



Management of incarcerated foreign body in upper urinary tract

M Benatta
Urology department
CHU Oran
Algeria



OBJECTIVE

- describe our experience of management of retained foreign body in the upper urinary tract



what does a Foreign body do in the Upper urinary tract ?

- stenting-pcni-furs-URS-
Open lap surgery
- **DJ** -guide wire broken
device :laser fiber-
nephrostomy tube-
amplatz

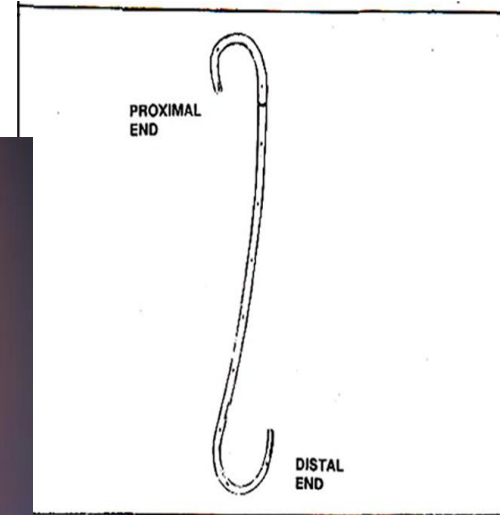
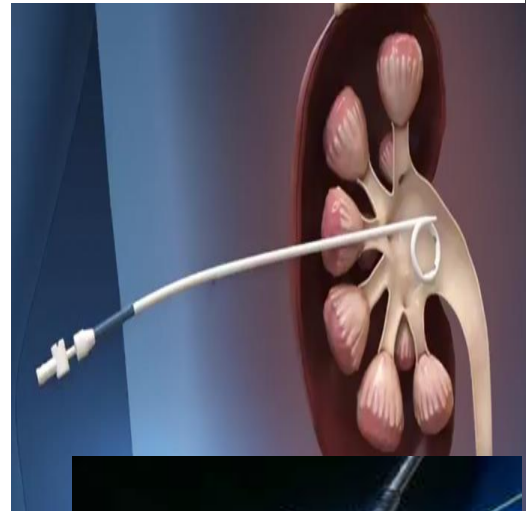
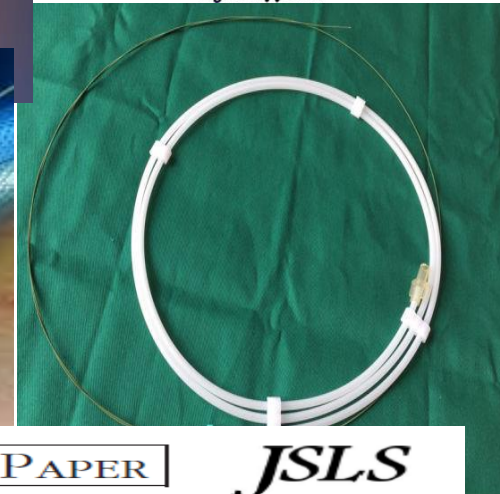


Figure 1. J.J stent.



SCIENTIFIC PAPER

JSLs

Endourological Treatment of Foreign Bodies in the Urinary System



Kidney, Ureter, and Bladder (KUB): A Novel Grading System for Encrusted Ureteral Stents

Javier L. Arenas, Jim K. Shen, Mohamed Keheila, Samuel R. Abourbih, Albert Lee, Philip K. Stokes, Roger Li, Muhannad Alsyouf, Michelle A. Lightfoot, and D. Duane Baldwin

UROLOGY 97: 51–55, 2016.

- **K-Kidney**
 - 1.No evidence of calcification on the renal coil
 - 2.Visible calcification on the renal coil, maximal width ≤ 5 mm, coil is not filled
 - 3.Visible calcification on the renal coil, maximal width > 5 mm, coil is not filled
 - 4.Coil is filled, calcification extends ≤ 5 mm outside of coil
 - 5.Coil is filled, calcification extends > 5 mm outside of coil (includes staghorn)
- **U-Ureter**
 - 1.No evidence of calcification along the ureteral portion of stent
 - 2.Single calcification along stent, maximal width ≤ 5 mm
 - 3.Single calcification along stent, maximal width > 5 mm
 - 4.Multiple calcifications along stent occupying $< 50\%$ of length of ureteral portion of stent, maximal width > 5 mm
 - 5.Multiple calcifications along stent occupying $\geq 50\%$ of length of ureteral portion of stent, maximal width > 5 mm
- **B-Bladder**
 - 1.No evidence of calcification on the bladder coil
 - 2.Visible calcification on the bladder coil, maximal width ≤ 5 mm, coil is not filled
 - 3.Visible calcification on the bladder coil, maximal width > 5 mm, coil is not filled
 - 4.Coil is filled, calcification extends ≤ 5 mm outside of coil
 - 5.Coil is filled, calcification extends > 5 mm outside of coil



DOUBLE J TYPES OF ENCRUSTATIONS



Grade 1

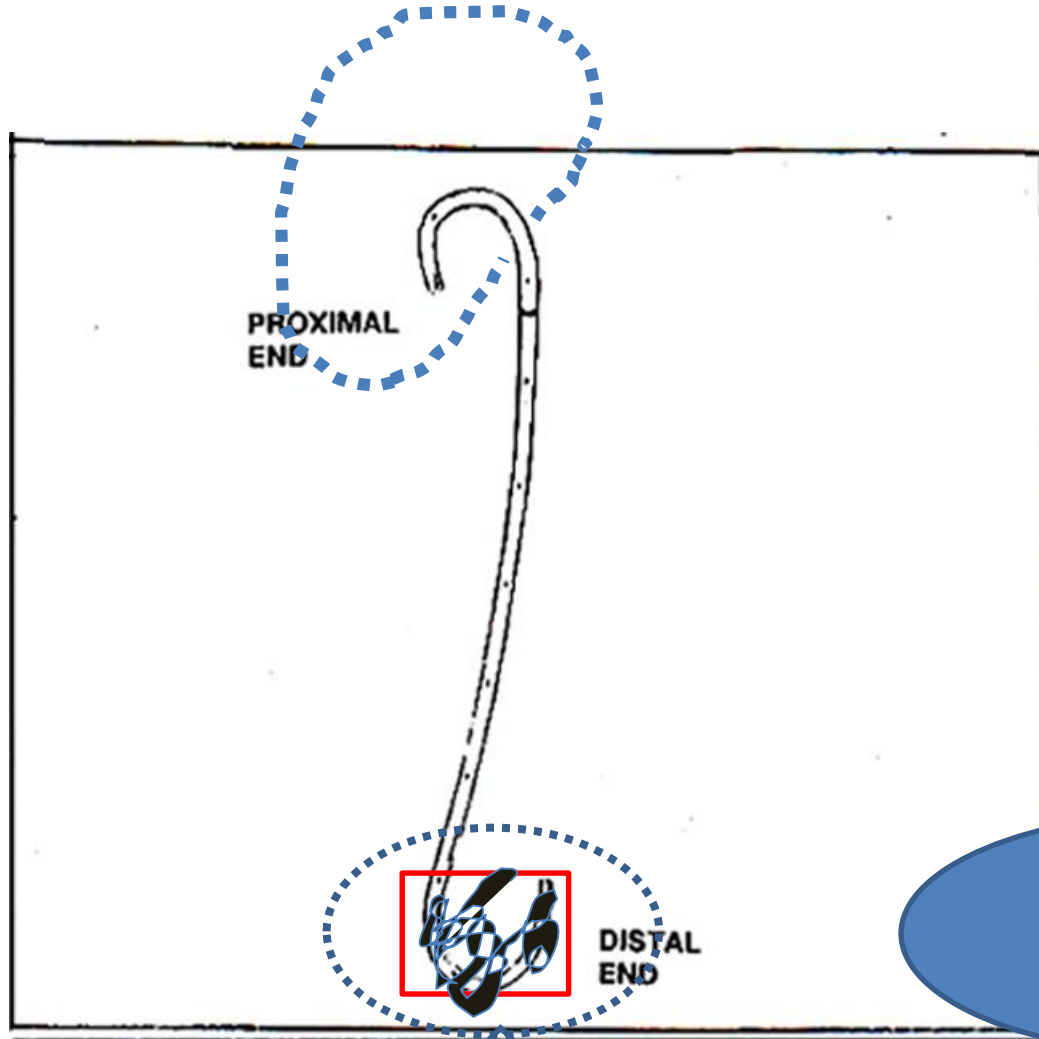


Figure 1. J J stent

Lazer
Ultrasonique
pneumatique

Cystoscopy



Grade 2

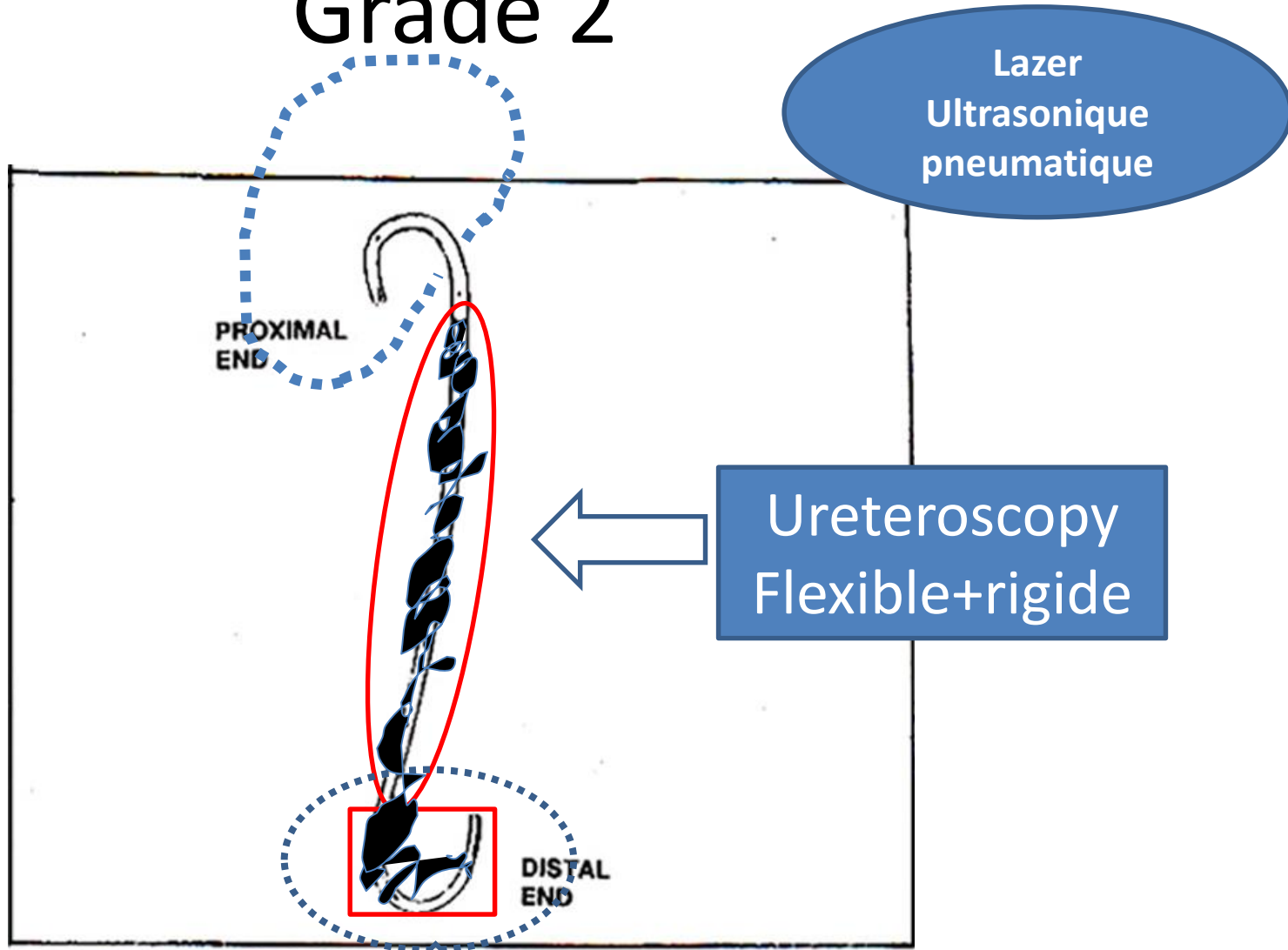


Figure 1. J J stent

Cystoscopy



grade 3

nlpc

Lazer
Ultrasonique
pneumatique

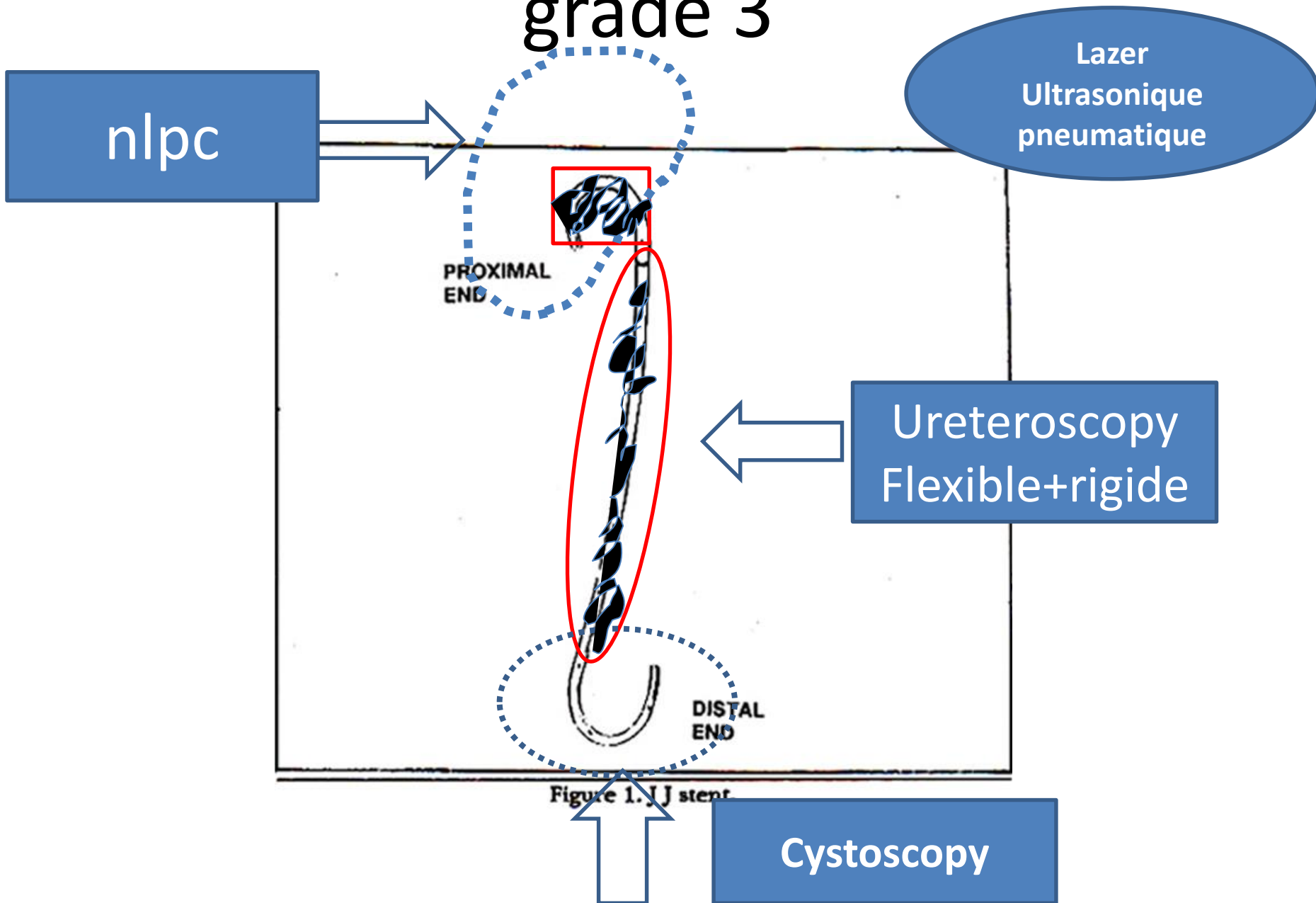
PROXIMAL
END

Ureteroscopy
Flexible+rigide

DISTAL
END

Figure 1. J J stent

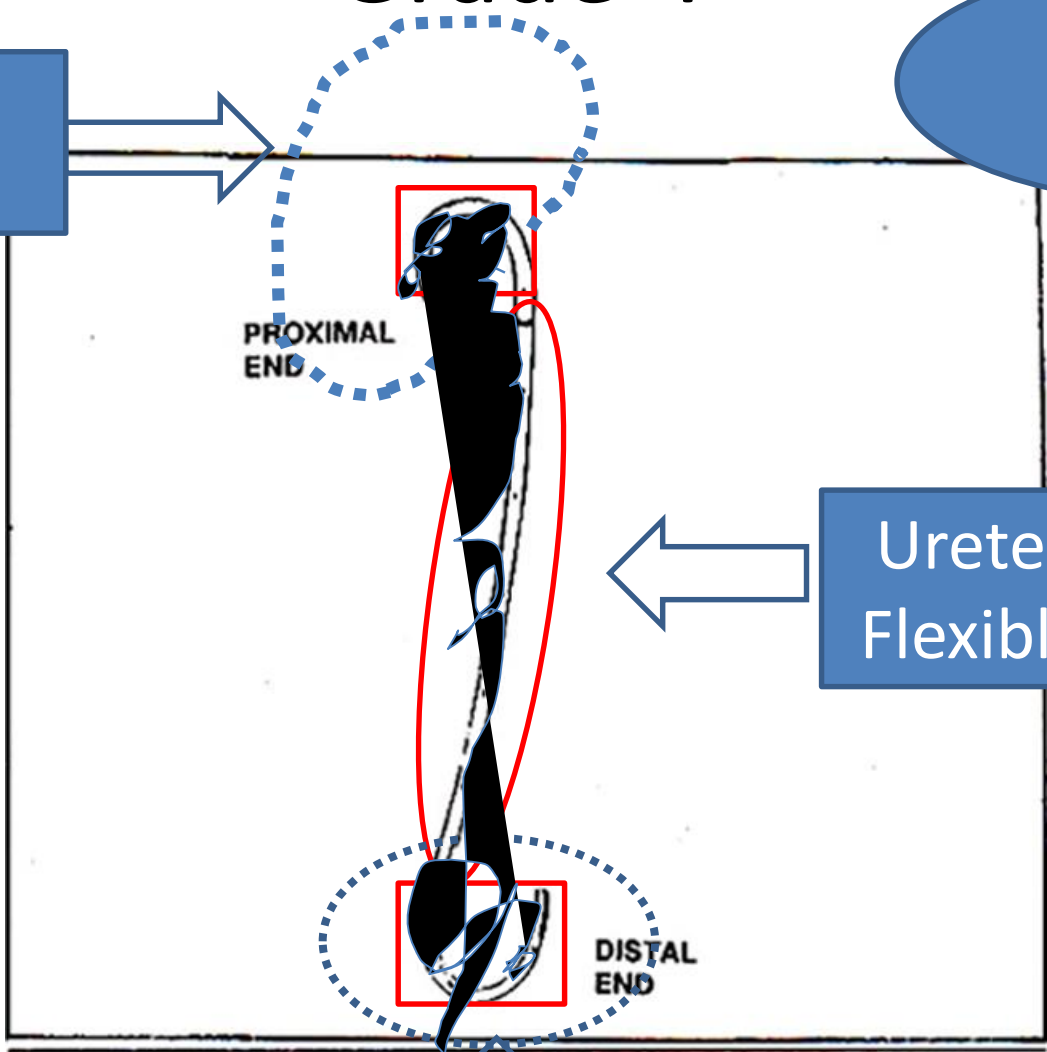
Cystoscopy



Grade 4

nlpc

Lazer
Ultrasonique
pneumatique



Ureteroscopy
Flexible+rigide

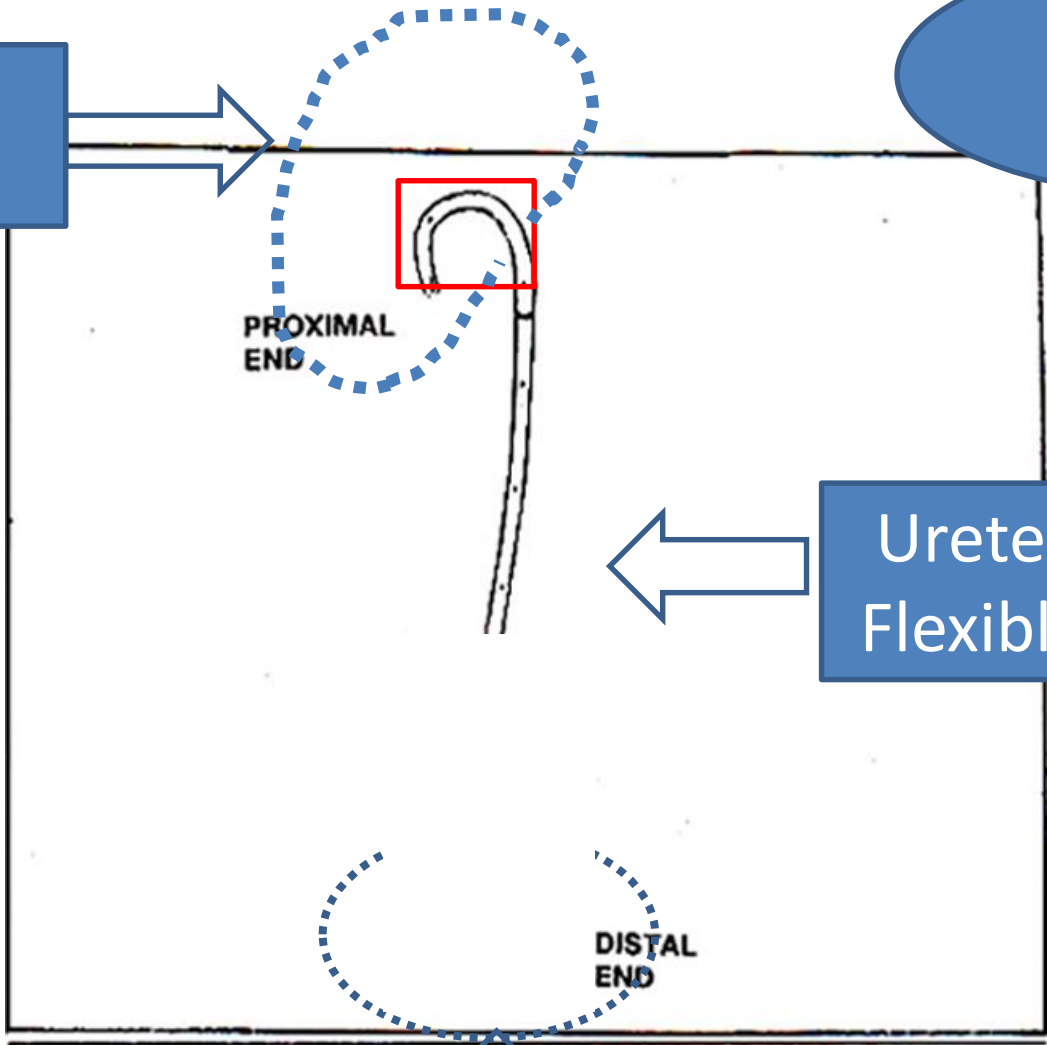
Figure 1. JJ stent

Cystoscopy

BROKEN DJ

nlpc

Lazer
Ultrasonique
pneumatique



PROXIMAL
END

Ureteroscopy
Flexible+rigide

DISTAL
END

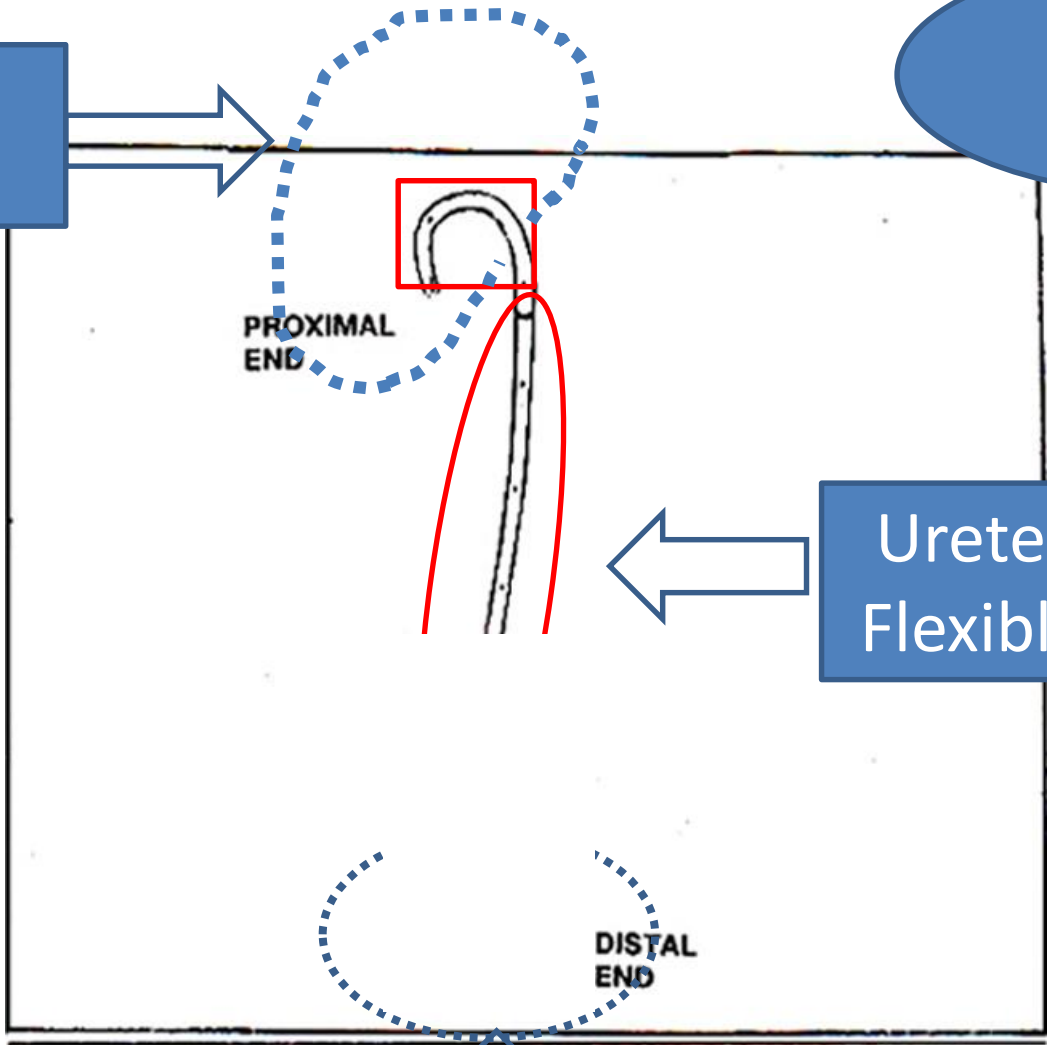
Figure 1. JJ stent

Cystoscopy

BROKEN DJ

nlpc

Lazer
Ultrasonique
pneumatique



Ureteroscopy
Flexible+rigide

Figure 1. JJ stent

Cystoscopy

What happens if a foreign body is retained ?

- Discomfort-Pain
- Recurrent Infection
- hematuriae
- **Encrustation**
- epithelialisation
- **Obstruction and Renal failure**

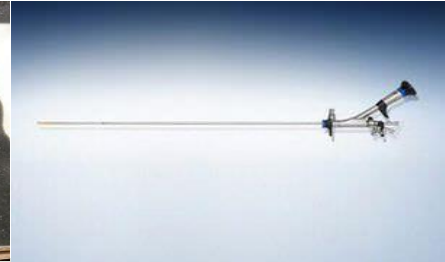
MECHANISM OF ENCRUSTATION

- ammonia produced by hydrolyse of urea (urease)
- Elevation of urinary **ph** favoring **struvite encrustation**

Robert M, Boularan AM, El Sandid M, Grasset D:
Double-J ureteric stent encrustations: clinical study
on crystal formation on polyurethane stents. Urol Int.
1997; 58: 100-4.

What do we need ?

- Lithotripsy
- Grasping forceps
- Ureteroscope
- Nephroscope
- Fluoroscopy



On what Management of FB depends ?

- Type of foreign body
- **Encrustation: site-burden**
- Urinary tract
- Equipement and Skills

Endourological Management of Forgotten Encrusted Ureteral Stents

what's are the Risks during FB removal ?

- Urinary tract injuries
 - Perforation
 - Stripping
- Bleeding
- severe sepsis



Multimodal repeated procedures needed

- 2 to 6 endourological procedures
- Open surgical removal can be needed

Clinical Urology

International Braz J Urol

Vol. 36 (4): 420-429, July - August, 2010

doi: 10.1590/S1677-55382010000400005

Endourological Management of Forgotten Encrusted Ureteral Stents

Kusuma V. R. Murthy, S. Jayaram Reddy, D. V. Prasad

methods

- In this case series study we describe
 - circumstances of occurrence
 - Nature
 - length of stay
 - removal technic

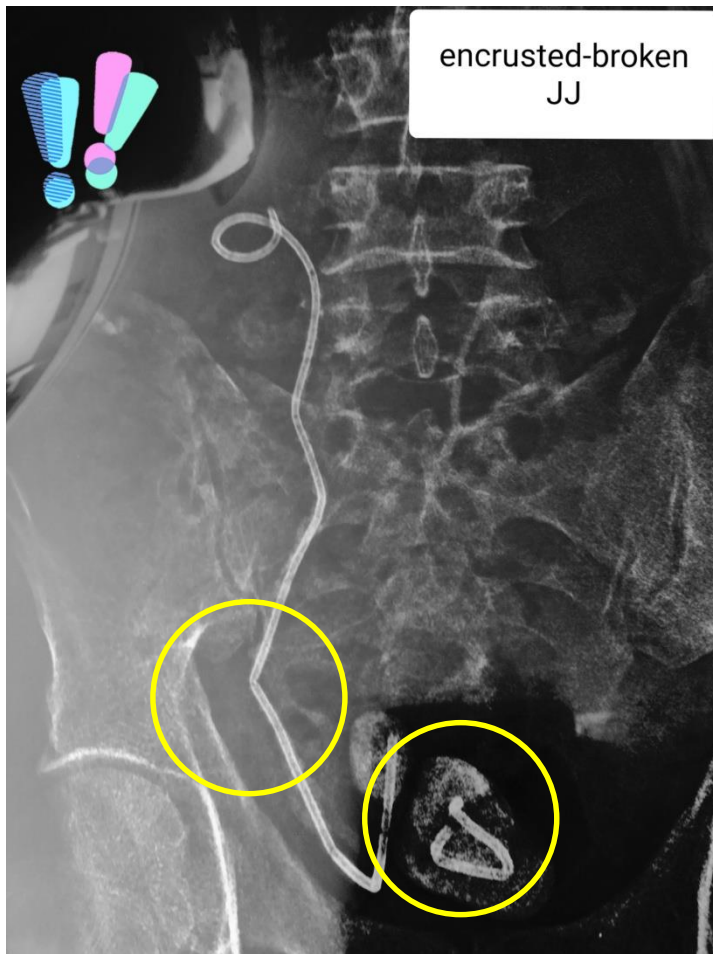
results

- 6 cases managed January 2018 - Oct 2019
- 4 men 2 women
- All foreign bodies iatrogenic (jpu –stone)
- 5 double j, one guide wire
- length of stay: 6months- 2 y-3y-3y -4y -6y- 9y

results

- 5 was encrusted
- Majority removed by endoscopy :
 - 2 cases pure ureteroscopy
 - 1 case pure supine pcnl
 - 1 complex case required ureteroscopy+pcnl+open surgery

Case 1



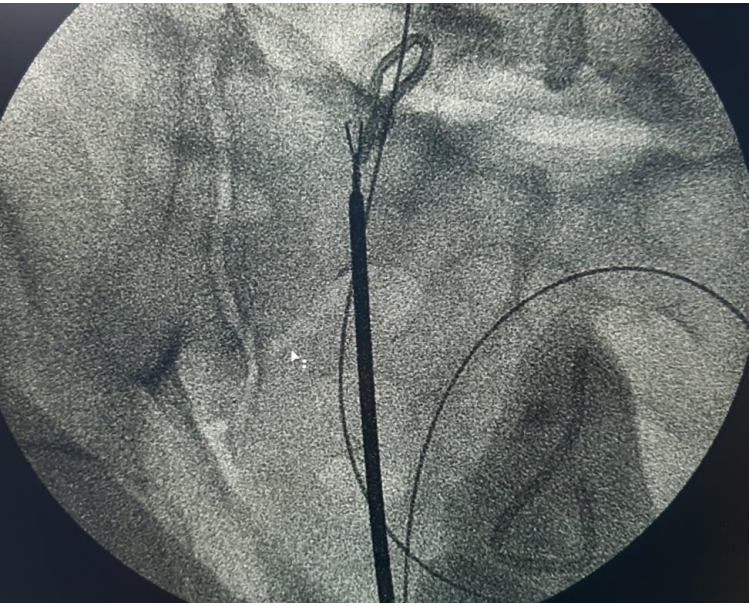
- Man 38 years
- open surgery stone
- Dj
- 3 years

dj broken

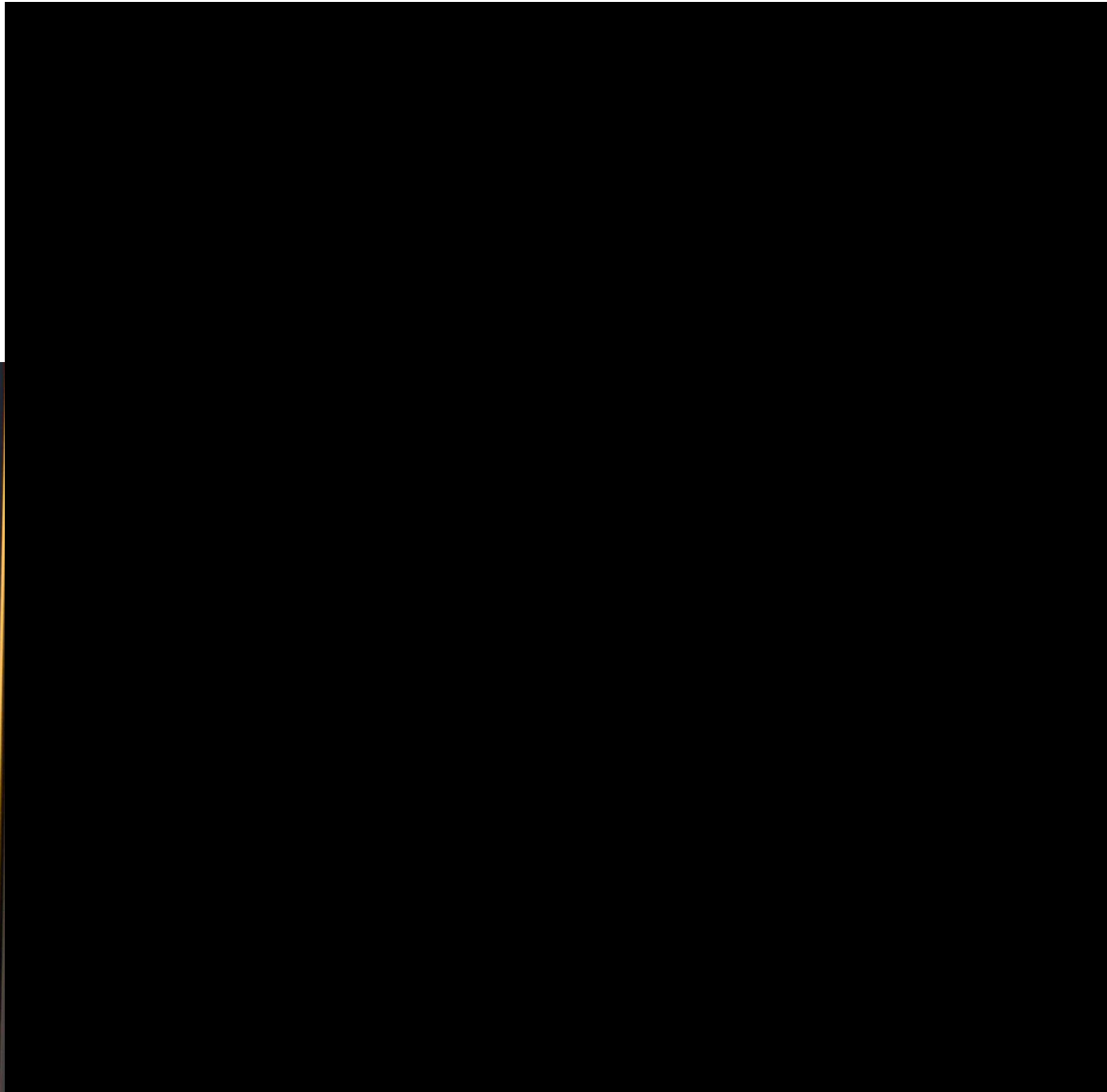
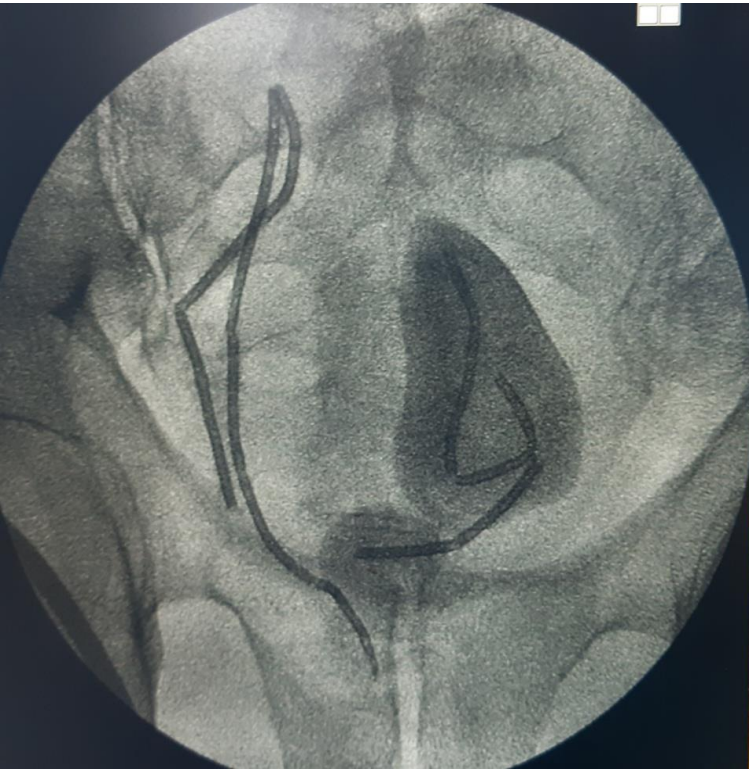
Steps of Removal

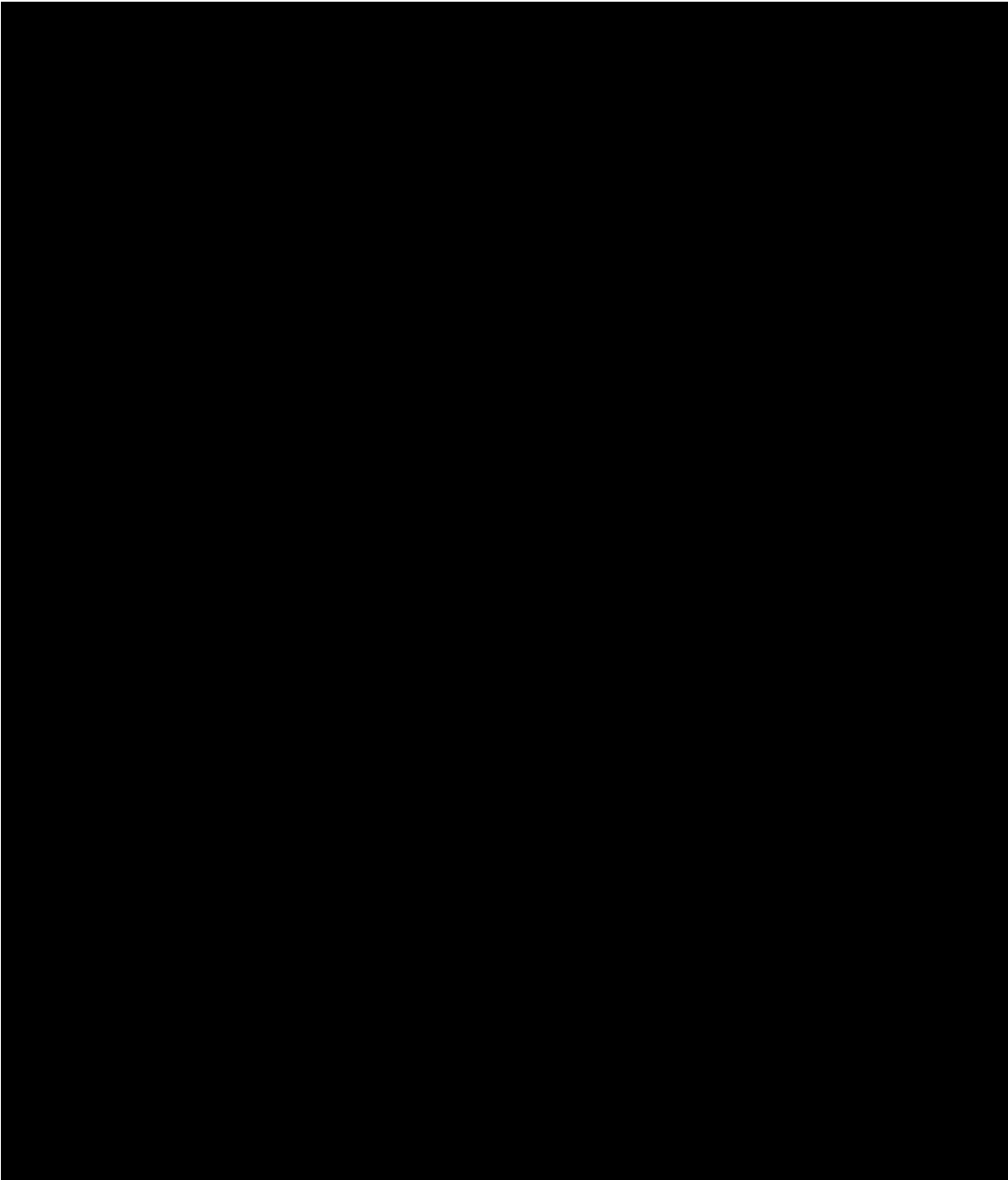
1- endolithotripsy +traction upper coil



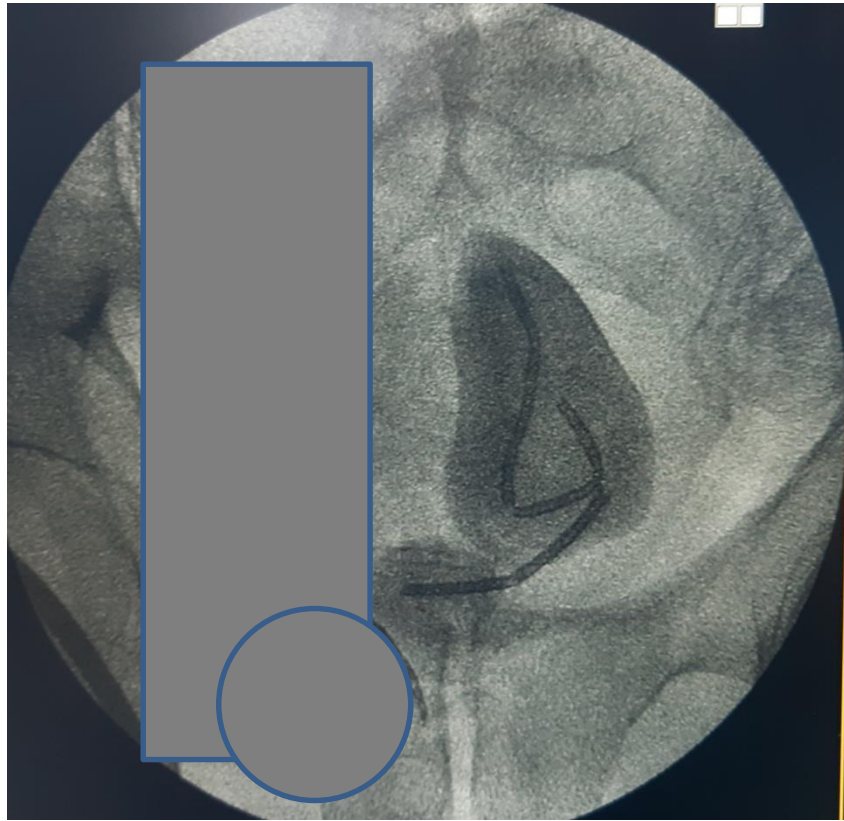


Difficult



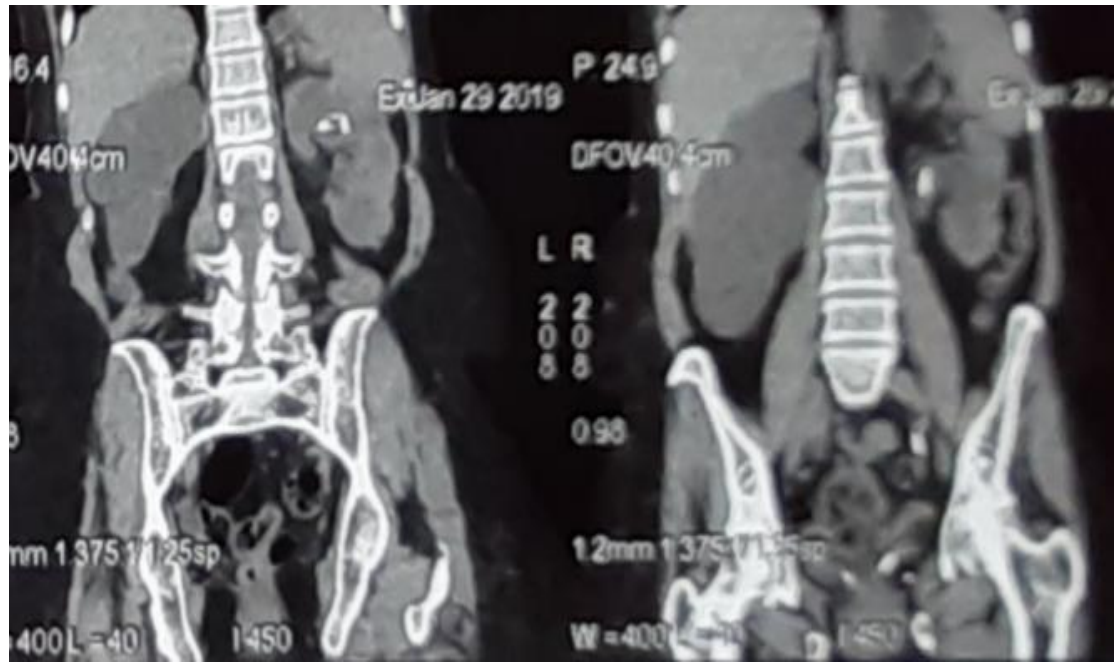


Open

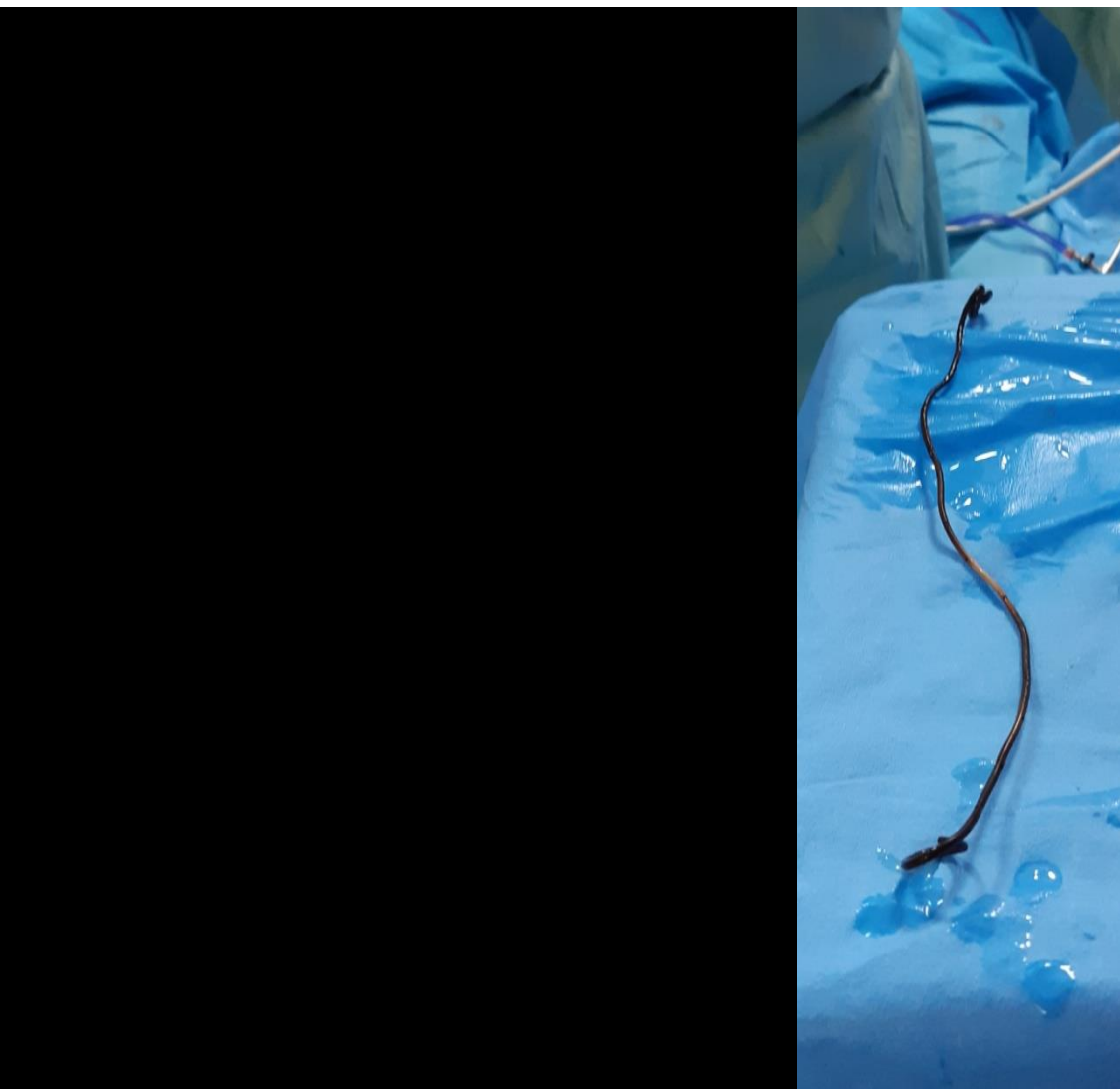
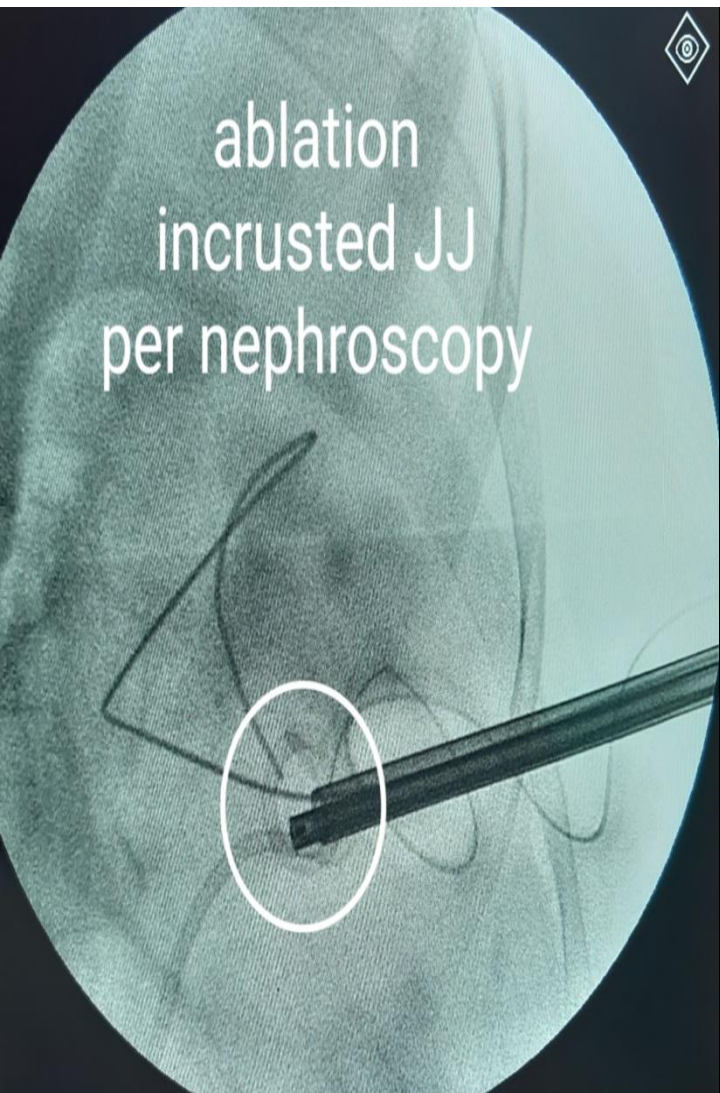


Case 2

Women 67 years
stone surgery
DJ 6 years unic
functionnal kidney



Removal by pcn



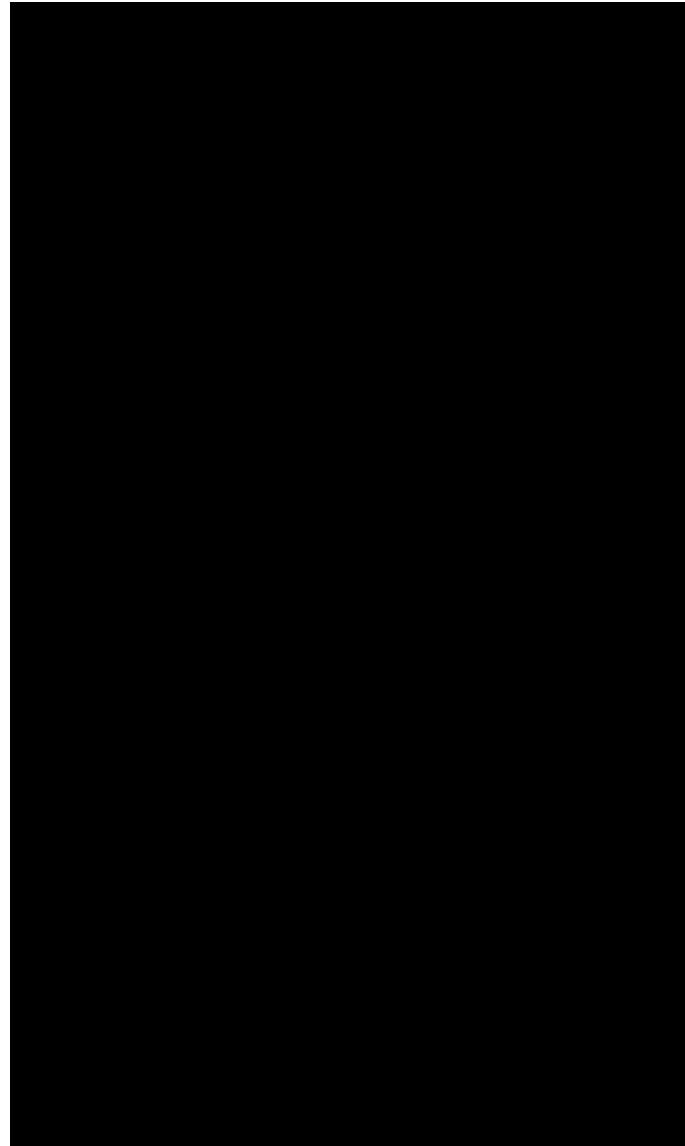
Case 3

Man 40 years
multiple stone surgery
3 years DJ

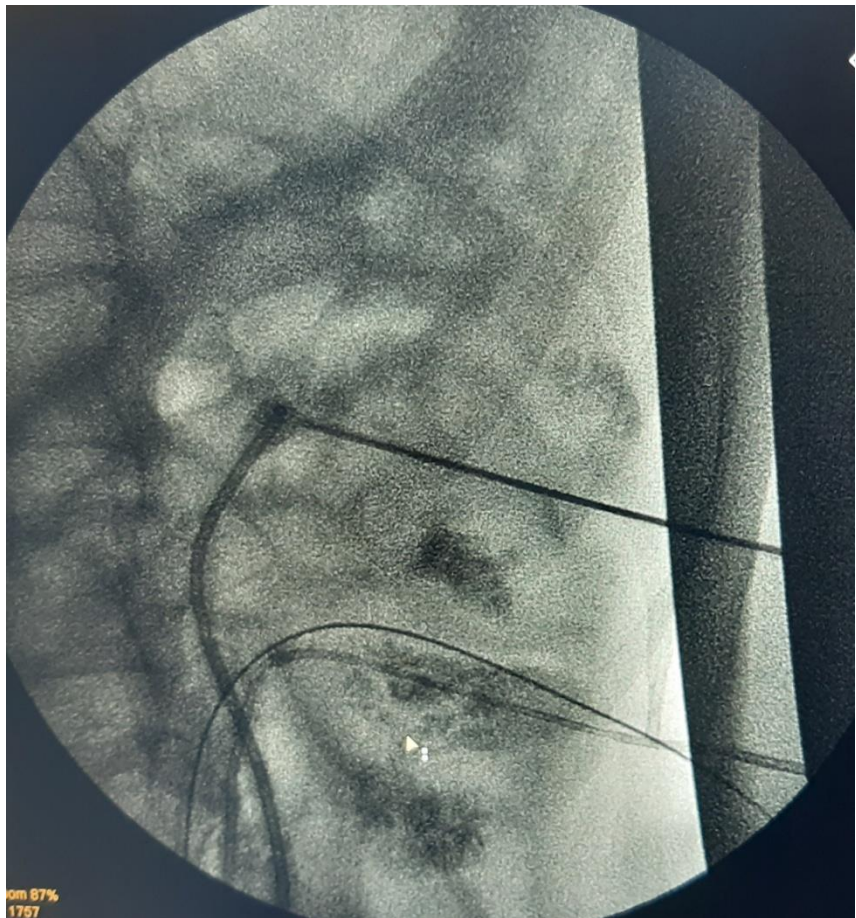
couple JJ
encrusted



Upper coils Pcni lithotripsy



Pcni upper coils

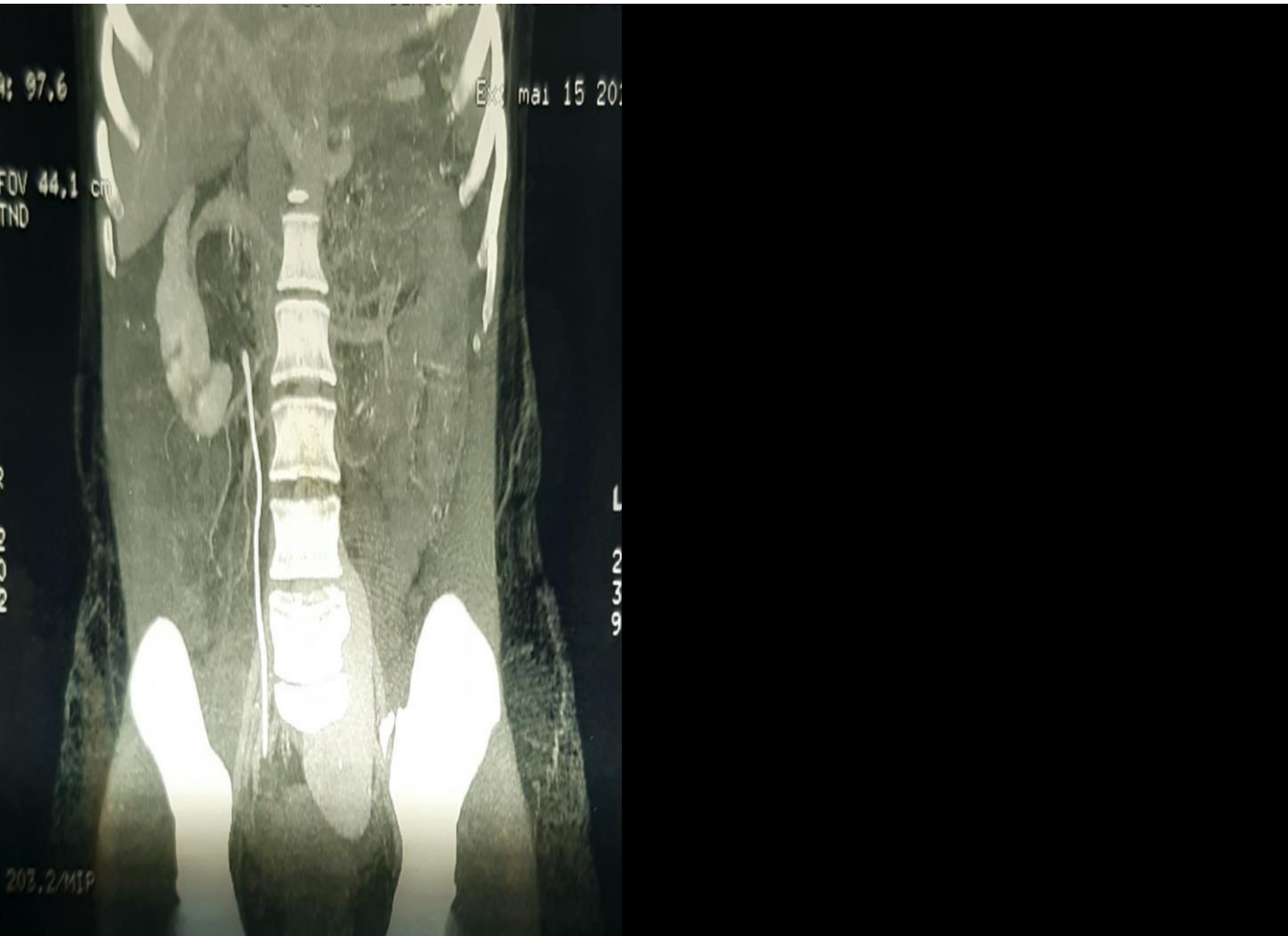


Low coils



Case 4

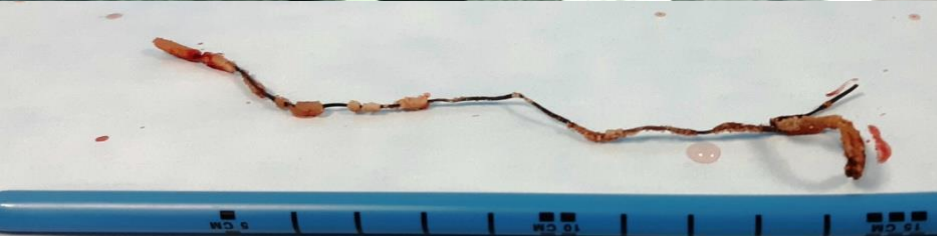
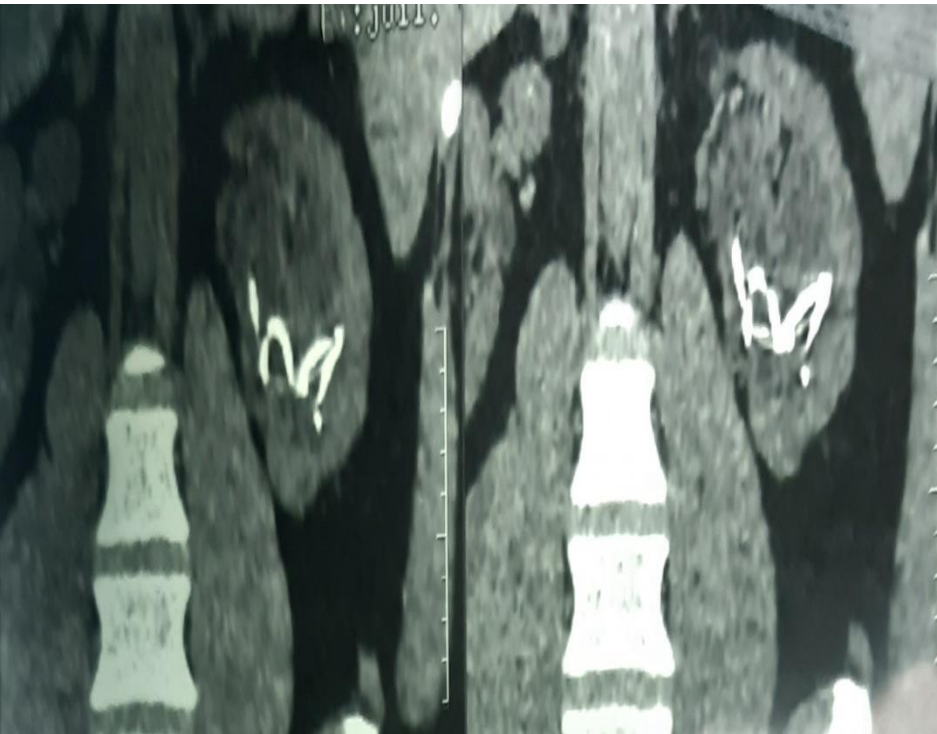
Women 23 years
dj 9 years upj surgery



Case 5

Man 30 years

guide wire 3 years pcnl +reimplantation



discussion

- Iatrogenic Foreign body in urinary tract are rare
- encrustation increase their complexity
- they can be managed by endoscopy
- open surgery can be used in case of failure of endoscopy or to complete partial removal in complex cases

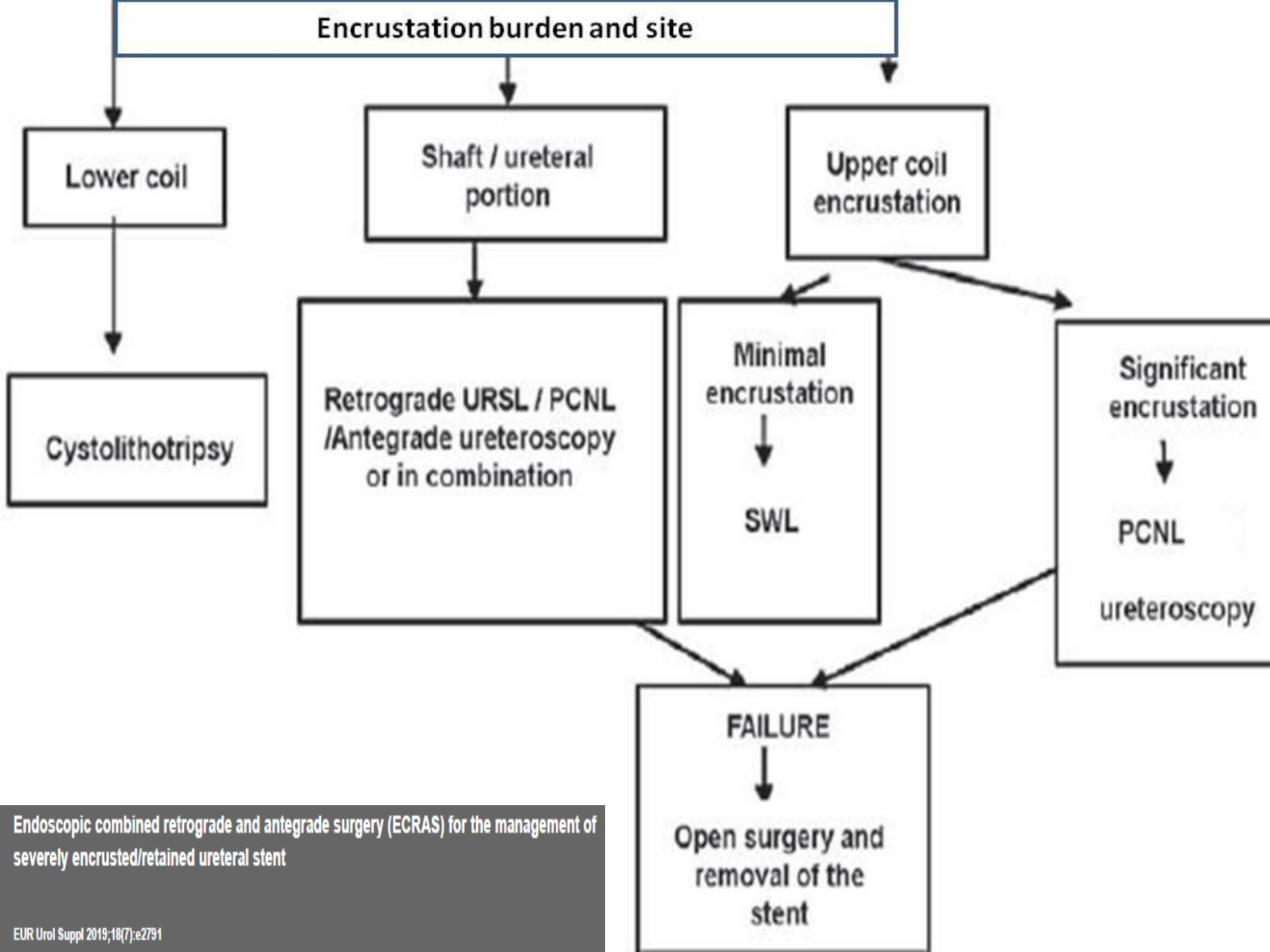
Assesement before treatment

Clinical evaluation

Urine culture

Blood biochemistry

Ultrasonography



Encrustation burden and site

Lower coil

Shaft / ureteral
portion

Upper coil
encrustation

Cystolithotripsy

Retrograde URSL / PCNL
/Antegrade ureteroscopy
or in combination

Minimal
encrustation

SWL

Significant
encrustation

PCNL

ureteroscopy

FAILURE

Open surgery and
removal of the
stent

Endoscopic combined retrograde and antegrade surgery (ECRAS) for the management of severely encrusted/retained ureteral stent

Best treatment

- Prevention
- Education
- communication

To avoid complications, DJ stents should be registered in the hospital system properly and patients should be informed.

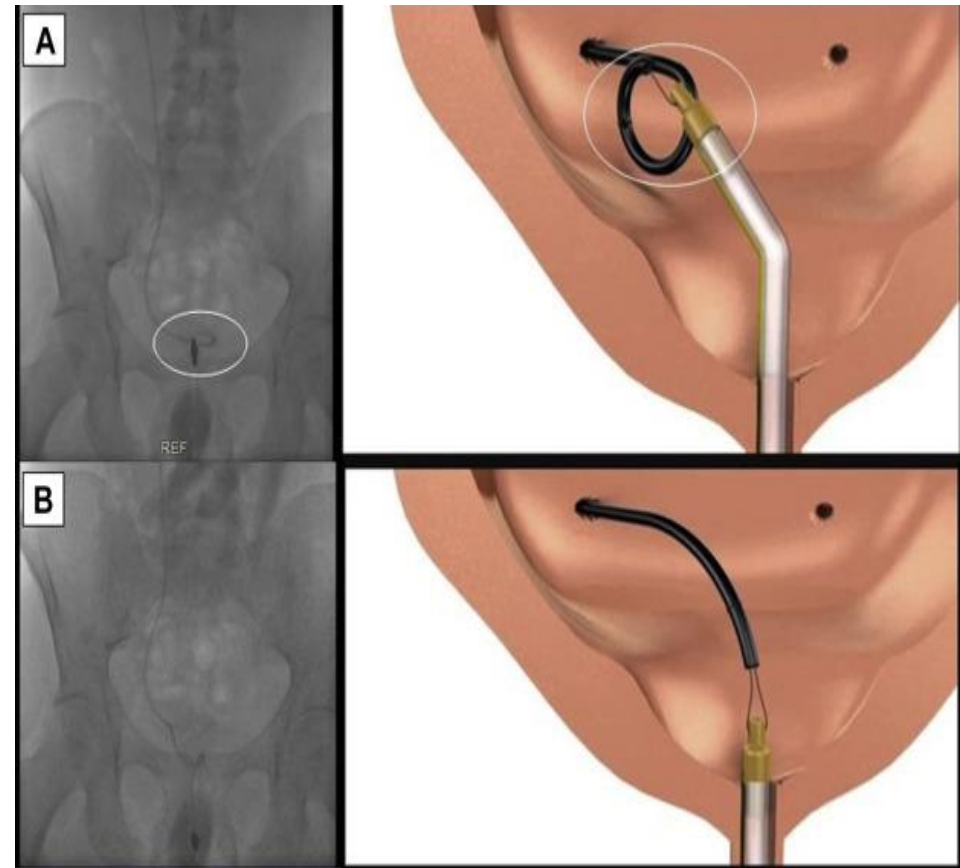
Forgotten DJ stent for 10 years

European Urology Supplements 2019;18(3):e2483

Yilmaz M. , Celik M. , Odabas O.

ANOTHER PATH WAY

- MAGNETIC lower coil DJ
- BIODEGRADABLE URETERAL STENTS



[Biomed Mater.](#) 2012 Dec;7(6):065002. doi: 10.1088/1748-6041/7/6/065002. Epub 2012 Oct 9.

Comparison of a biodegradable ureteral stent versus the traditional double-J stent for the treatment of ureteral injury: an experimental study.

[Fu WJ](#)¹, [Wang ZX](#), [Li G](#), [Cui FZ](#), [Zhang Y](#), [Zhang X](#).

Take home message

- Challenge
- Encrustation
- Multimodal approach (open)
- Repeated procedures
- Equipement +skills+team
- Prevention: communication-organisation

TO FINISH

THANKS.

FOR YOUR ATTENTION