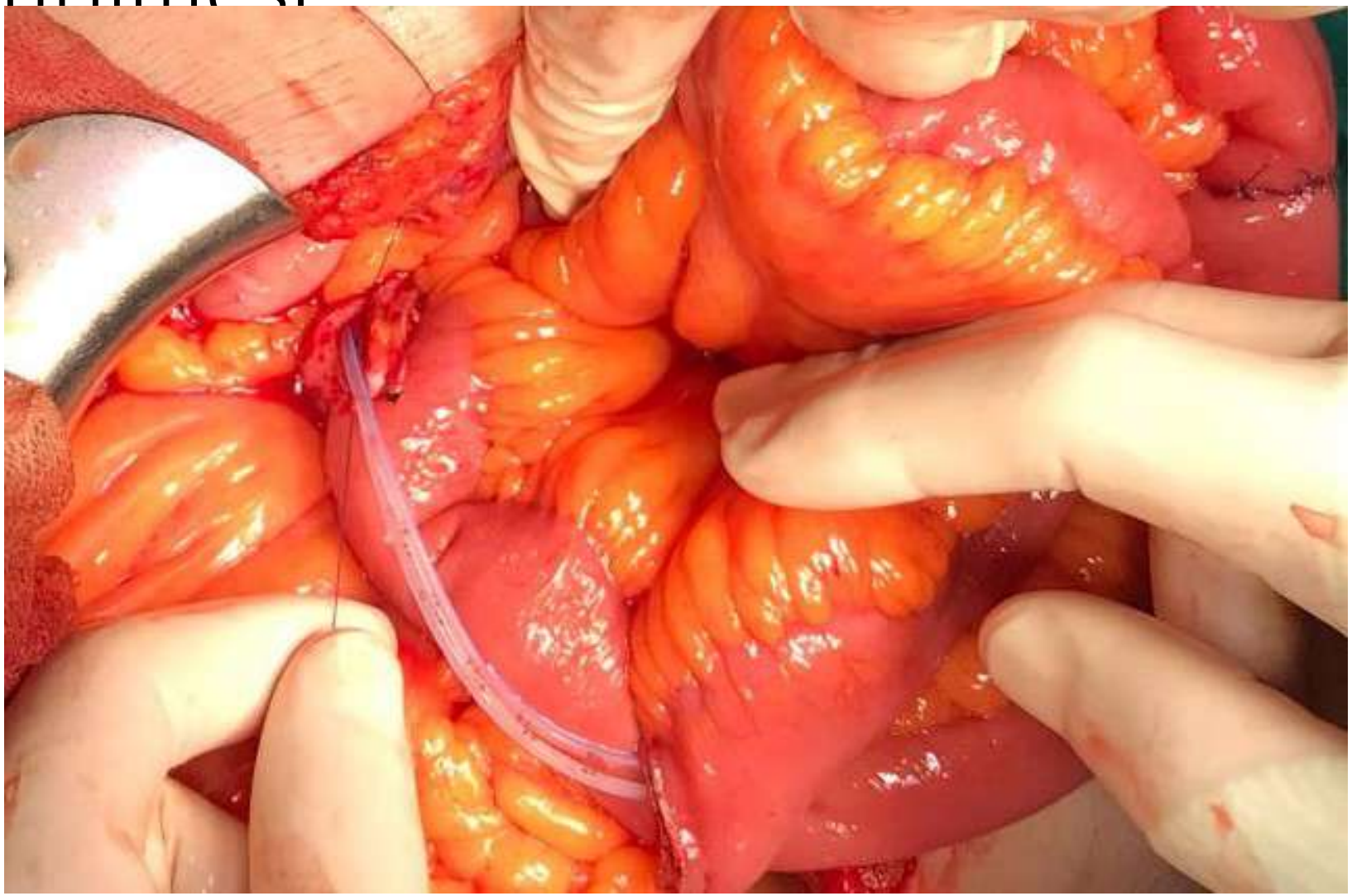
Üreteroüreteral Anastomoz



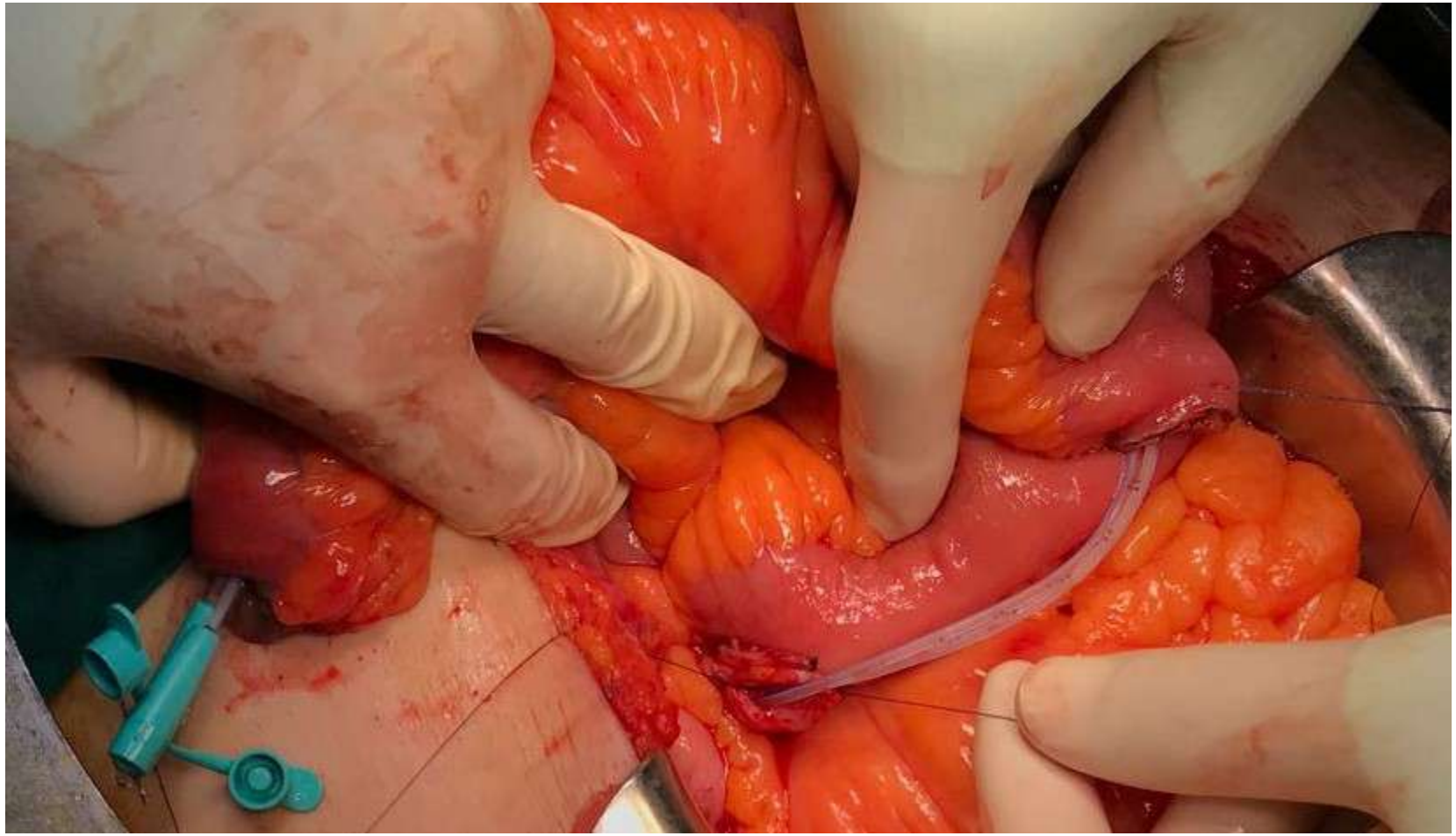
Üreteroüreteral Anastomoz



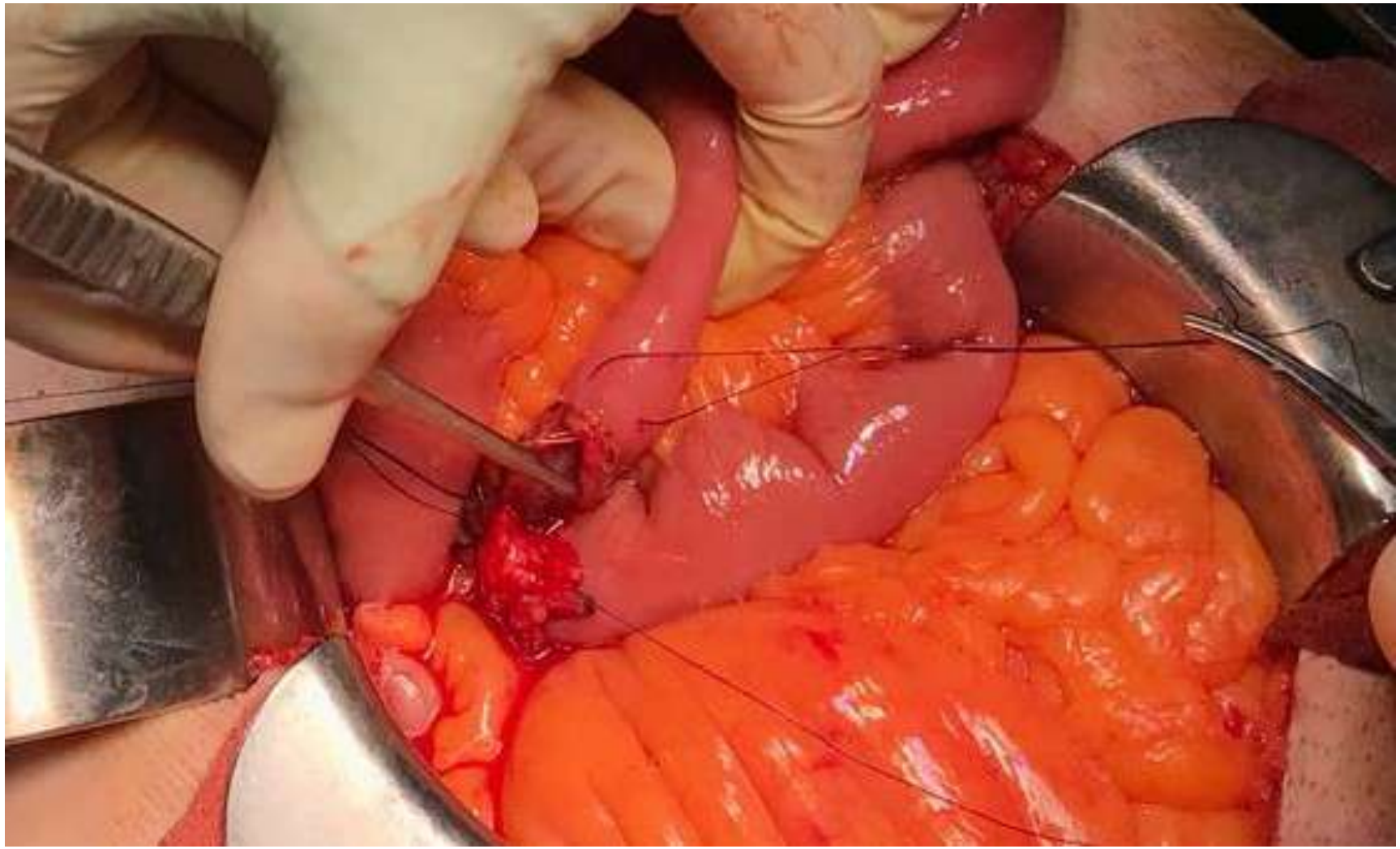
İleal Segmentten Üreterlere Kateterlerin Yerleştirilmesi



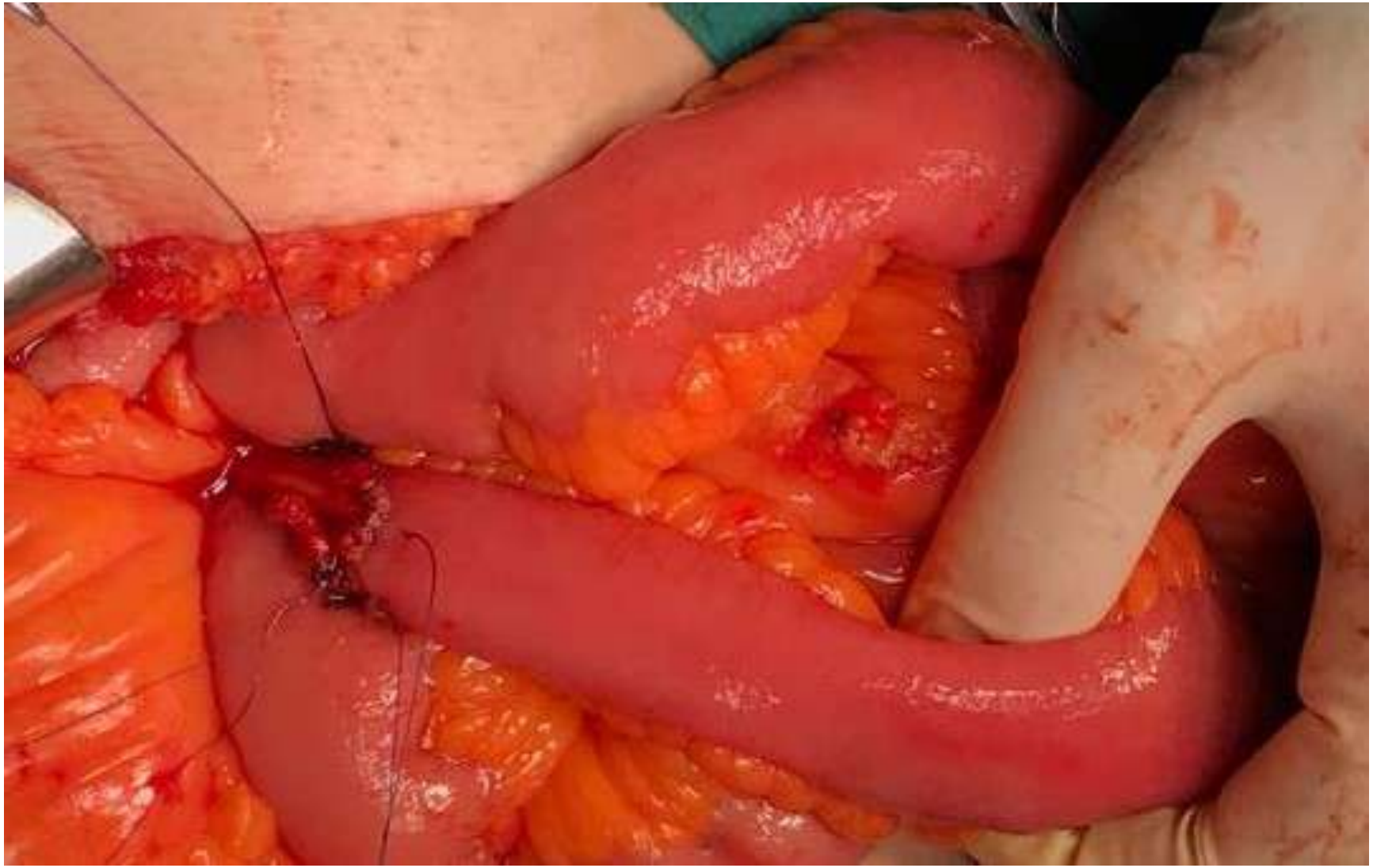
İleal Segmentten Üreterlere Kateterlerin Yerleştirilmesi



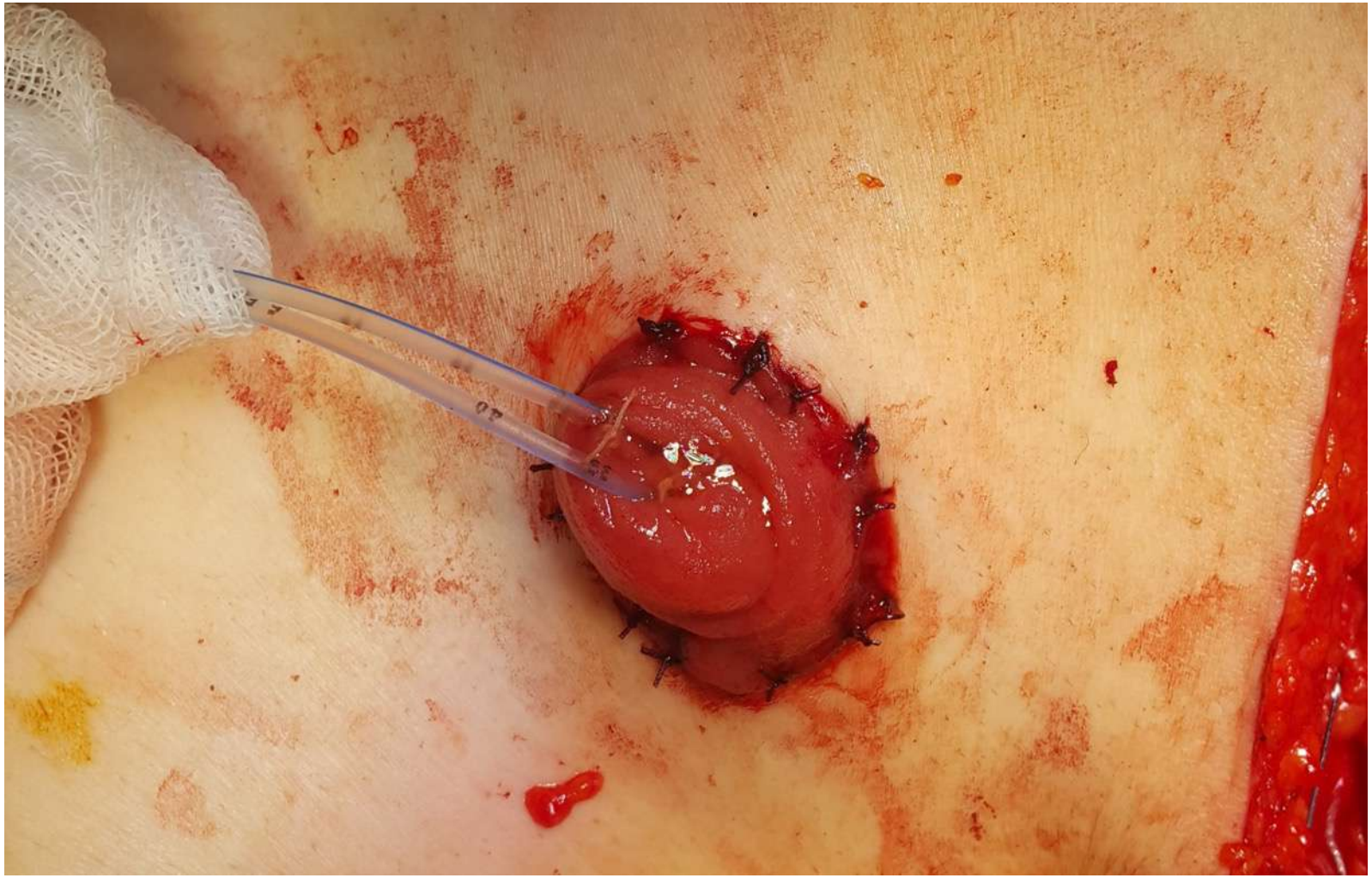
Kateterlerin İleal Segmente Dikişle (Poli(glikolid-ko-laktid)) Tespit Edilmesi



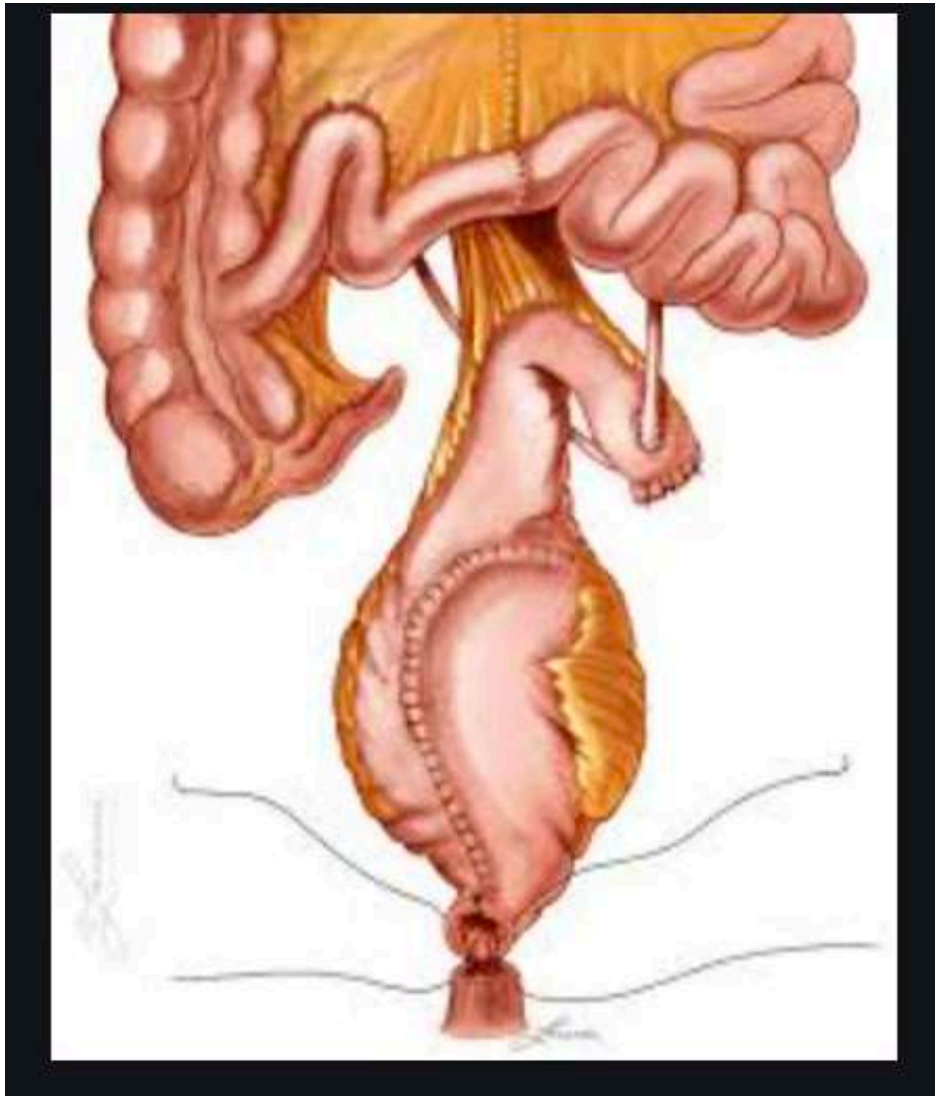
Üreteroileal Anastomoz



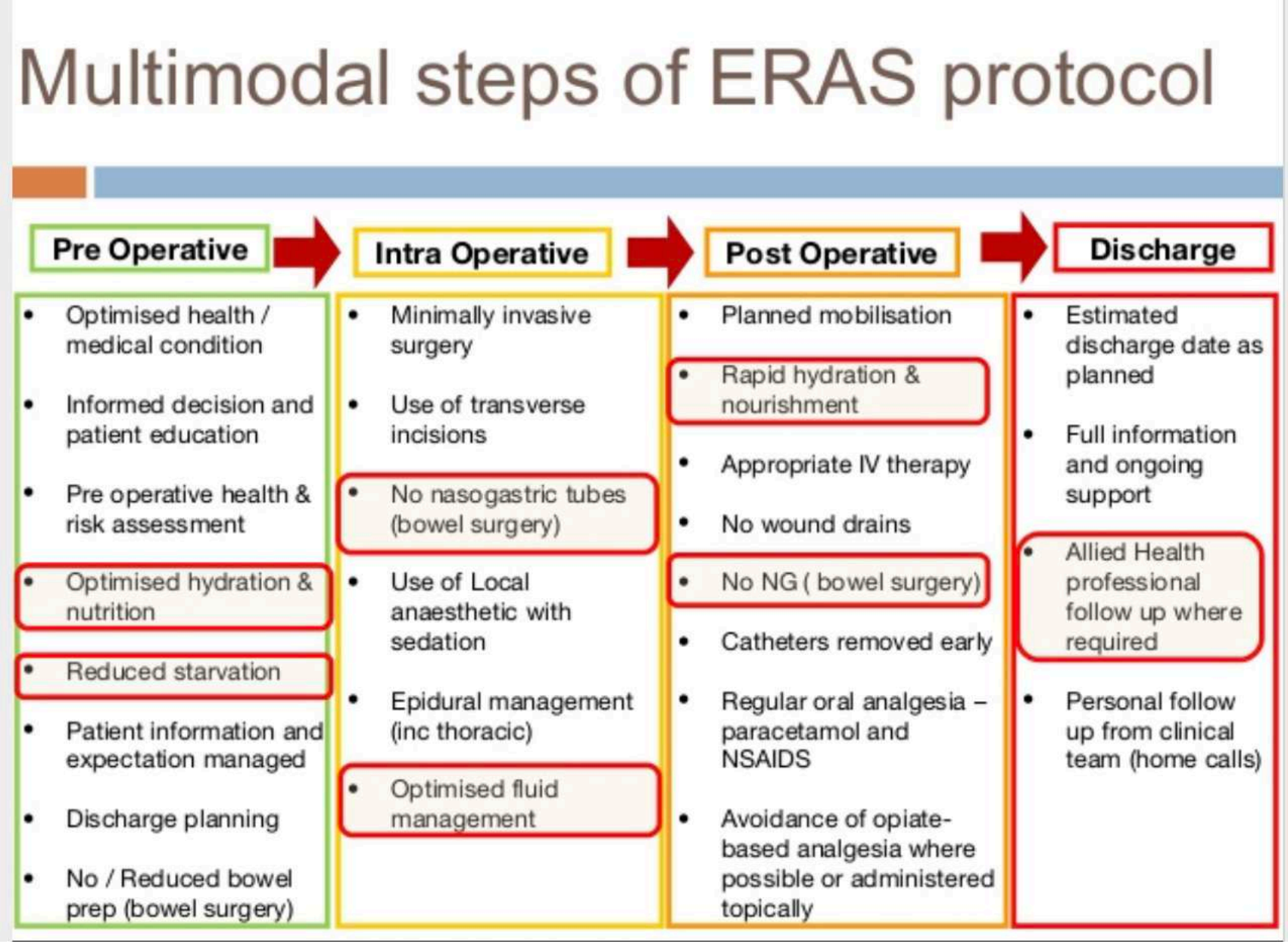
Stoma



İleal neobladder



Enhanced Recovery After Surgery



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Urologic Oncology: Seminars and Original Investigations 000 (2019) 1–6

UROLOGIC ONCOLOGY

Clinical-Bladder cancer

Urinary tract infections following radical cystectomy with enhanced recovery protocol: A prospective study

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Received 13 May 2019; received in revised form 14 November 2019; accepted 23 December 2019

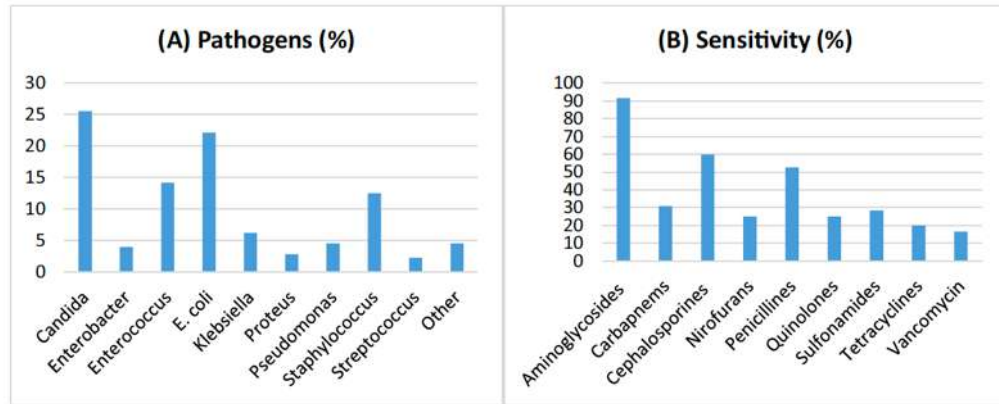
Abstract

Objectives: Urinary tract infection (UTI) following radical cystectomy (RC) is a common complication associated with significant morbidity and risk of readmission. Recent literature has assessed the effect of perioperative antibiotic regimens on the rate of postoperative infections but not yet yielded with significant changes in UTI rates. Our study focused on the effect of postoperative suppressive regimens on the rate of UTI following radical cystectomy with Enhanced Recovery After Surgery (ERAS) protocol.

Methods: We retrospectively reviewed 427 patients who underwent RC with ERAS protocol between May 2012 and January 2017 at our institution. The ERAS protocol infection prevention measures included 24-hr perioperative antibiotic followed by suppressive antibiotic until removal of catheter/stents. A patient was found to have a UTI if they had a positive urine culture and documented symptoms, positive urine culture with treatment per practitioner discretion, or negative or unavailable urine culture but the clinical presumption of UTI that got treatment. Urosepsis was defined if any of UTI episodes were associated with positive blood culture. Patients' characteristics, UTI events, and urine culture sensitivities were reviewed for analysis.

Results: The incidence of UTI and urosepsis was 36.1% and 7.13% within 90-days following RC, respectively. The median time to the first UTI was 13 days (IQR 8–35). *Candida* (25.57%) and *Escherichia coli* (22.16%) were the most commonly identified pathogens. UTI and urosepsis were significantly lower in patients who received suppressive fluoroquinolones compared to other antibiotic regimens (32.72% vs. 45.24%, $P = 0.04$ for UTI and 5.25% vs. 11.90%, $P = 0.04$ for urosepsis). In multivariable analysis, orthotopic neobladder and perioperative transfusion were significantly associated with increased UTI rate (OR = 2.3 and 1.71, $p < 0.05$, respectively).

Conclusions: UTI is common following RC and urinary diversion with ERAS protocol. The most common isolated pathogens are candida and Escherichia coli. Orthotopic neobladder and perioperative transfusion are independent risk factors for postoperative UTI. The use of suppressive fluoroquinolones is associated with a significant decrease in UTI rate. © 2019 Elsevier Inc. All rights reserved.



. (A) Frequency of common pathogens cultured from patients with UTI; (B) Percent sensitivity of postcystectomy UTI etiologies to various antibiotics.

Prostat biyopsisi

- Proflaksi mutlak gerekli
- Biyopsi öncesi lavman
- Rektal povidone-iodine uygulaması
- Fluorokinolon
- Fosfomisin- trametamol
  - Florokinolon direnci
  - E. Coli ST 131 % 22 saptanıyor

ORIGINAL RESEARCH

The Effect of Local Antibiogram–based Augmented Antibiotic Prophylaxis on Infection-related Complications Following Prostate Biopsy

Raoul S. Concepcion, MD, FACS,[1,2] Edward M. Schaeffer, MD, PhD,[3] Neal D. Shore, MD, FACS,[4] Deepak A. Kapoor, MD, FACPE,[5,6] Jeffrey A. Scott, MD,[1] Gary M. Kirsh, MD[7]

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TABLE 1

Co-morbidities Associated With Higher Risk of Infectious Complications in Patients Undergoing Prostate Biopsy

Diabetes
Immunosuppression
History of prior biopsy
History of prostatitis
Prior fluoroquinolone exposure within 6 months
International travel
Healthcare provider
Current use of corticosteroids
Current use of tumor necrosis factor inhibitors

Data from American Urological Association.[4]

TABLE 2

Risk Factors for Potential Fluoroquinolone Resistance

Poor health
Urinary catheterization
Recent hospitalization
Previous urinary tract infection with prior antibiotic exposure

Data from Van der Starre WE et al.[12]

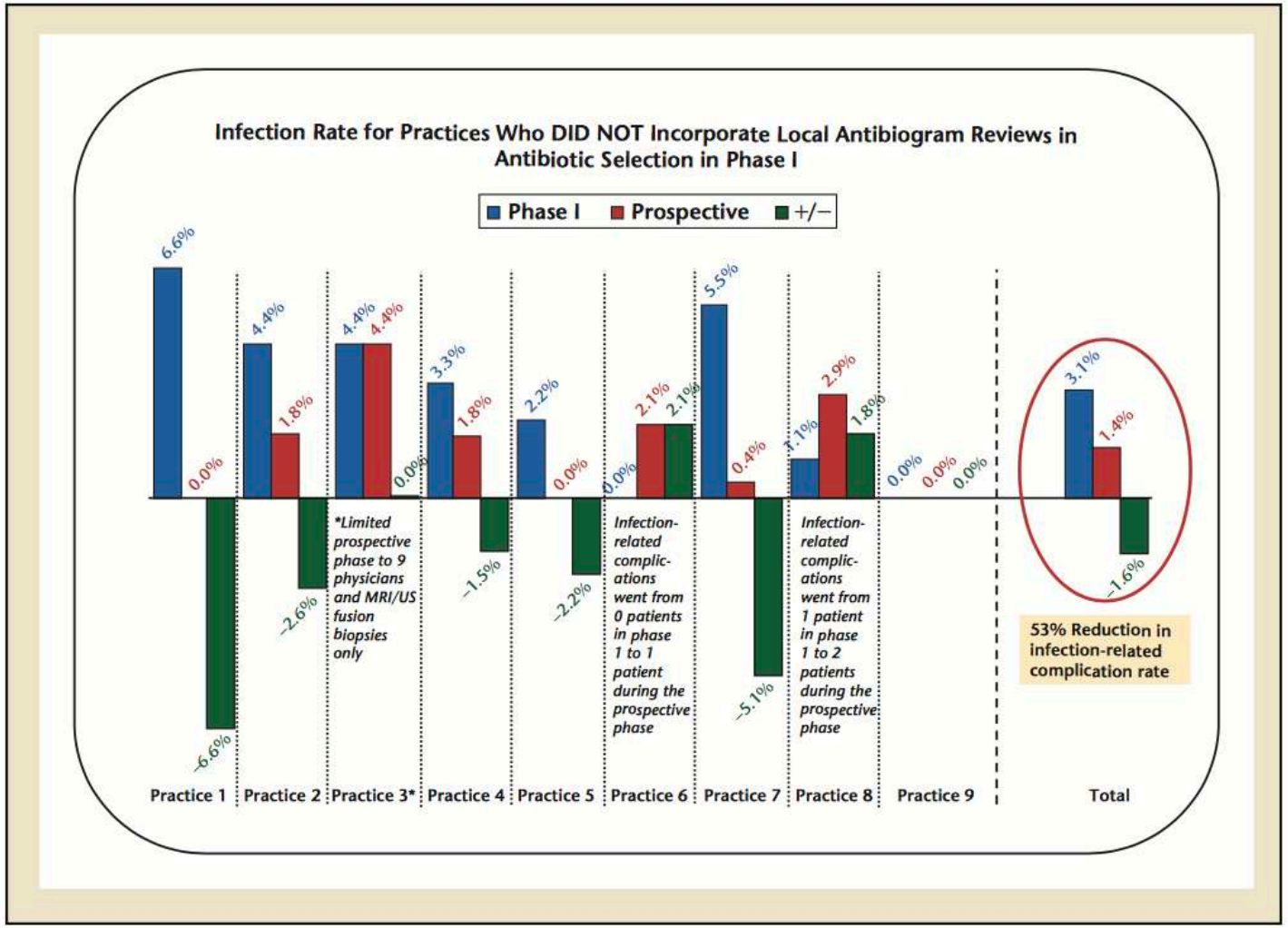
TABLE 5

Augmented Antibiotic Regimen by Individual Practice[a]

Augmented Antibiotics (Day of Biopsy)	Drug	Sensitivity to *E coli*	Dosage	Formulation	Sig
		Practice 1			
Standard	Ceftriaxone	95%	1 g	IM	At time of biopsy
	Ciprofloxacin	83%	500 mg	PO	bid
If penicillin allergy	Aztreonam	96%	2 g	IM	1 h before biopsy
	Ciprofloxacin	83%	500 mg	PO	bid
		Practice 2			
Standard	Ceftriaxone	92%	1 g	IM	At time of biopsy
	Levofloxacin[b]	68%	750 mg	PO	Single dose 2 h prior to biopsy
If penicillin allergy	Gentamicin	86%	3 mg/kg	IV	At time of biopsy
	Levofloxacin[b]	68%	750 mg	PO	Single dose 2 h prior to biopsy
High-risk patients	A rectal swab may be performed roughly 3 weeks prior to procedure (by referring urologist) to guide choice of prophylactic antibiotics.				
		Practice 3			
Standard	Ceftriaxone	99%	1 g	IM	At time of biopsy
	Ciprofloxacin	82%	500 mg	PO	bid
If penicillin allergy	Aztreonam[c]	99%	2 g	IV	1 h prior to biopsy
	Ciprofloxacin	82%	500 mg	PO	bid
		Practice 4			
Standard	Amikacin	100%	500 mg	IV	30 min before biopsy
	Ceftriaxone or cefepime	77%	1 g 2 g	IM IV	At time of biopsy
If penicillin allergy	Amikacin	100%	500 mg	IV	30 min before biopsy
	Aztreonam	77%	2 g	IV	1 h before biopsy
		Practice 5			
Standard	Ceftriaxone	95%	1 g	IM	At time of biopsy
	Ciprofloxacin or levofloxacin	89%	500 mg or 750 mg	PO	bid or qd
		Practice 5 (cont'd)			
If penicillin allergy	Aztreonam	95%	2 g	IV	1 h before biopsy
	Ciprofloxacin or levofloxacin	89%	500 mg or 750 mg	PO	bid or qd
		Practice 6			
Standard	Ceftriaxone	91%	1 gram	IM	At time of biopsy
	Ciprofloxacin	81%	500 mg	oral	BID
If penicillin allergy	Aztreonam	Not reported	2 g	IV	1 h before biopsy
	Ciprofloxacin	81%	500 mg	PO	bid
		Practice 7			
Standard	Gentamicin	90%	3-5 mg/kg	IV bolus	At time of biopsy
	Cefuroxime	Not reported	500 mg	PO	bid
If penicillin allergy	Gentamicin	90%	3-5 mg/kg	IV bolus	At time of biopsy
	Levofloxacin	73%	750 mg	PO	Single dose
		Practice 8			
Standard	Amoxicillin/ clavulanic acid	78%	875 mg	PO	Single dose
	Ceftriaxone	86%	1 g	IM	At time of biopsy
If penicillin allergy	Ceftriaxone	86%	1 g	IM	At time of biopsy
	Gentamicin	86%	5 mg/kg	IM	30 min prior to biopsy
		Practice 9			
Standard	Ceftriaxone	94%	1 g	IM	At time of biopsy
	Ciprofloxacin	88%	500 mg	PO	bid
If penicillin allergy	Gentamicin	91%	3-5 mg/kg	IV bolus	At time of biopsy
	Ciprofloxacin	88%	500 mg	PO	bid

Quinolone Resistance to *E coli* by State/Region Based on Local Antibiograms Provided

State/Region	Quinolone Resistance to *E coli*
Florida	56%
Alabama	47%
Louisiana	39%
Tennessee	38%
Maryland	32%
Southern California	27%
Northern California	19%
Illinois	18%
New Mexico	17%
Pennsylvania	12%
Colorado	11%

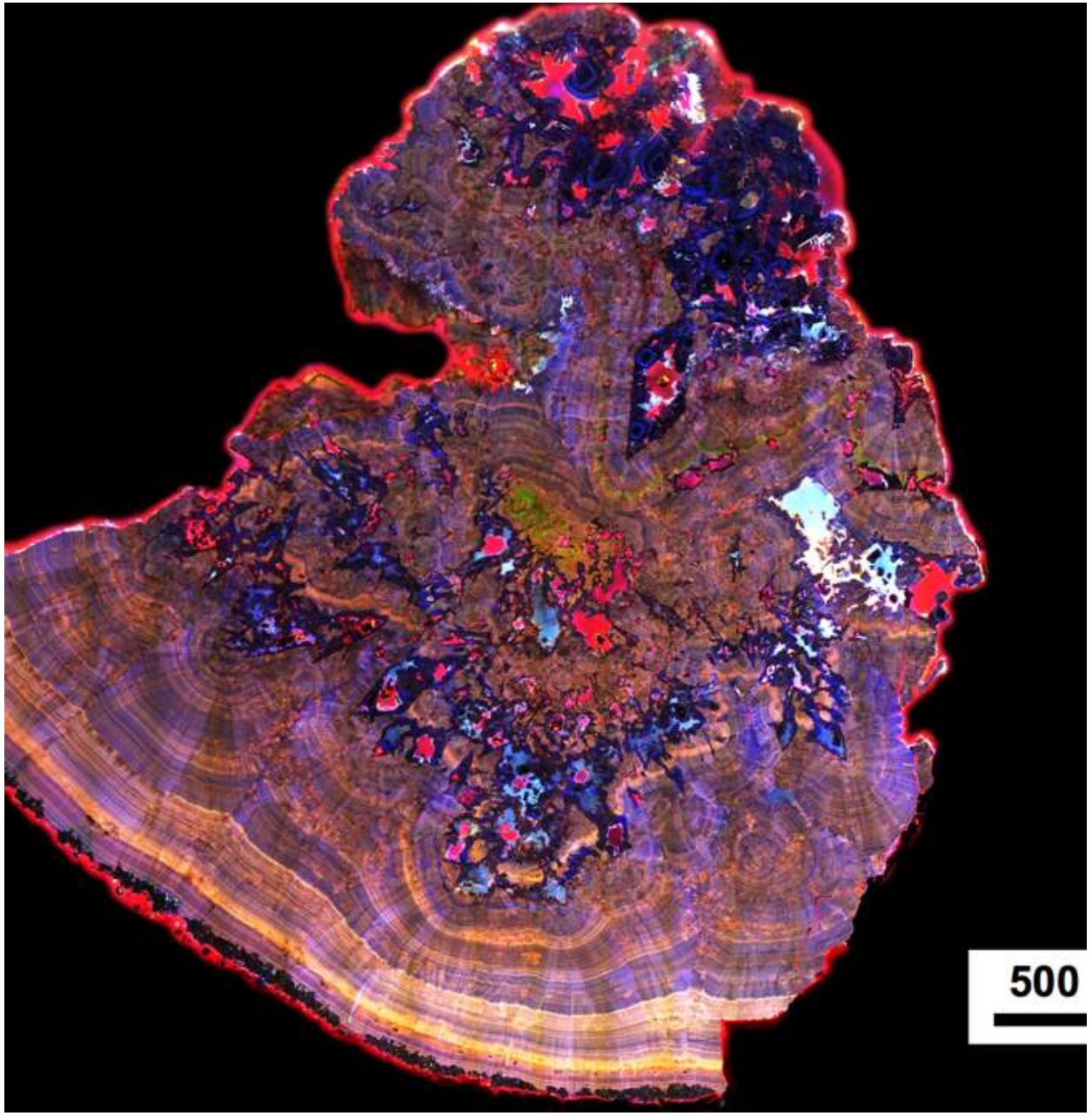


IRC % 3.1 den 1.4 e düşüyor

Taş cerrahisi

Minimal invaziv cerrahi

- Obstrükte sistem
- Artmış böbrek içi başınç
- Mukozaya travma
- Enfekte taş varlığı
- Mutlak 2 temiz idrar kültürü
- Piüri
- CRP yüksekliği
- Ateş

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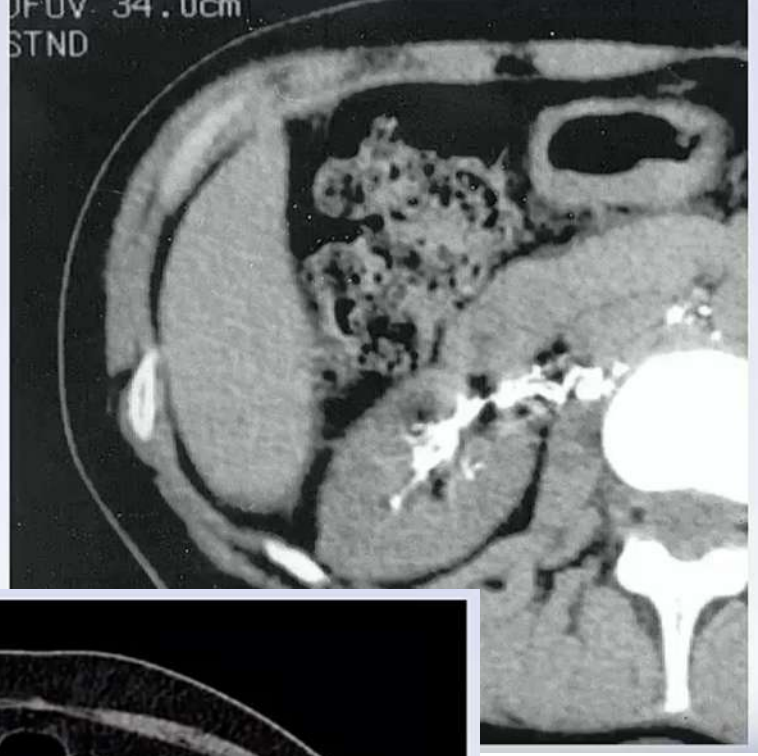
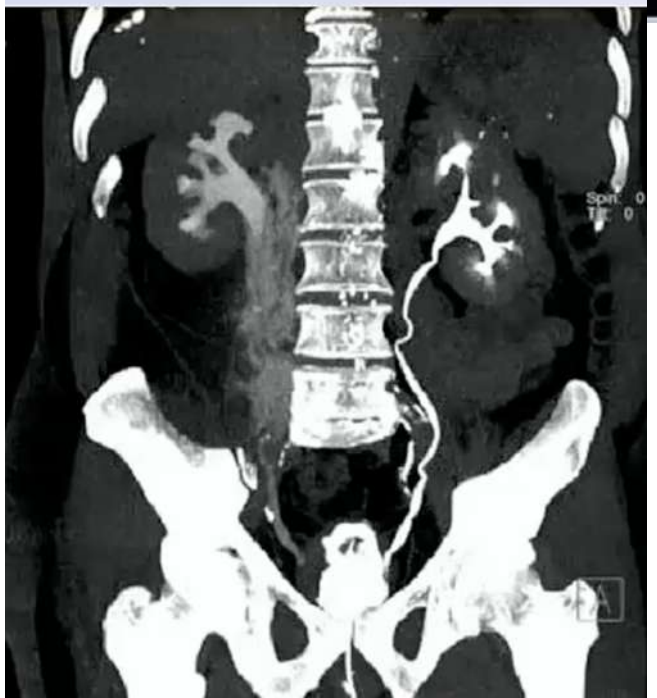
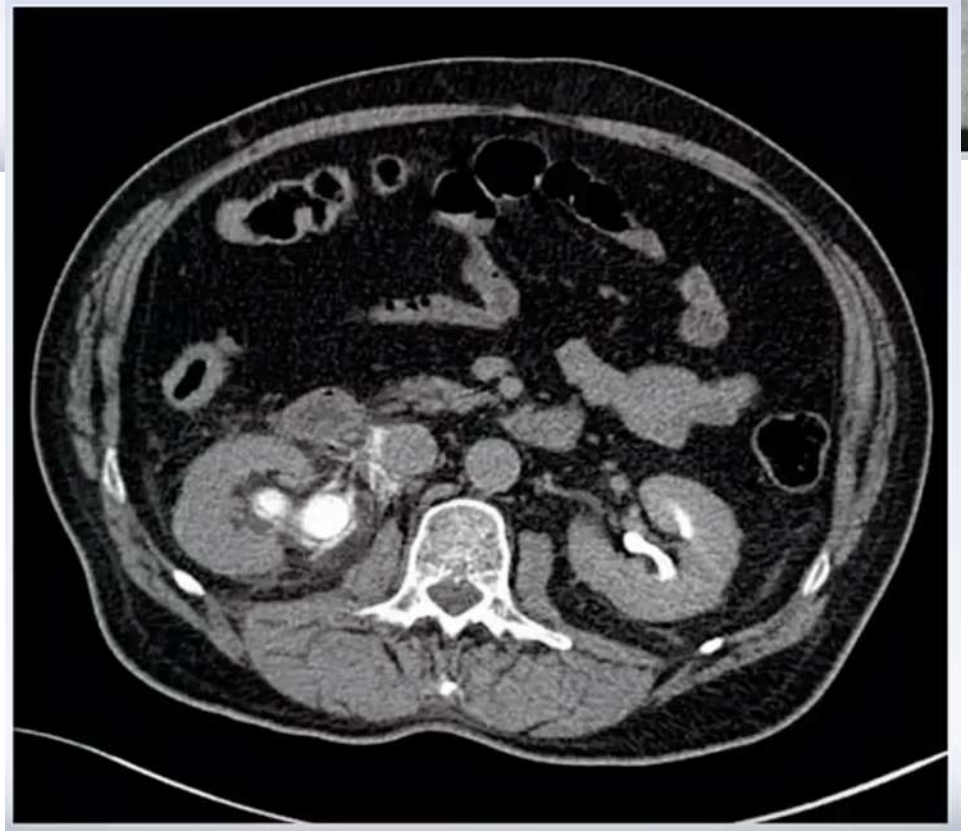

STND





Quantifying the impact of the urinary tract microbiome to urinary stone disease

5/5/19

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Project Scientist

Cleveland Clinic

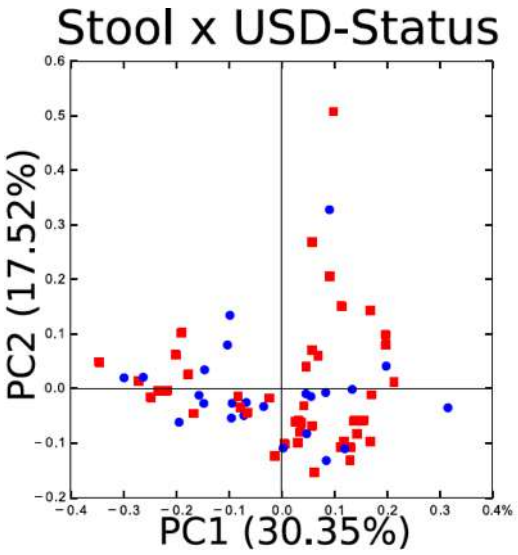
Objectives

- Quantify the relative importance of the urinary tract vs. gut microbiome to USD
- Quantify most dysregulated microbial taxa in USD
- Work towards the mechanistic basis for the contribution of the microbiome to the onset of stone formation

Oral antibiotics & USD

Metric	Healthy	USD	P-value	Statistic
No. enrolled	43	24	NA	NA
% CaOx		43%		
% CaOx + CaPhos		22%		
% CaOx + Uric acid		4%		
% CaPhos		13%		
% Uric acid		17%		
% Antibiotics used in past 12 months	39.53%	75%	**0.01**	Relative risk, Fisher Exact Test
Age	35.47 +/- 1.73	51.54 +/- 2.53	**<0.001**	Student's t-test
% Prior USD	0%	75%	**<0.001**	Relative risk, Fisher Exact Test
% Family History of USD	26%	41%	**0.016**	Relative risk, Fisher Exact Test
Diet			>0.05	
% Antibiotics used in past 30 days	0%	4.17%	0.35	Relative risk, Fisher Exact Test
Height (cm)	171.54 +/- 1.53	171.66 +/- 1.7	0.5	Student's t-test
Weight (kg)	76 +/- 3.26	81 +/- 6.55	0.59	Student's t-test
% Female	60%	58%	0.785	Relative risk, Fisher Exact Test

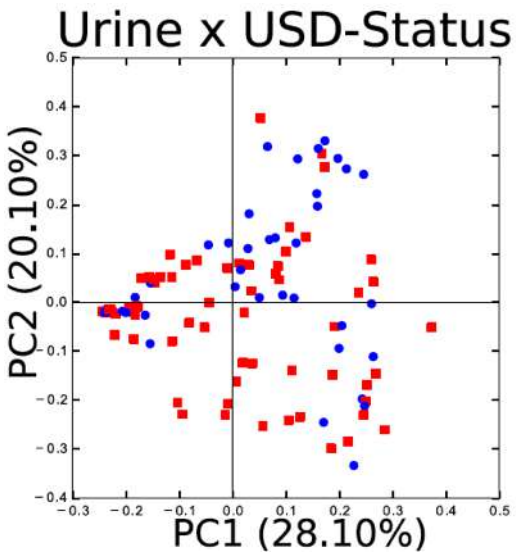
Urinary tract microbiome differs more than gut microbiome in USD



p-val > 0.05

Healthy

USD



p-val = 0.009

Healthy (A)

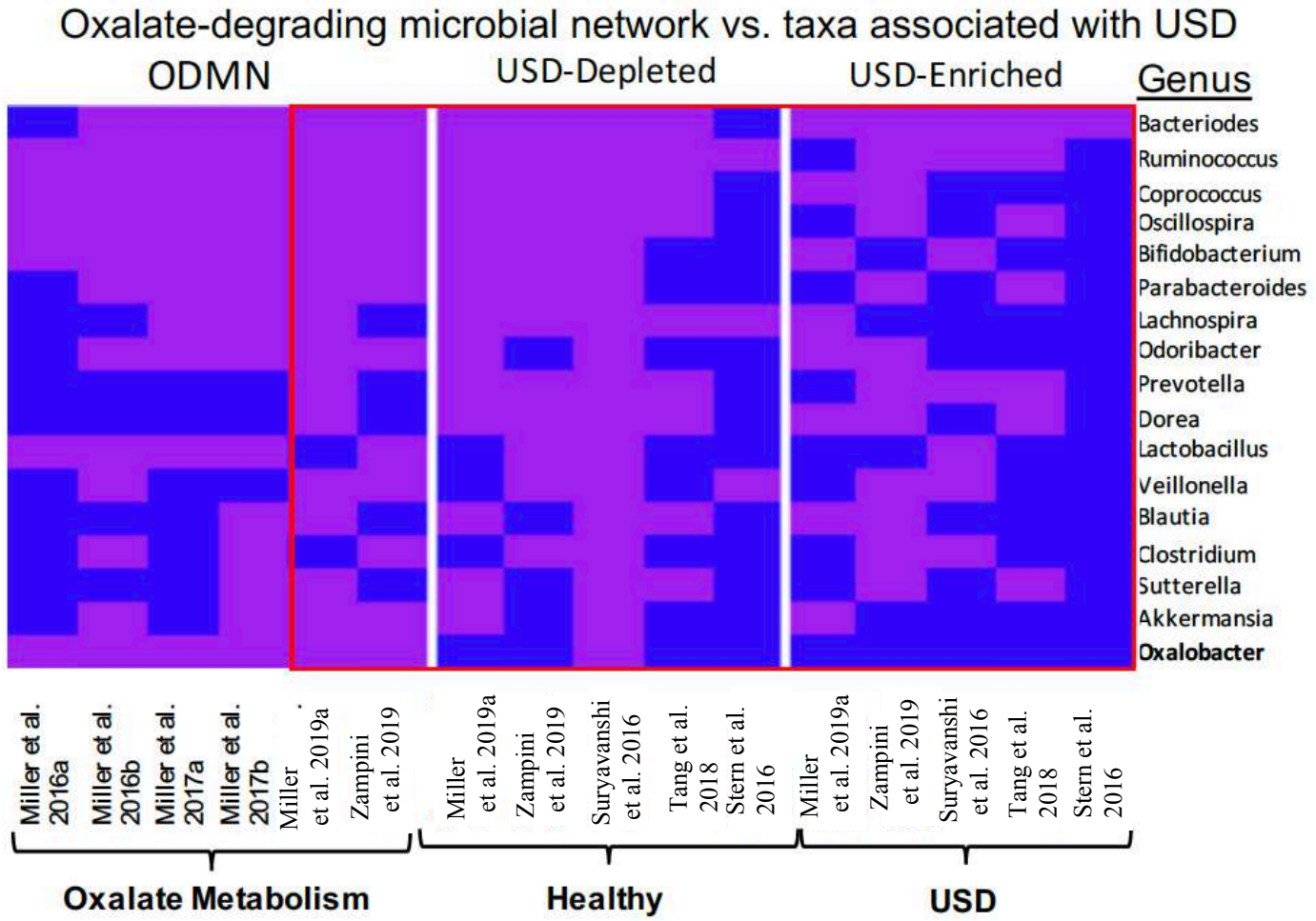
USD (B)

Urinary tract microbiome and USD risk factors

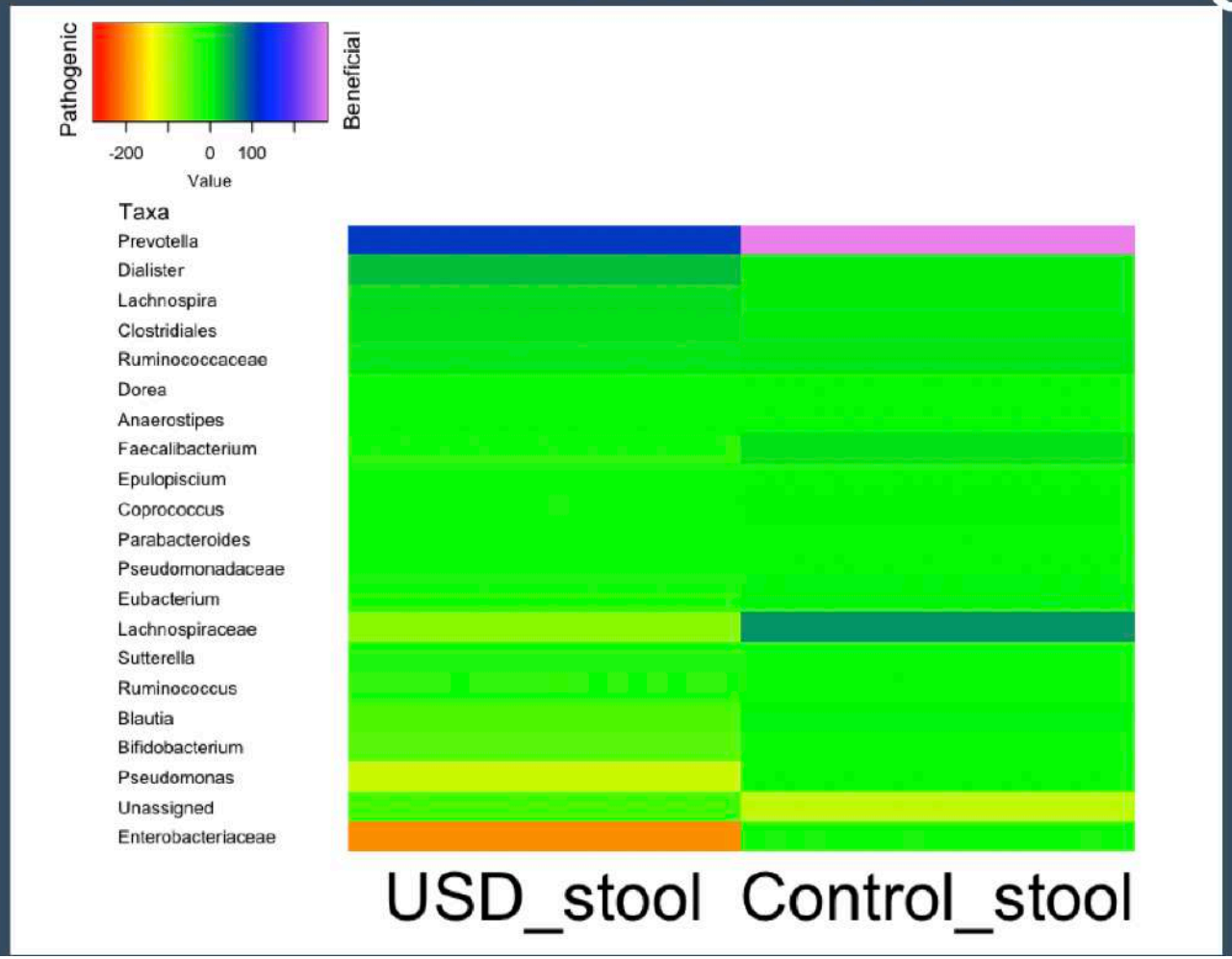
Comparison	Permanova p-value
Urine by 12m Antibiotic use	0.022
Urine by USD-status	0.009
Urine by Family history of USD	0.042
Urine by Sex	0.008

* No microbiome associations with age

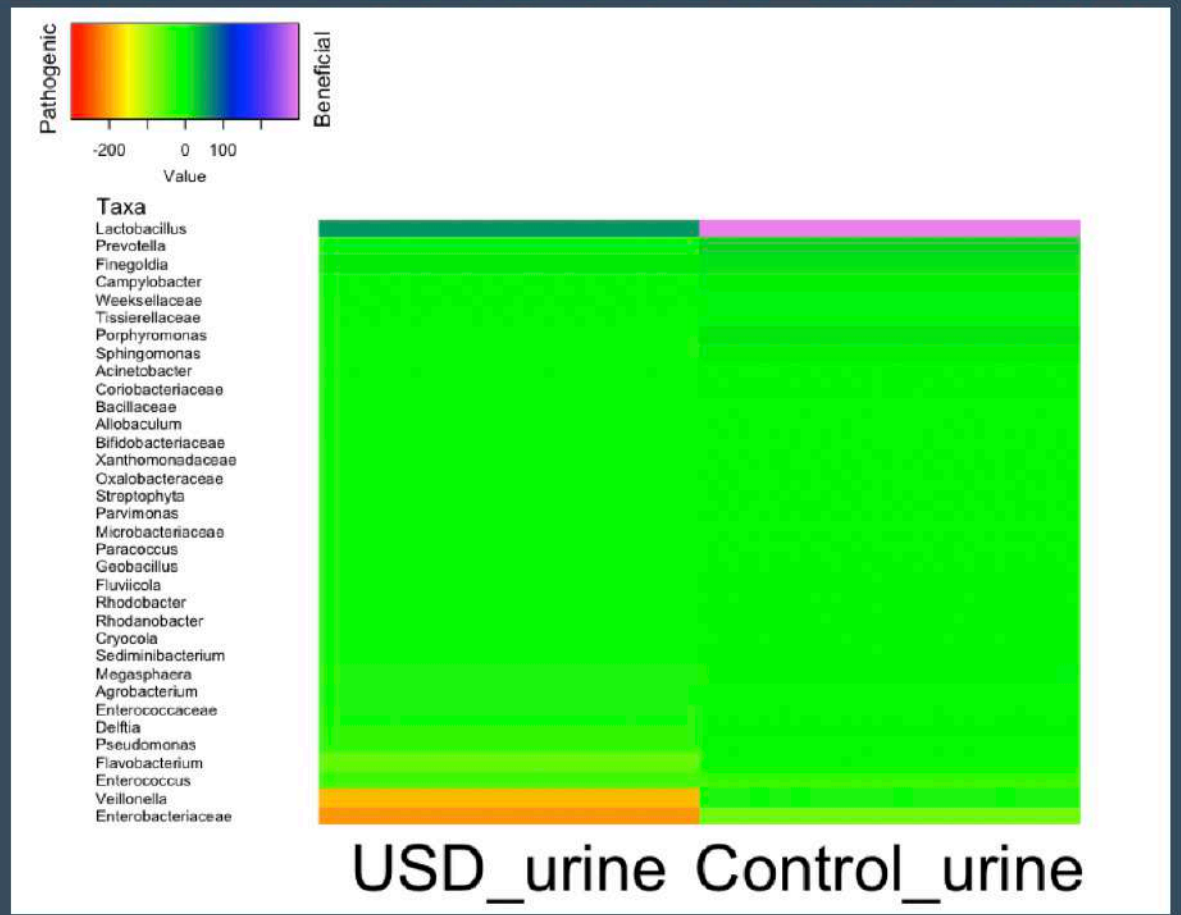
Reduced capacity for oxalate metabolism in gut



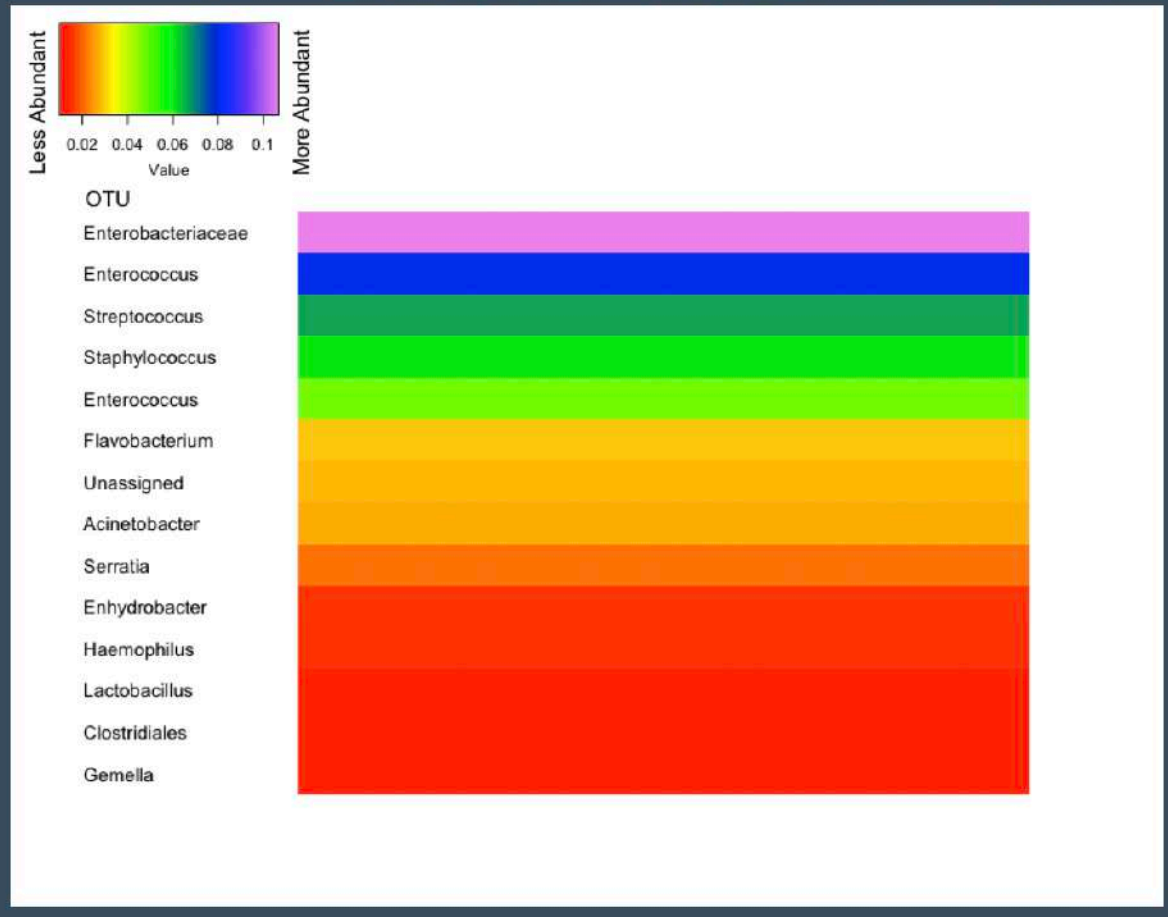
Shift from *Prevotella* -> *Enterobacteriaceae* in gut



Shift from *Lactobacillus* -> *Enterobacteriaceae* in urinary tract



Single strain of *E. coli* makes up 10% of stone microbiome



Combination dysbiosis

- Gut
  - Loss of oxalate metabolism
  - Shift from *Prevotella* to *Enterobacteriaceae*
- Urinary tract
  - Shift from *Lactobacillus* to *Enterobacteriaceae*
- Stones
  - Dominated by *Enterobacteriaceae*

Oral Antibiotic Exposure and Kidney Stone Disease

Gregory E. Tasian,[1,2,3] Thomas Jemielita,[4] David S. Goldfarb,[5] Lawrence Copelovitch,[6] Jeffrey S. Gerber,[2,3,7] Qufei Wu,[3] and Michelle R. Denburg[2,3,6]

[1]Division of Pediatric Urology, Department of Surgery, and [2]Center for Pediatric Clinical Effectiveness, The Children's Hospital of Philadelphia, Philadelphia, Pennsylvania; [3]Department of Biostatistics, Epidemiology, and Informatics, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, Pennsylvania; [4]Biostatistics and Research Decision Science, Early Oncology Department, Merck & Co., Inc., North Wales, Pennsylvania; [5]Division of Nephrology, Department of Medicine, New York University Langone Medical Center, New York, New York; and Divisions of [6]Nephrology and [7]Infectious Diseases, Department of Pediatrics, The Children's Hospital of Philadelphia, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, Pennsylvania

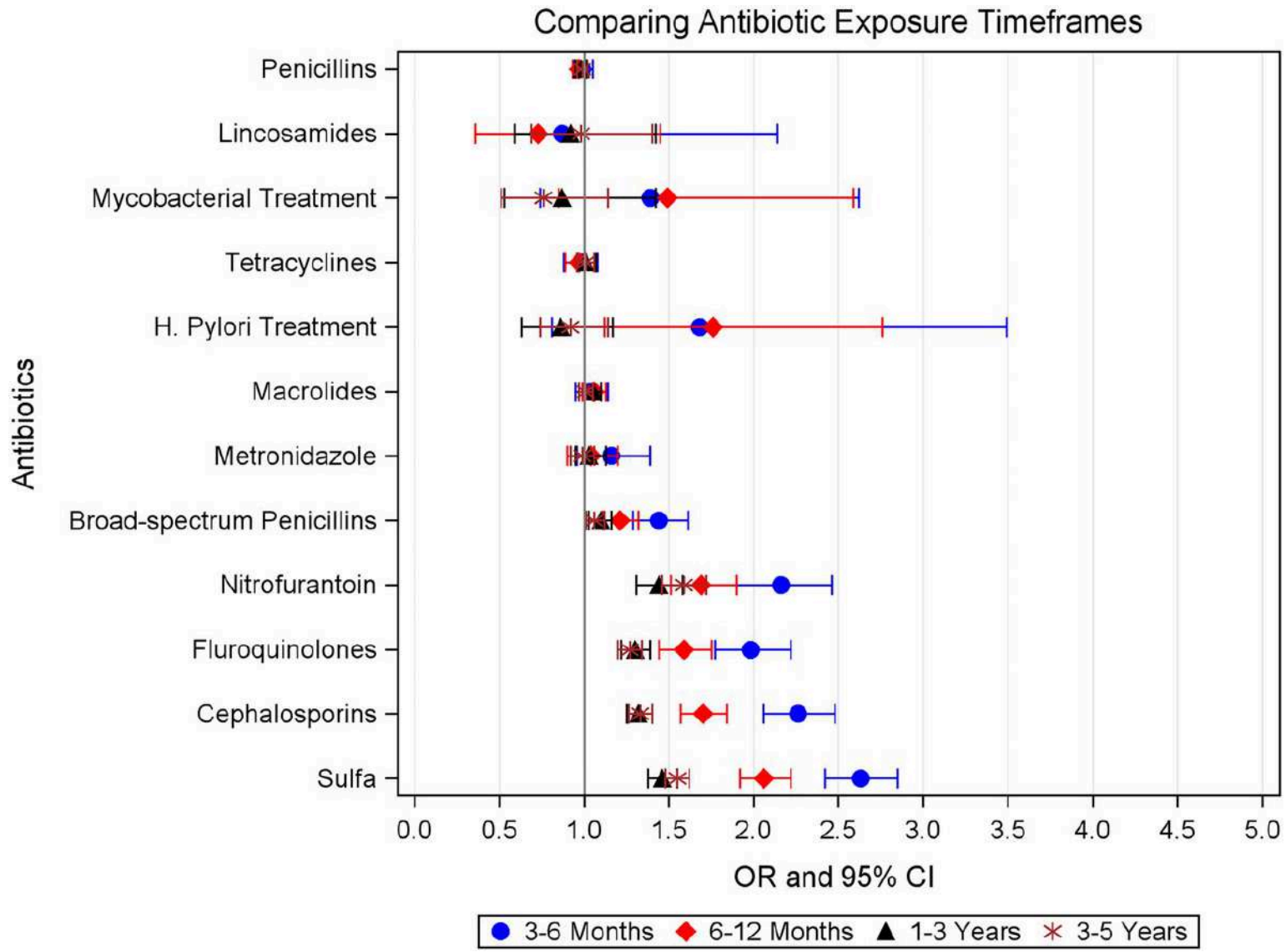
Table 2. Odds of kidney stone disease according to oral antibiotic class

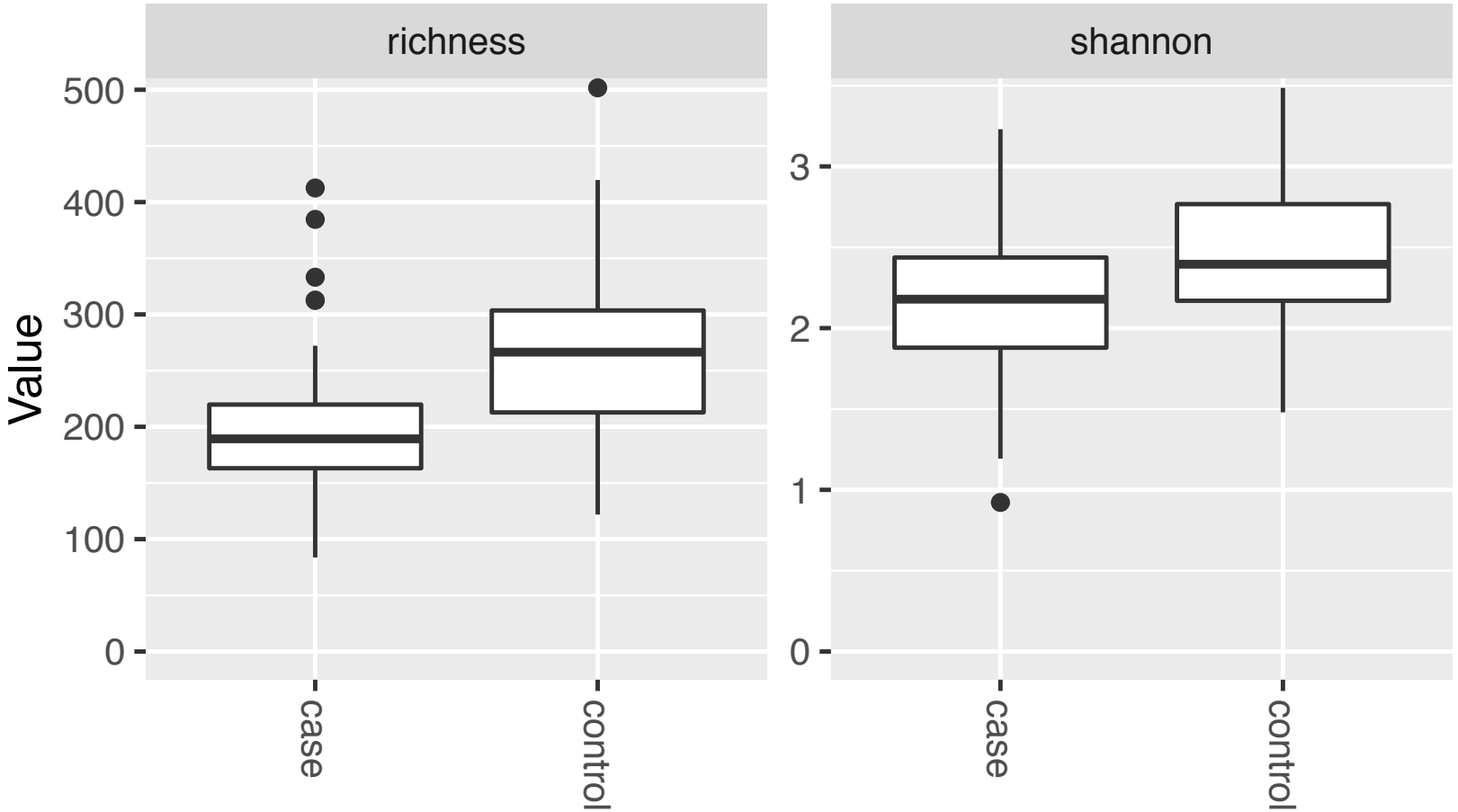
Antibiotic Class
Sulfa
Cephalosporins
Fluoroquinolones
Nitrofurantoin
Broad-spectrum penicillins
Metronidazole
Macrolides
H. pylori treatment
Tetracyclines
Mycobacterial treatment
Lincosamides
Penicillins

5 broad-spectrum ABX classes independently associated with 1.3- to 2.3-fold increased odds of nephrolithiasis at Bonferroni-adjusted significance

All conditional logistic regression models were adjusted for cystic fibrosis, gout, diabetes, immobility, urinary tract obstruction, neoplasm, and inflammatory bowel disease (all prevalent); UTI within the 3–12 month exposure window; exposure to PPIs, statins, thiazide diuretics, and loop diuretics within the 3–12 month exposure window; and total rate of outpatient, inpatient and emergency department visits. Model A made no adjustment for other antibiotic use. Model B was adjusted for any other antibiotic use within the exposure window. Model C was adjusted for each other antibiotic as separate indicator variables in the model. OR, odds ratio; 95% CI, 95% confidence interval.

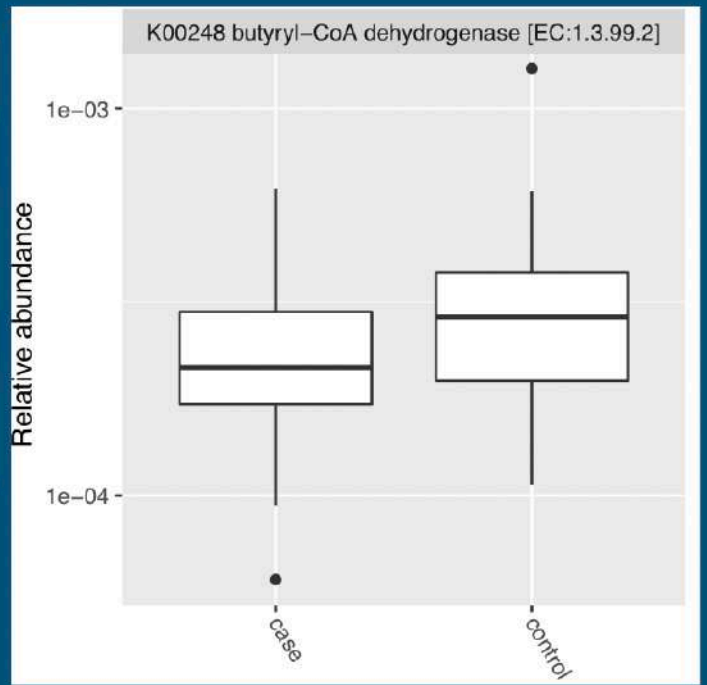
[a]Below Bonferroni *P* value (0.05/12=0.00417).


Comparing Antibiotic Exposure Timeframes
Antibiotics
Penicillins
Lincosamides
Mycobacterial Treatment
Tetracyclines
H. Pylori Treatment
Macrolides
Metronidazole
Broad-spectrum Penicillins
Nitrofurantoin
Fluroquinolones
Cephalosporins
Sulfa
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
OR and 95% CI
3-6 Months
6-12 Months
1-3 Years
3-5 Years


richness
shannon
Value
500
400
300
200
100
0
3
2
1
0
case
control
case
control

Decreased butyrate-producers

Taxa	Mean diff	p-value
Roseburia hominis	-0.53	0.002
Butyrivibrio proteoclasticus	-0.40	0.003
Eubacterium limosum	-0.46	0.01
Clostridium species	varies	<0.002



Butyrate is a short-chain fatty acid (SCFA)

- anti-inflammatory
- maintains the gut mucosal barrier
- regulates SLC26 oxalate transporters in the intestine