

Emphysematous Pyelitis: CT Findings & Radiologic Pearls

Definition:

Emphysematous pyelitis is a rare but important urinary tract infection characterized by the presence of gas within the renal collecting system without involvement of the renal parenchyma.

🔍 CT Findings:

Gas within the renal pelvis and calyces (typically low-attenuation, hypodense foci or bubbly gas levels)

No parenchymal gas

No perinephric or intrarenal extension

May coexist with hydronephrosis, calculi, or indwelling catheters

> 📌 **Pearl:** Air that is confined only to the collecting system is the hallmark of emphysematous pyelitis.

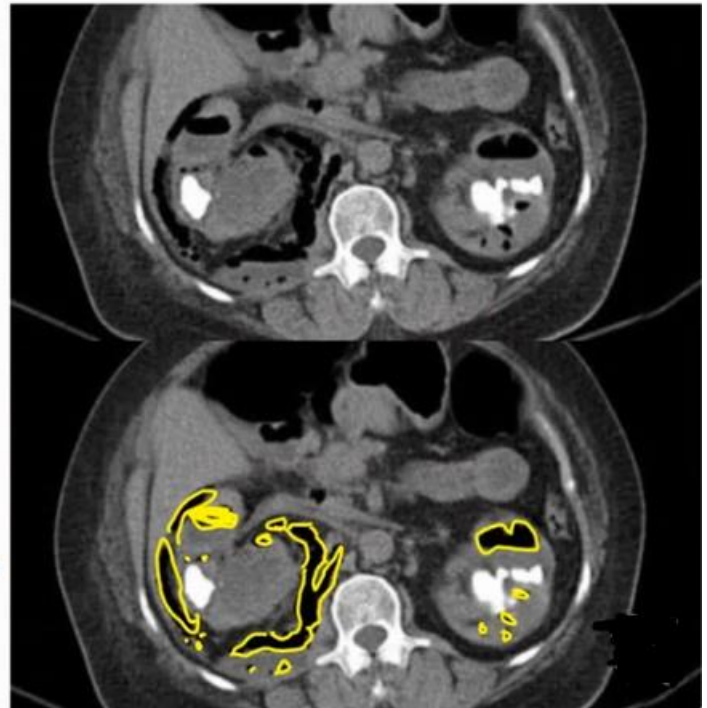
🔍📊 Radiologic Differentiation: Emphysematous Pyelitis vs Emphysematous Pyelonephritis

Feature	Emphysematous Pyelitis	Emphysematous Pyelonephritis
Gas Location	Only in collecting system	In parenchyma ± collecting system ± perinephric tissues
Parenchymal Involvement	None	Present (diffuse or focal necrosis)
Clinical Severity Management	Milder Severe, Conservative (antibiotics, drainage)	potentially life-threatening Often needs nephrectomy or aggressive intervention
Mortality Risk	Low	High (especially Type I)
CT Appearance	Clear air-fluid levels in pelvis/calyces	Mottled gas patterns, streaky or bubbly gas in renal parenchyma



← EP

EPN →



📌 Radiologic Red Flags Suggesting Pyelonephritis (Not Just Pyelitis):

Gas outside the collecting system

Striated nephrogram

Delayed contrast excretion

Perinephric fat stranding or abscess

Non-enhancing parenchymal zones

💡 Radiology Tips & Tricky Differentials:

In diabetic patients, don't underestimate gas in the urinary tract—rule out parenchymal involvement carefully.

Always evaluate in multiple planes to avoid missing subtle gas pockets.

Consider urologic interventions (e.g., stents or catheters) as benign causes of collecting system gas, but correlate clinically.

CT with contrast (in stable patients) helps evaluate perfusion and exclude pyelonephritis.

Differentiate from:

Emphysematous cystitis → gas in bladder Wall

Fistulas (e.g., colovesical) → history of surgery, diverticulitis, Crohn's

Iatrogenic gas → recent procedures, stents, or instrumentation

TR Amfizematöz Pyelit: BT Bulguları ve Radyolojik Ayırıcı Tanı

Tanım:

Amfizematöz pyelit, sadece toplayıcı sistemde gaz varlığı ile karakterize, nadir ama tanınması gereken bir üriner sistem enfeksiyonudur. Böbrek parankimi etkilenmez.

🔍 BT Bulguları:

Pelvis renalis ve kalikslerde gaz (hipodens, kabarcıklı odaklar)

Parankimde gaz yoktur

Perinefritik yayılım olmaz

Eşlik edebilecek durumlar: taş, stent, hidronefroz

> 📌 İpucu: Sadece toplayıcı sistemle sınırlı gaz, amfizematöz pyelit için ayırt edicidir.

🔍📋 Ayırıcı Tanı: Amfizematöz Pyelit vs Amfizematöz Pyelonefrit

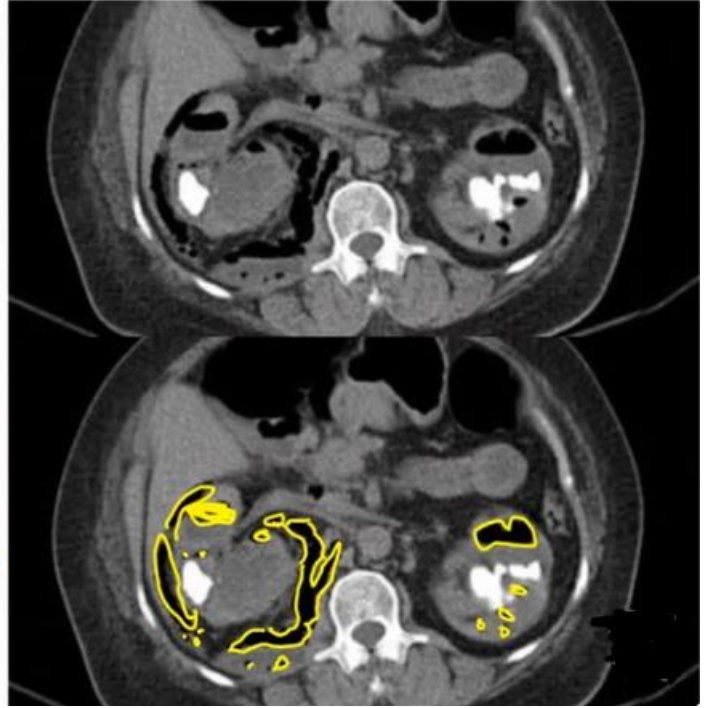
Özellik	Amfizematöz Pyelit	Amfizematöz Pyelonefrit
Gaz Yerleşimi	Sadece toplayıcı sistem	Parankim ± toplayıcı sistem ± perinefritik alan
Parankim Tutulumu	Yok	Var (nekrozla seyredebilir)
Klinik Şiddet	Hafif	Ağır, ölümcül olabilir

Tedavi	Genelde antibiyotik yeterli	Nefrektomi gerekebilir
Mortalite Riski	Düşük	Yüksek
BT Görünüm	Kaliks-pelvis içinde net hava	Parankimde düzensiz, yaygın hava odakları



← EP

EPN →



Pyelonefrit Lehine Bulgular:

Toplayıcı sistem dışında gaz

Striated nefrogram

Gecikmiş kontrast atılımı

Parankimde non-enhancing alanlar

Perinefritik yağ dokusu inflamasyonu

💡 Klinik-Radyolojik Trik Noktalar:

Diyabetik hastalarda, sadece gaz var diyerek geme — parankim tutulumu dıřlanmalı

Instrumentasyon (stent, sondalar) sonrası görölen gaz benign olabilir, ancak klinik korelasyon řart

Fistöl (örneğin kolovezikal) düşünüyorsan öncesinde cerrahi, Crohn, divertikölit öyküsüne bak

Emphysematous cystitis: gaz mesane duvarında, böbrek toplayıcı sisteminde deęil