Λοιμώξεις ουροποιητικού

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ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Σημεία του ουρογεννητικού που συνήθως σχετίζονται με λοίμωξη

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Our approach to categorizing UTI in adults and adolescents

Acute simple cystitis*	▪ Acute UTI that is presumed to be confined to the bladder ▪ There are no signs or symptoms that suggest an upper tract or systemic infection (refer to below)
Acute complicated UTI	▪ Acute UTI accompanied by signs or symptoms that suggest extension of infection beyond the bladder: • Fever (>99.9°F/37.7°C)¶ • Chills, rigors, significant fatigue or malaise beyond baseline, or other features of systemic illness • Flank pain • Costovertebral angle tenderness • Pelvic or perineal pain in men
Special populations with unique management considerations	▪ Pregnant women ▪ Renal transplant recipients

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

We categorize UTI as either acute simple cystitis or acute complicated UTI based on the extent and severity of infection. This categorization informs management and differs somewhat from other conventions. Specifically, cystitis or pyelonephritis in a nonpregnant premenopausal woman without underlying urologic abnormalities has traditionally been termed acute uncomplicated UTI, and complicated UTI has been defined, for the purposes of treatment trials, as cystitis or pyelonephritis in a patient with underlying urologic abnormalities or other significant comorbidities. Individuals who do not fit into either category have often been treated as having a complicated UTI by default. Rather than use this convention, we favor an approach to treatment based on the presumed extent of infection and severity of illness. Patients categorized as having acute uncomplicated cystitis according to traditional definitions would fall under the category of acute simple cystitis that we use here.

UTI: urinary tract infection.

Copy

UTI: urinary tract infection.

* We do not automatically consider patients with underlying urologic abnormalities (such as nephrolithiasis, strictures, stents, or urinary diversions), immunocompromising conditions (such as neutropenia or advanced HIV infection), or poorly controlled diabetes mellitus to have a complicated UTI if they have no concerning symptoms for upper tract or systemic infection. However, such patients can be at higher risk for more serious infection and have not traditionally been included in studies evaluating the antibiotic regimens we typically use for acute simple cystitis. Thus, we follow such patients more closely and/or have a low threshold to manage them as complicated UTI (eg, if they have subtle symptoms other than those listed above that could be suggestive of more extensive infection).

¶ This temperature threshold is not well defined and should be individualized, taking into account baseline temperature, other potential contributors to an elevated temperature, and the risk of poor outcomes should empiric antimicrobial therapy be inappropriate.

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ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Categorization- continued

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Lungs
Bronchopneumonia
Smoking
Acute exacerbations of chronic bronchitis
Intrinsic airway disorders:
Bronchiectasis, foreign body, bronchial stenosis, bronchomalacia, tracheobronchial fistula
Recurrent aspiration (alcohol/drug use, seizure disorder)
Esophageal disease (gastroesophageal reflux, Zenker's diverticulum, achalasia)
Bronchial obstruction (extrinsic versus intrinsic obstruction)
Unrecognized cystic fibrosis
Unrecognized ciliary dyskinesia
Genitourinary tract
Cystitis
Urinary stasis
Incomplete bladder emptying (bladder outlet obstruction, bladder atony/denervation)
Compromised perineal hygiene (overactive bladder/urinary incontinence)
Diaphragm use
Prostatic infection
Instrumentation (especially chronic urinary catheter)
Pyelonephritis
All of the conditions that predispose to cystitis plus:
Renal calculi
Ureteral obstruction (stone, stricture, malignancy)
Ureteral reflux
Skin
Cellulitis
Recurrent trauma (eg, shaving legs, sports-related abrasions)
Dermatophyte infection
Lymphedema
Postoperative lymphatic dysfunction (groin/axillary exploration, lymphadenectomy)
Venous insufficiency/vein harvesting for coronary artery bypass grafting (CABG)
Chronic edema (congestive heart failure, hepatic insufficiency, nephrotic syndrome)
Prior cellulitis (lymphatic scarring)
Obesity
Filariasis
Poor hygiene
Abscess
Staphylococcus aureus carriage (methicillin-sensitive or methicillin-resistant), especially with recurrent trauma
Autoinoculation (subcutaneous drug injection or "skin popping," factitious)
Crohn disease
Hidradenitis suppurative (axillary, groin, periareolar)
Retained foreign body
Central nervous system
Meningitis

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

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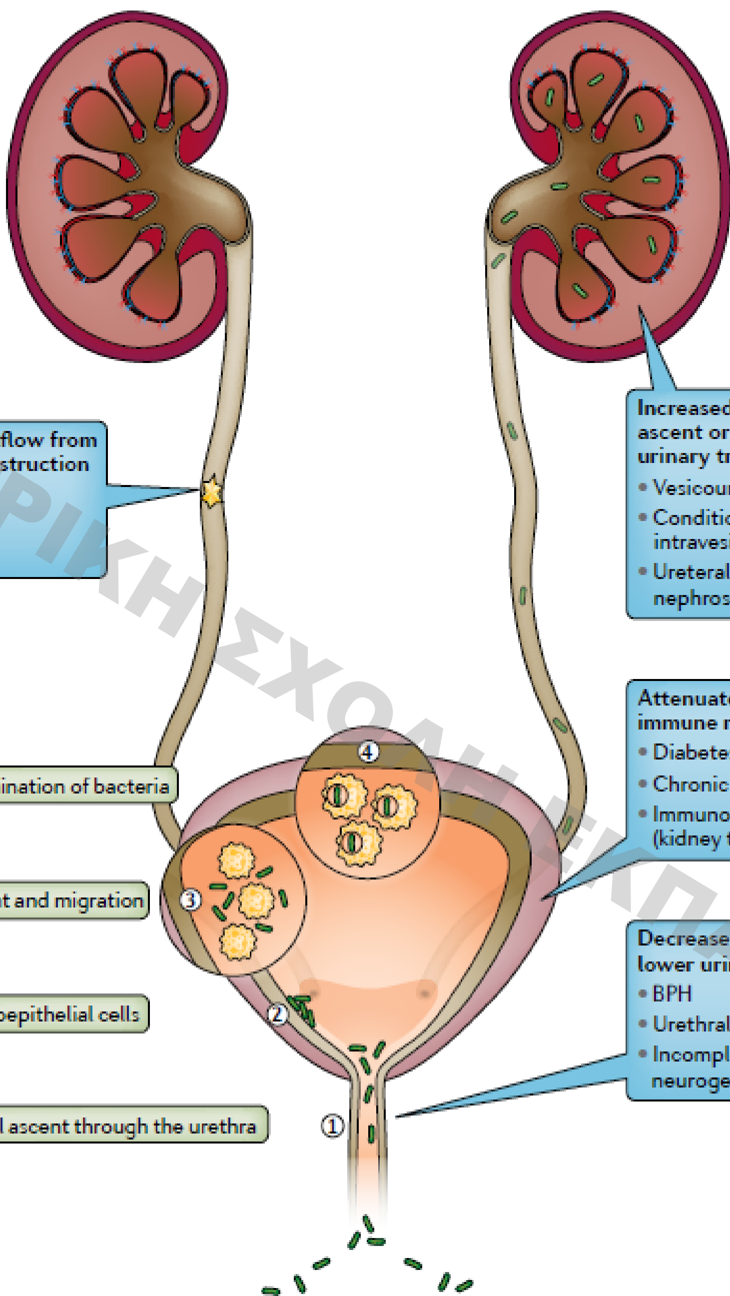

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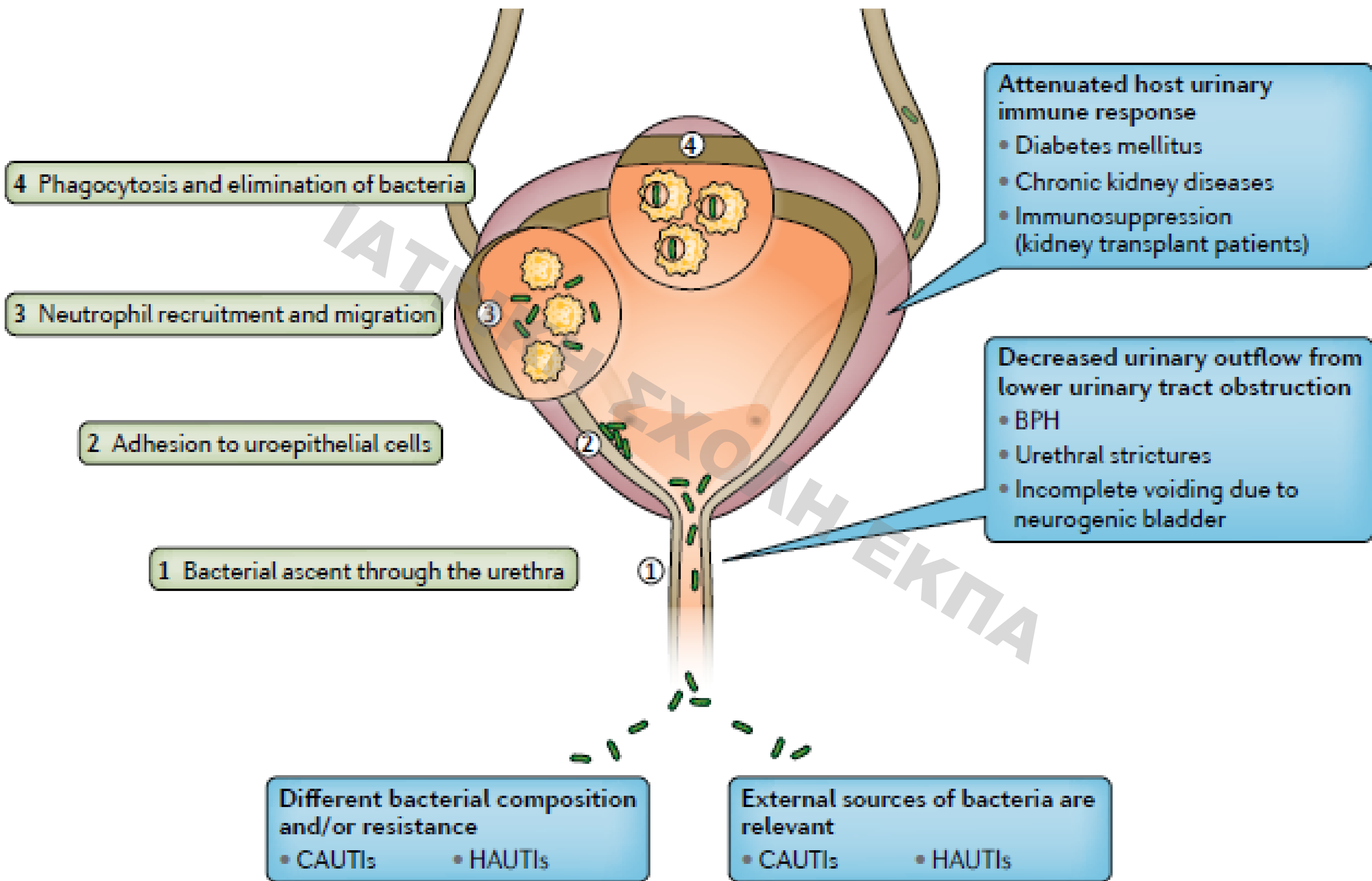
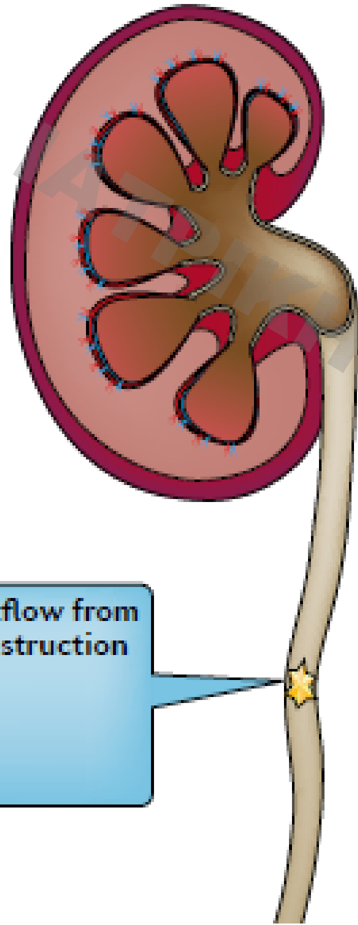


ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

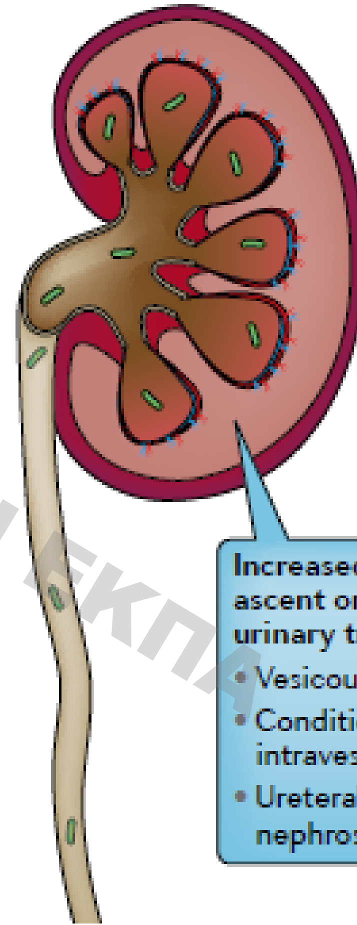
Pregnancy

- Increased maternal and fetal morbidity from UTIs
- Limited antibiotic selection



Decreased urinary outflow from upper urinary tract obstruction

- Ureteral stones
- Ureteral tumours
- Ureteral strictures



Increased risk of bacterial ascent or colonization of upper urinary tract

- Vesicoureteral reflux
- Conditions with high intravesical pressure
- Ureteral stents and nephrostomy tubes

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

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Acute uncomplicated cystitis: from surveillance data to a rationale for empirical treatment

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Uropathogen distribution per type of infection, age group and gender.

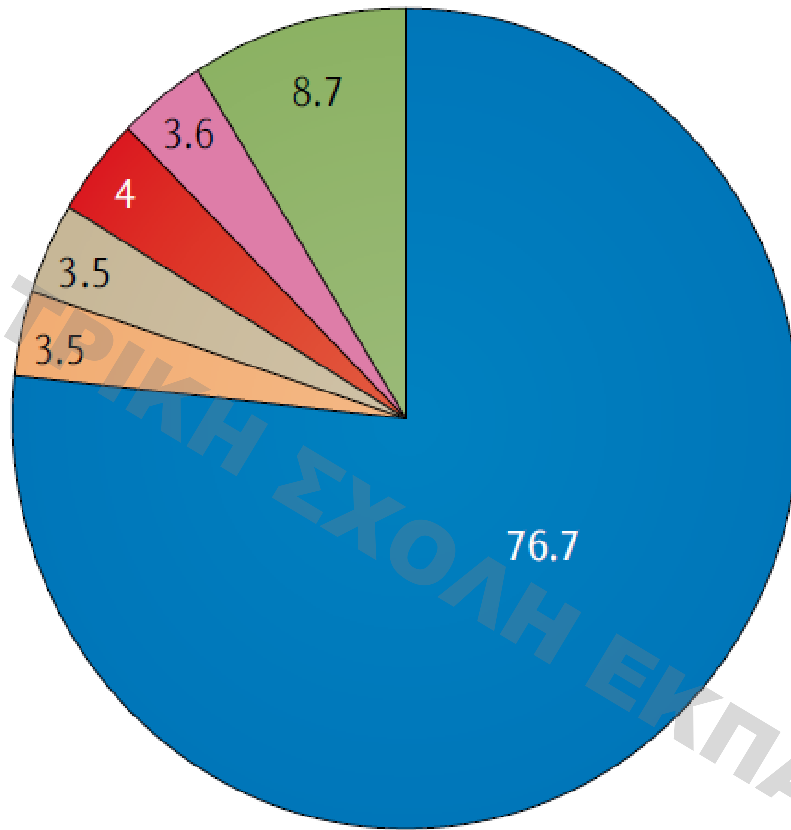
Uropathogen	Uropathogen distribution (%)						Total (%)
	Age		Gender		Type of infection		
	15–65 years	>65 years	Male	Female	AUC	Complicated UTI	
Escherichia coli	85.7	74.0	75.0	84.3	85.4*	79.9*	83.0
Non-*E. coli*	14.3**	26.0**	25.0**	15.7**	14.6	20.1	17.0
Proteus spp.	6.5	9.7	7.3	7.5	7.4	8.0	7.4
Klebsiella spp.	3.1	5.3	3.1	3.6	3.0	2.9	3.6
Enterococcus spp.	1.6	3.3	5.9	1.3	1.2	3.1	2.0
Pseudomonas spp.	0.9	4.0	6.3	0.8	0.3	3.1	1.7
Staphylococcus spp.	0.9	1.3	1.0	1.0	1.1	1.3	1.0
Citrobacter spp.	0.5	0.9	0.7	0.5	0.6	0.8	0.6
Enterobacter spp.	0.4	1.1	–	0.7	0.7	0.4	0.6
Other	0.3	0.4	0.7	0.2	0.2	0.4	0.3

AUC, acute uncomplicated cystitis; UTI, urinary tract infection.

* $P = 0.042$.

** $P < 0.001$.

Uncomplicated cystitis



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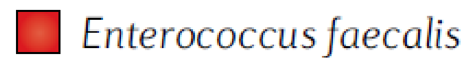

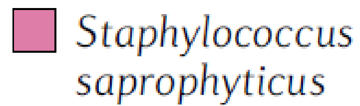

Ιστορικό (I)

- **Γυναίκα, 23 ετών, φοιτήτρια**
- **Δυσουρία, συχνουρία, έπειξη προς ούρηση, επεισόδιο μακροσκοπικής αιματουρίας**
- **Δύο προηγούμενες ουρολοιμώξεις τον τελευταίο χρόνο που είχαν θεραπευθεί με τριήμερα σχήματα κοτριμοξαζόλης. Τελευταίο επεισόδιο πριν 4 μήνες.**
- **Προηγούμενος U/S έλεγχος ουροποιητικού φυσιολογικός**

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Δυσουρία

- **Κυστίτιδα**
  - *E.coli*
  - *Proteus* spp.
  - *Klebsiella* spp.
  - *Staphylococcus saprophyticus*
- **Ουρηθρίτιδα**
  - *Chlamydia trachomatis*
  - *Neisseria gonorrhoeae*
  - *Herpes simplex* virus
- **Κολπίτιδα**
  - *Candida* spp.
  - *Trichomonas vaginalis*

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Πώς γίνεται η σωστή λήψη των ούρων;

- **Τοπική απολύμανση με σαπούνι και νερό Σκούπισμα με αποστειρωμένη γάζα για να αποφευχθεί ανάμιξη του αντισηπτικού με τα ούρα.**
- **Η λήψη από το μέσο της ούρησης**
- **Τα ούρα έξω από το ψυγείο διατηρούνται μόνο μία ώρα. Μέσα στο ψυγείο 24 ώρες.**

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Πότε μια καλλιέργεια είναι θετική;

Table 53.6 Value of quantitative urine culture in diagnosis of urinary tract infection with Gram-negative bacilli in women

	Number of specimens	Organisms/ml of urine	Sensitivity (%)	Specificity (%)
Asymptomatic women	Two	$>10^5$	>95	>80
Symptomatic women with pyuria	One	$>10^5$	51	99
	One	$>10^3$	80	90
	One	$>10^2$	95	85

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ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Συμπτώματα UTI

Table 1 | **Classical symptoms of different UTI entities**

Acronym	Clinical diagnosis	Clinical symptoms	Severity grade
CY-1	Cystitis	Dysuria, frequency, urgency, suprapubic pain; sometimes unspecific symptoms	1
PN-2	Mild to moderate pyelonephritis	Fever, flank pain[a], CVA tenderness[a]; sometimes unspecific symptoms with or without symptoms of cystitis	2
PN-3	Severe pyelonephritis	As for PN-2, but, in addition, nausea and vomiting with or without symptoms of cystitis	3
US-4[b]	SIRS	Temperature >38 °C or <36 °C, heart rate >90 beats/min, respiratory rate >20 breaths/min or $PaCO_2$ <32 mm Hg (<4.3 kPa), WBCs $>12,000$ cells/mm^3 or $<4,000$ cells/mm^3 or $\leq 10\%$ immature (band) forms with or without symptoms of cystitis or pyelonephritis (>2 SIRS criteria must be met for US-4 diagnosis)	4
US-5[b]	Severe urosepsis	As for US-4, as well as organ dysfunction, hypoperfusion or hypotension; hypoperfusion and perfusion abnormalities may include but are not limited to lactic acidosis, oliguria or an acute change in mental status	5
US-6[b]	Uroseptic shock	As for US-4 or US-5, as well as hypotension despite adequate fluid resuscitation and the presence of perfusion abnormalities that may include, but are not limited to, lactic acidosis, oliguria or an acute change in mental status; patients who are on inotropic or vasopressor agents may not be hypotensive when perfusion abnormalities are measured	6

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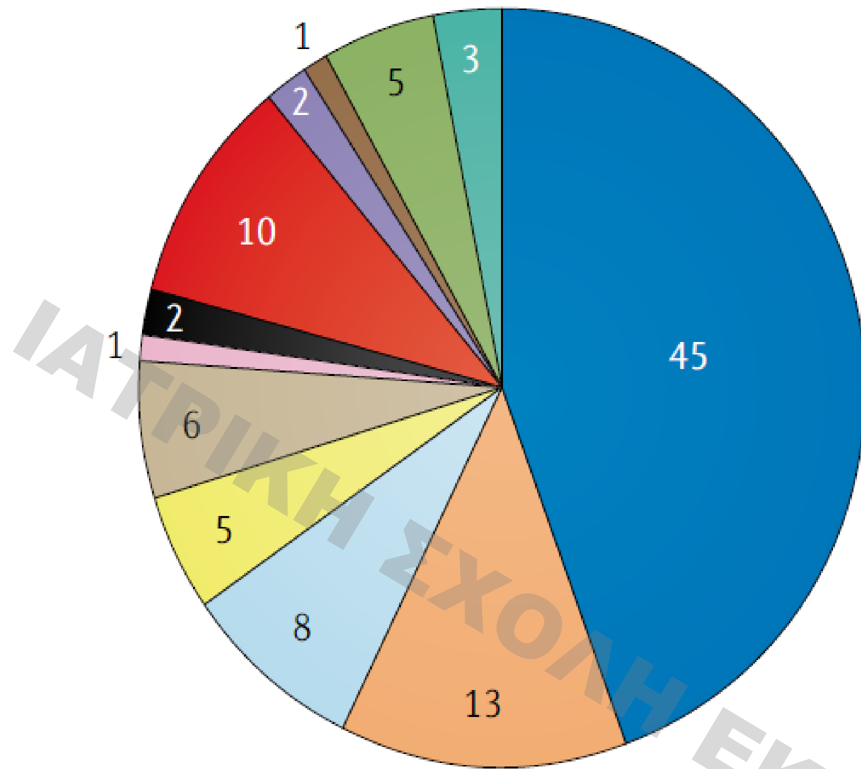

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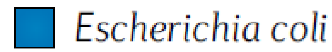

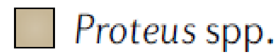

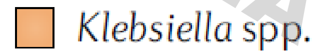

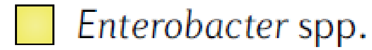

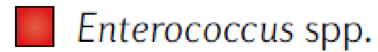

Risk factors for multidrug-resistant gram-negative urinary tract infections

Suspect multidrug-resistant gram-negative urinary tract infection in patients with a history of any of the following in the prior three months:
▪ A multidrug-resistant gram-negative urinary isolate
▪ Inpatient stay at a health care facility (eg, hospital, nursing home, long-term acute care facility)
▪ Use of a fluoroquinolone, trimethoprim-sulfamethoxazole, or broad-spectrum beta-lactam (eg, third or later generation cephalosporin)*
▪ Travel to parts of the world with high rates of multidrug-resistant organisms¶
NOTE: The predictive value of these risk factors for multidrug-resistant gram-negative urinary tract infections has not been systematically evaluated. In particular, the time interval since these exposures is not well validated. The threshold for empirically covering a multidrug-resistant infection varies with the severity of infection, with a lower threshold warranted for more severe disease.

Multidrug resistance refers to nonsusceptibility to at least one agent in three or more antibiotic classes. This includes isolates that produce an extended-spectrum beta-lactamase (ESBL).

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

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ΥΠΟΨΙΑ ΛΟΙΜΩΞΗΣ

qSOFA (γρήγορο SOFA) ≥2

ΑΞΙΟΛΟΓΗΣΗ ΟΡΓΑΝΙΚΗΣ ΔΥΣΛΕΙΤΟΥΡΓΙΑΣ

SOFA ≥2*

ΣΗΨΗ

Παρά την επαρκή ενυδάτωση
- Μέση αρτηριακή πίεση <65mmHg
- Γαλακτικό ≥2 mmol/l
- ΑΠΑΙΤΟΥΝΤΑΙ ινότροπα

ΣΗΠΤΙΚΗ ΚΑΤΑΠΛΗΞΙΑ

qSOFA
- Πτώση επιπέδου συνείδησης
- ≥22 αναπνοές/λεπτό
- ΣΑΠ<100 mmHg

*ασθενής στα ΤΕΠ
ή μεταβολή από την προηγούμενη τιμή

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Ιστορικό (ΙΙ)

- Άνδρας, 40 ετών, προσέρχεται διότι παρουσιάζει πυρετό (39°C) με ρίγος από 6ώρου
- Από διημέρου: δυσουρία, συχνουρία, έπειξη προς ούρηση και έντονο περινεϊκό άλγος
- Ατομικό αναμνηστικό ελεύθερο. Είναι η πρώτη φορά που παρουσιάζει αυτά τα συμπτώματα

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Ποια η πιθανότερη διάγνωση;

- Οξεία πυελονεφρίτιδα
- Οξεία προστατίτιδα
- Έξαρση χρόνιας προστατίτιδας
- Ουρηθρίτιδα

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Ποια η πιθανότερη διάγνωση;

- Οξεία πυελονεφρίτιδα
- **Οξεία προστατίτιδα**
- Έξαρση χρόνιας προστατίτιδας
- Ουρηθρίτιδα

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Πώς θα τεθεί η διάγνωση;

- Με γενική και καλλιέργεια ούρων
- Με καλλιέργεια προστατικού ύστερα από μάλαξη του προστάτη
- Με καλλιέργεια σπέρματος
- Με καλλιέργεια προστατικού ύστερα από μάλαξη του προστάτη + υπερηχογράφημα

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Πώς θα τεθεί η διάγνωση;

- Με γενική και καλλιέργεια ούρων
- Με καλλιέργεια προστατικού ύστερα από μάλαξη του προστάτη
- Με καλλιέργεια σπέρματος
- Με καλλιέργεια προστατικού ύστερα από μάλαξη του προστάτη + υπερηχογράφημα

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Το συχνότερο αίτιο οξείας προστατίτιδας είναι:

- Pseudomonas aeruginosa
- Enterococcus faecalis
- Chlamydia trachomatis
- HPV
- Escherichia coli

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Το συχνότερο αίτιο οξείας προστατίτιδας είναι:

- Pseudomonas aeruginosa
- Enterococcus faecalis
- Chlamydia trachomatis
- HPV
- **Escherichia coli**

ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ

Απεικόνιση (U/S, CT)

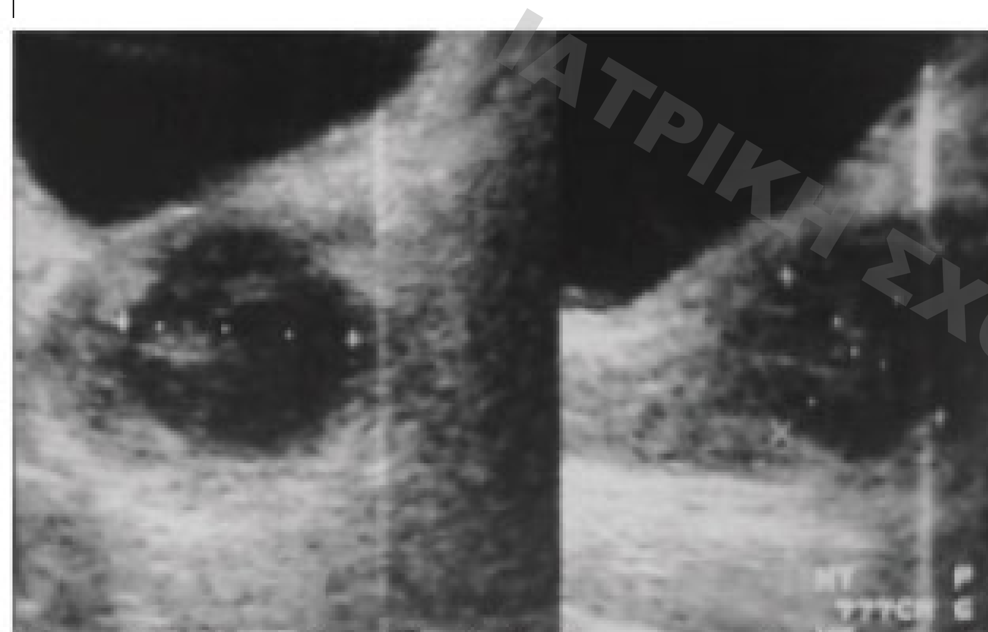
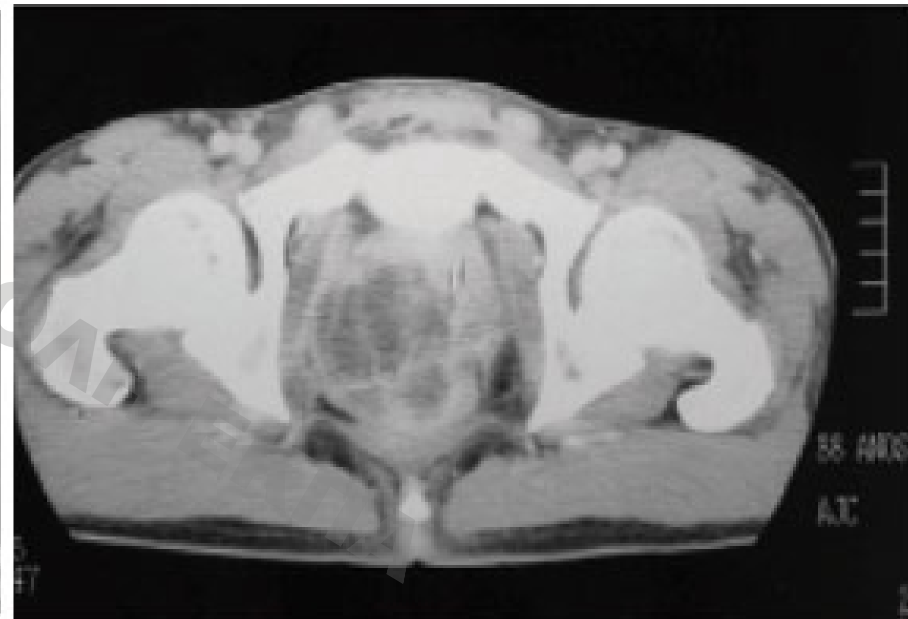
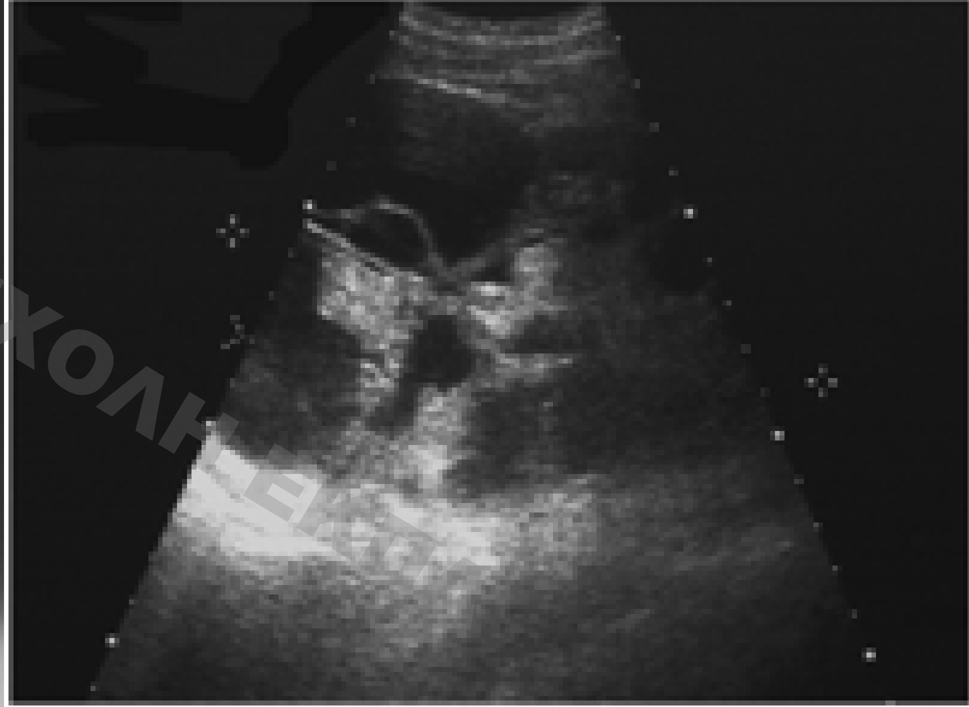


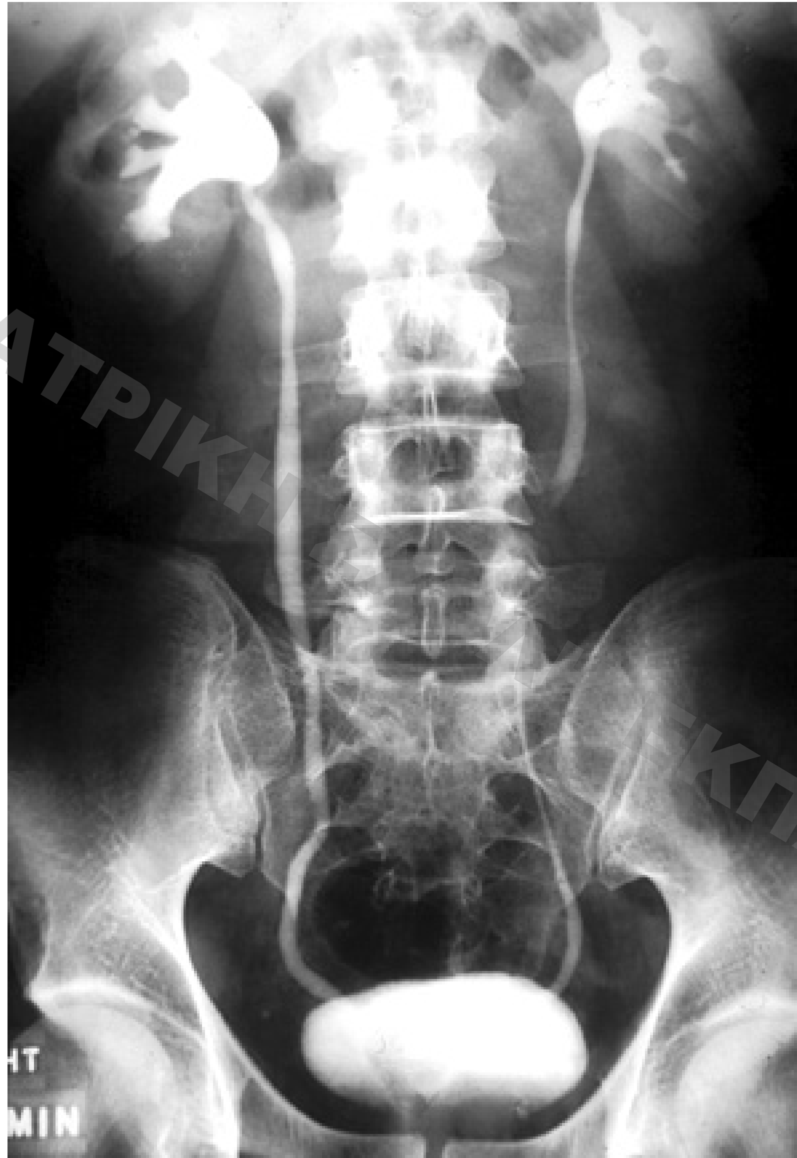
Figure 3 – Prostatic abdominal ultrasonography showing the prostatic abscess.



e 2 – Pelvic computed tomography showing an abscess in ostate.

ΙΑΤΡΙΚΗ ΣΧΟΛΗ





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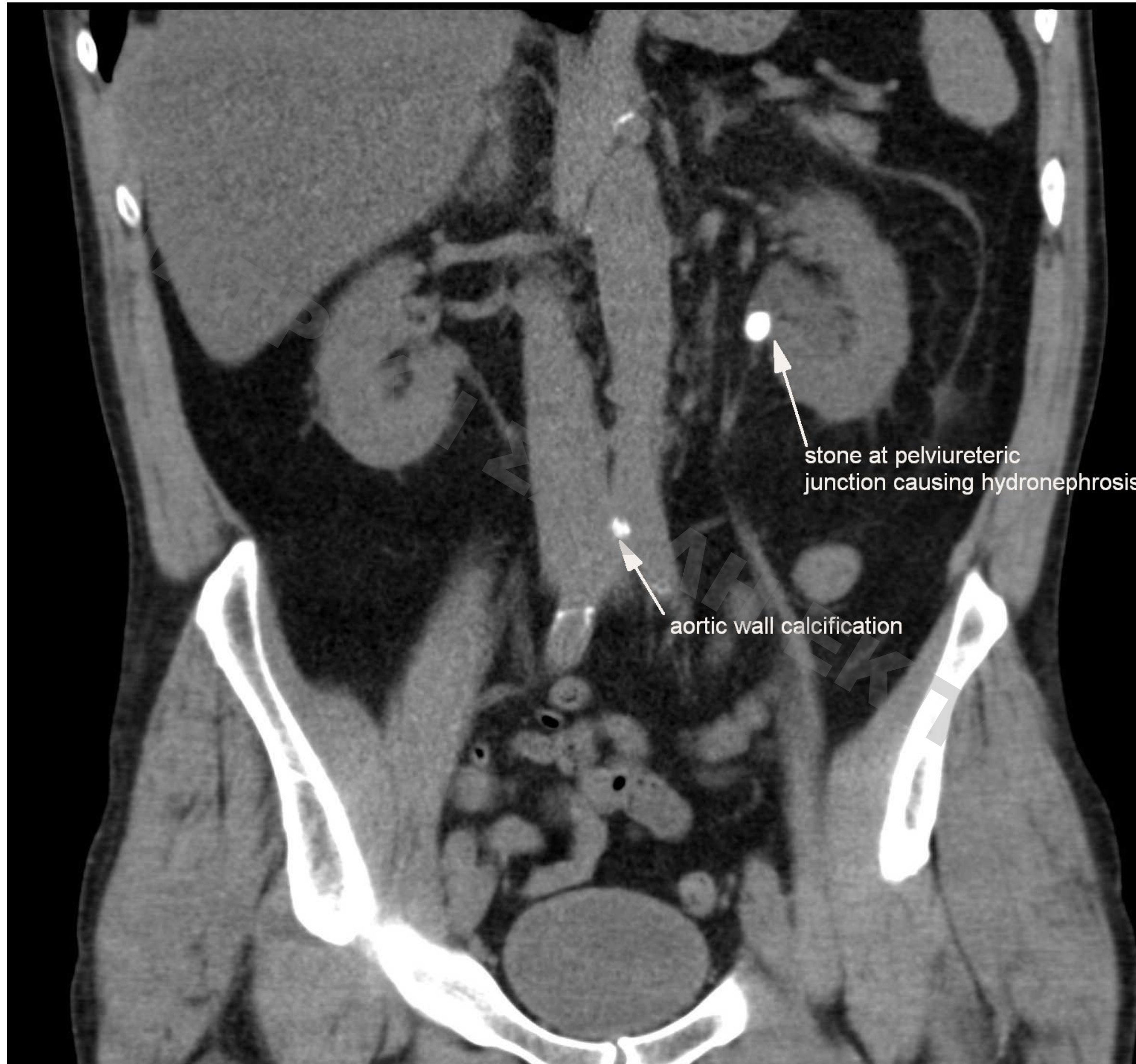
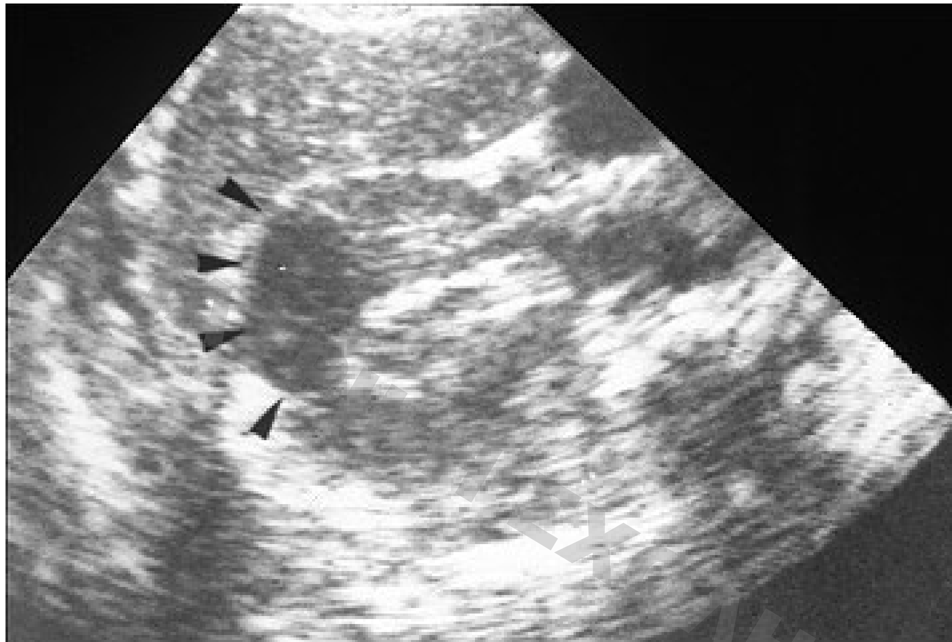

stone at pelviureteric
junction causing hydronephrosis
aortic wall calcification

Ultrasonography of acute pyelonephritis



Renal ultrasonography in a patient with acute pyelonephritis showing a hypodense mass with internal echoes (outlined by the arrows).

Courtesy of Alain Meyrier, MD.

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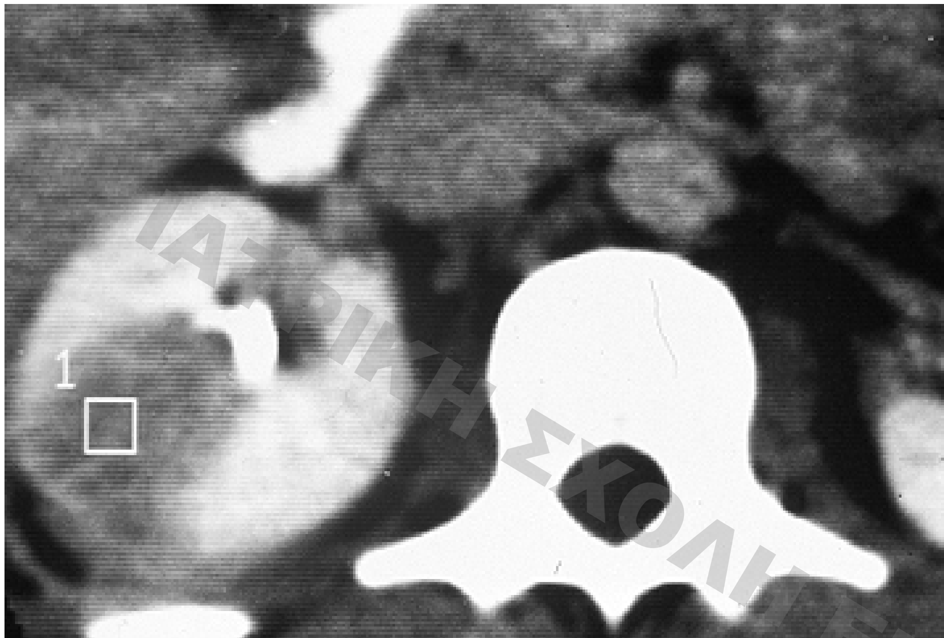
Computed tomography scan of acute pyelonephritis



Contrast-enhanced CT scan in a patient with acute pyelonephritis showing a large, hypodense region in the right kidney. There is no discrete abscess formation in this setting.

Courtesy of Alain Meyrier, MD.

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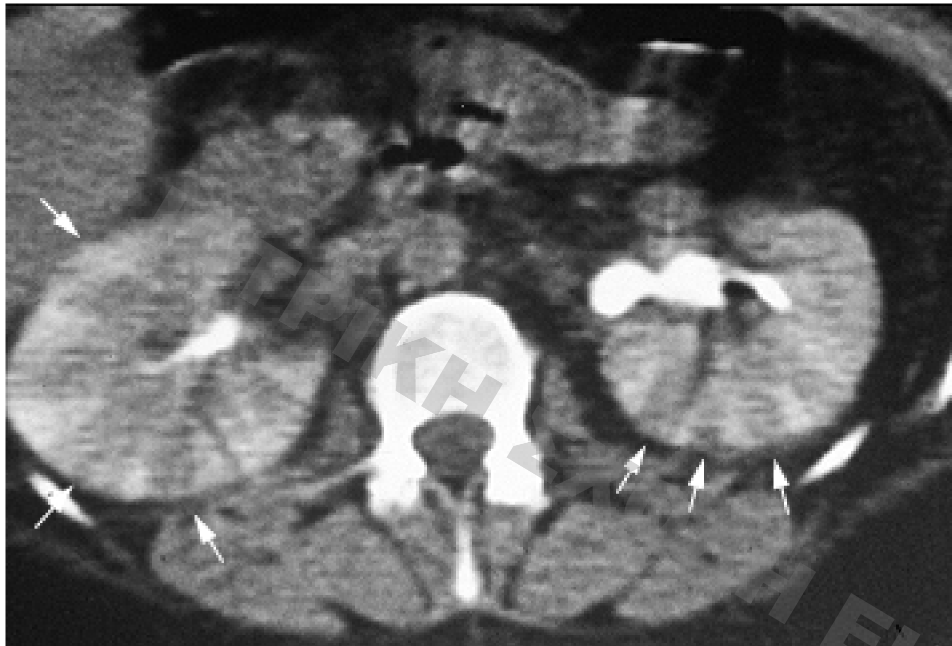
Computed tomography scan of bilateral acute pyelonephritis



Contrast-enhanced CT scan in bilateral acute pyelonephritis showing triangular hypodense streaks spreading from the pelvis to the renal cortex (arrows).

Courtesy of Alain Meyrier, MD.

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Ασυμπτωματική βακτηριουρία

Table 56.8 Indications for the treatment of asymptomatic bacteriuria	
Definite	Before an invasive genitourinary procedure Pregnancy
Not indicated	In the elderly For schoolgirls or healthy women Intermittent catheterization Indwelling urinary catheter Diabetic women
Data from Nicolle *et al.*[25]	

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ΙΑΤΡΙΚΗ ΣΧΟΛΗ ΕΚΠΑ