Dr. med. Etienne Xavier Keller
Facharzt Urologie FMH, FEBU
Oberarzt meV
Klinik für Urologie
Universitätsspital Zürich

Suhr, Mai 2023

Videodokumentierte minimalinvasive Steintherapien

Universität Zürich[UZH]

USZ Universitäts Spital Zürich

Conflicts of interest

- **Speaker and consultant**

- **Speaker**

DEFINITION?

Minimal invasive Therapie

Social History of Medicine Vol. 30, No. 3 pp. 544–566

John Wickham's New Surgery: 'Minimally Invasive Therapy', Innovation, and Approaches to Medical Practice in Twentieth-century Britain

Sally Frampton* and Roger L. Kneebone**

'Minimally invasive therapy' is one innovation nonetheless, which demands further exploration. Also known colloquially as 'keyhole surgery', the term 'minimally invasive' was coined in 1986, and 'minimally invasive therapy' in 1989 by urologist John Wickham to describe a range of procedures that required making only very small incisions, or sometimes no incision at all, to treat diseases which previously would have required 'open' surgery (often necessitating a large incision).[3] Its introduction represented a major change in

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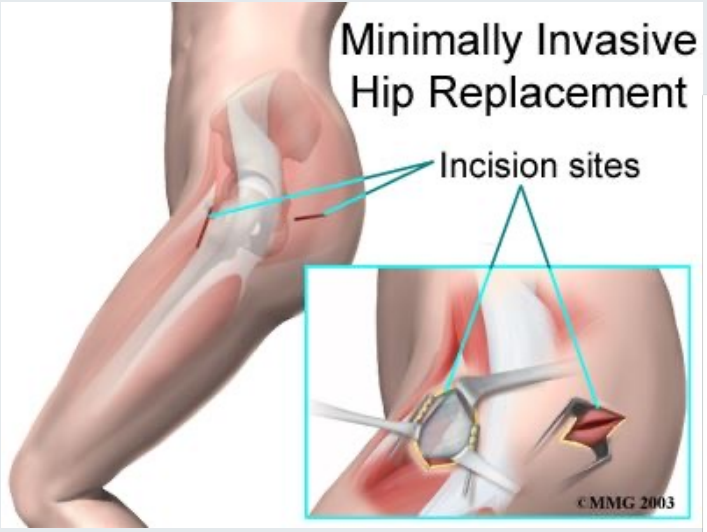
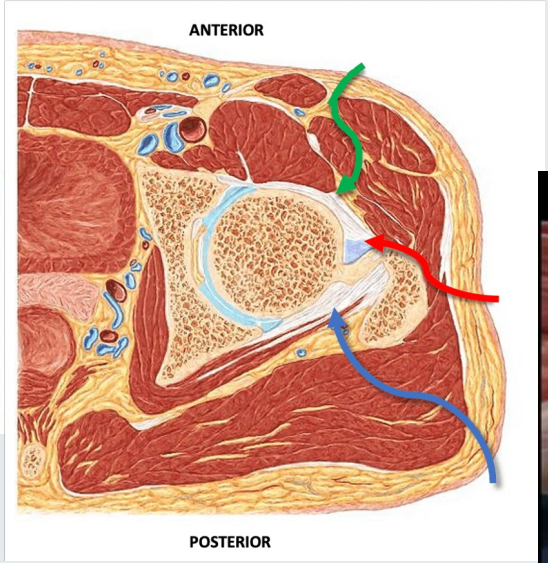
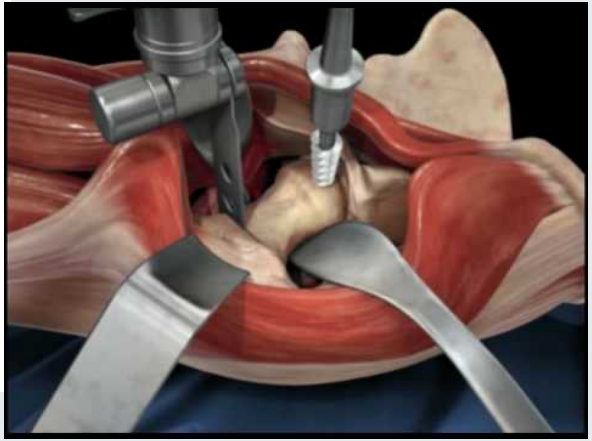
Minimal invasive Therapie



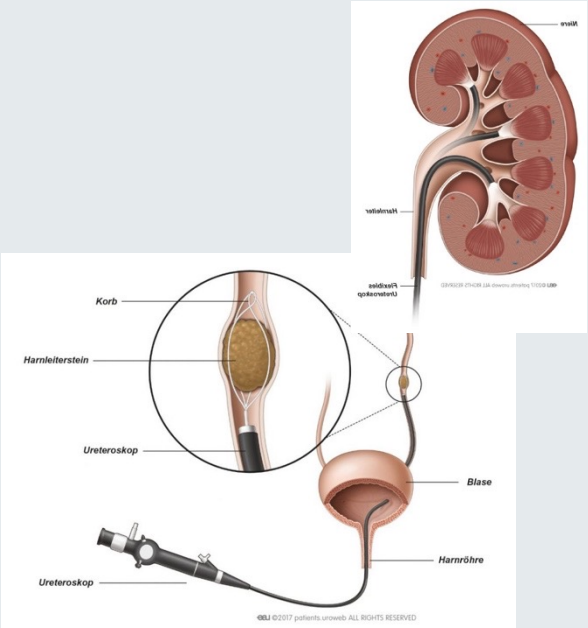
Orthopädie



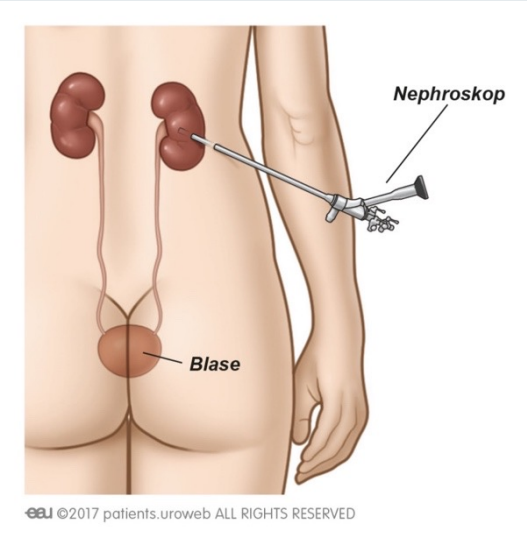
«MIS Hüfte»



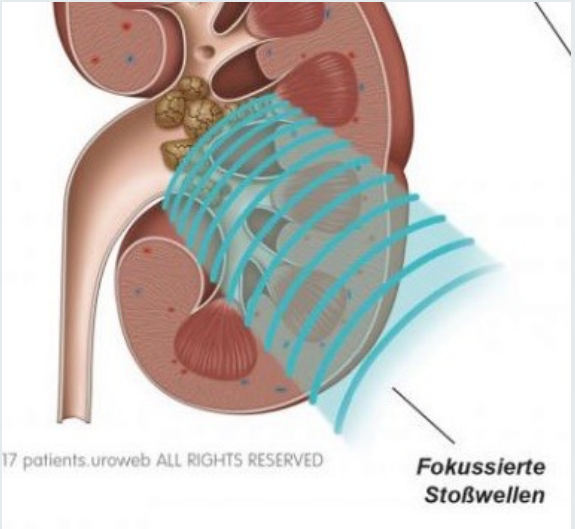
URS
Ureterorenoskopie



PNL
Perkutane Nephrolitholapaxie



ESWL
Extrakorporale Stosswellenlithotripsie

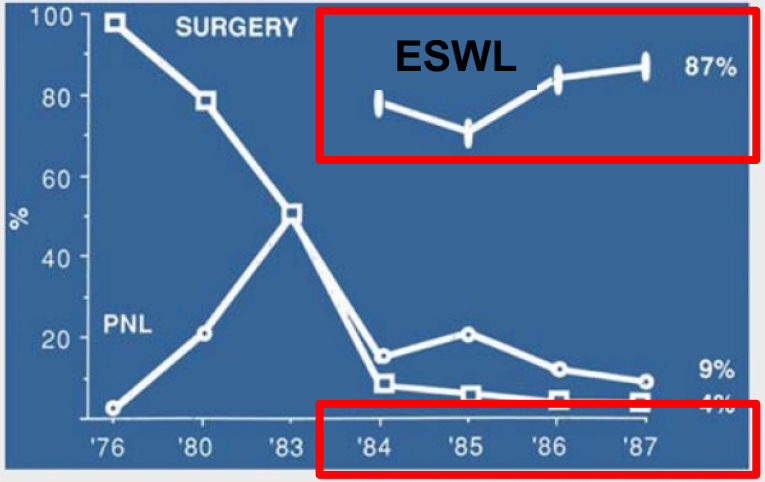


Rückblick auf 50 Jahre Steintherapie

Looking back on 50 years of stone treatment

Akt Urol 2019

Autoren
Thomas Knoll[1], Peter Alken[2]



▶ **Abb. 3** Entwicklung der interventionellen Steintherapie an der Universitätsklinik Mainz.

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Rückblick auf 50 Jahre Steintherapie

Looking back on 50 years of stone treatment

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Autoren
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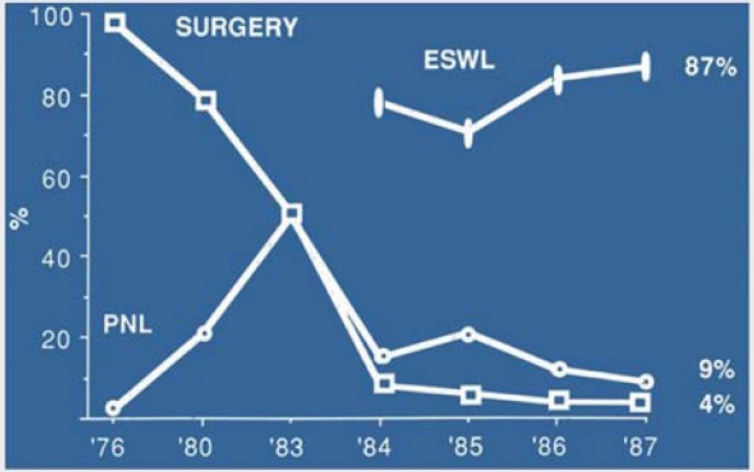
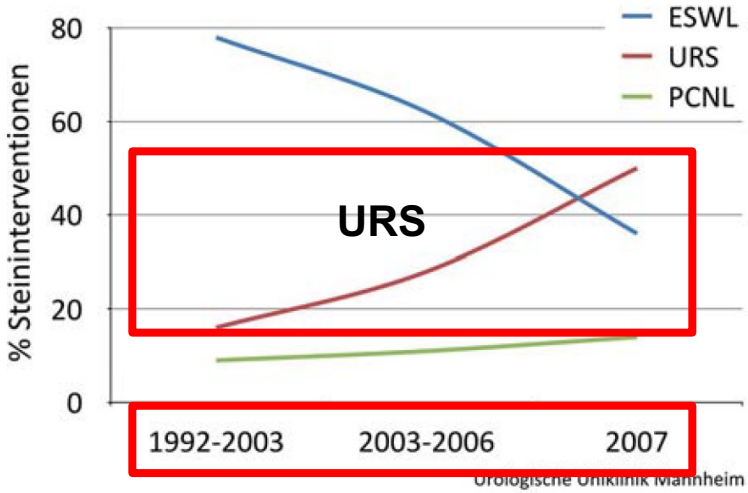


▶ **Abb. 3** Entwicklung der interventionellen Steintherapie an der Universitätsklinik Mainz.



▶ **Abb. 10** Entwicklung der interventionellen Steintherapie an der Universitätsmedizin Mannheim.

Universität Zürich[UZH]
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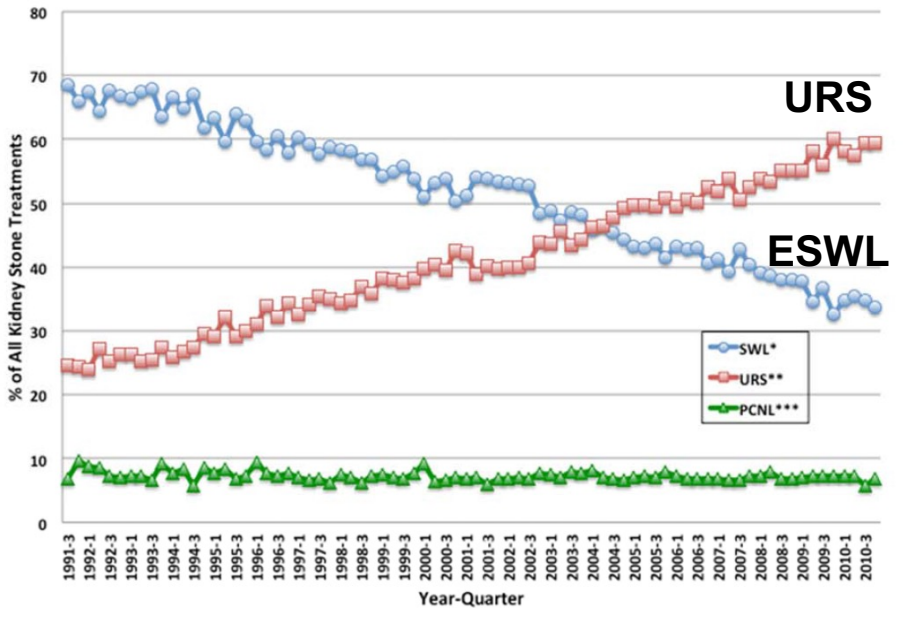
The Surgical Management of Kidney Stone Disease: A Population-Based Time Series Analysis

Michael Ordon MD, MSc, FRCSC[1], David Urbach MD, MSc, FRCSC[2], Muhammad Mamdani PharmD, MA, MPH[3], Refik Saskin MSc[4], R John D'A Honey MD, FRCSC[5] and Kenneth T Pace MD, MSc, FRCSC[6]

J Urol 2014



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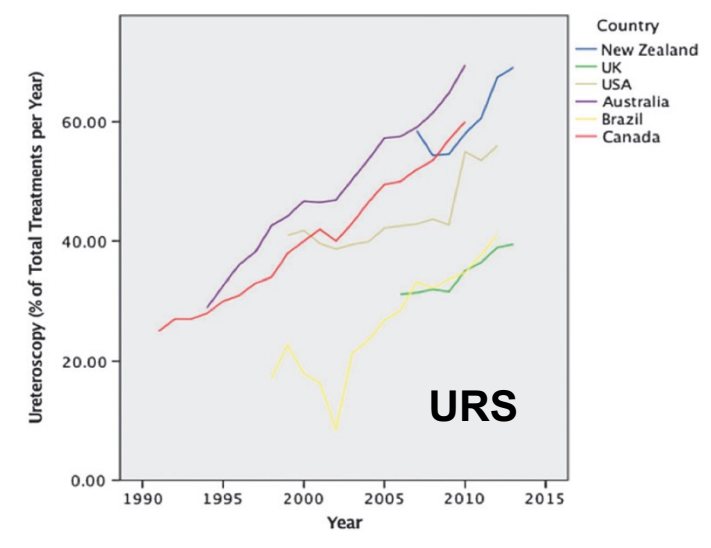
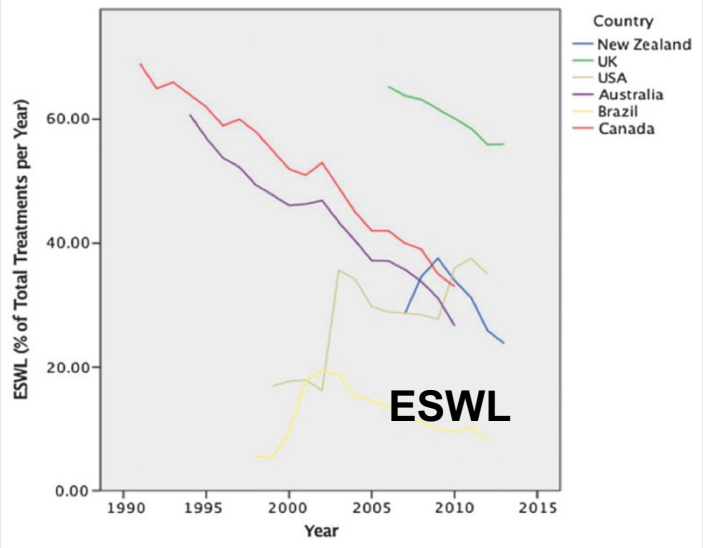
Worldwide Trends of Urinary Stone Disease Treatment Over the Last Two Decades: A Systematic Review

J Urol 2017

Robert M. Geraghty, MBChB,[1] Patrick Jones, MRCS,[2] and Bhaskar K. Somani, MRCS, DM, FEBU, FRCS (Urol)[1]





Minimalinvasive Steintherapien

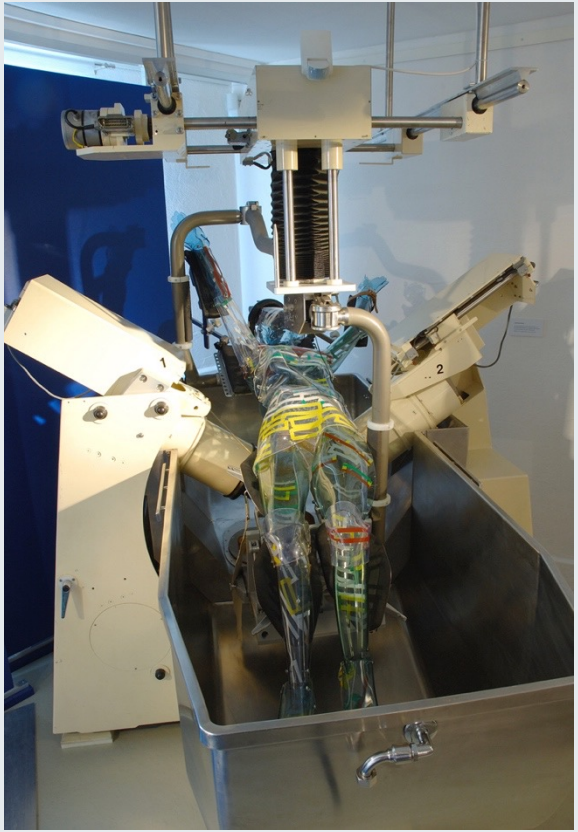
ESWL

Universität Zürich[UZH]

USZ Universitäts Spital Zürich

ESWL

1980 - 2000



“Badewanne”

ESWL: modern

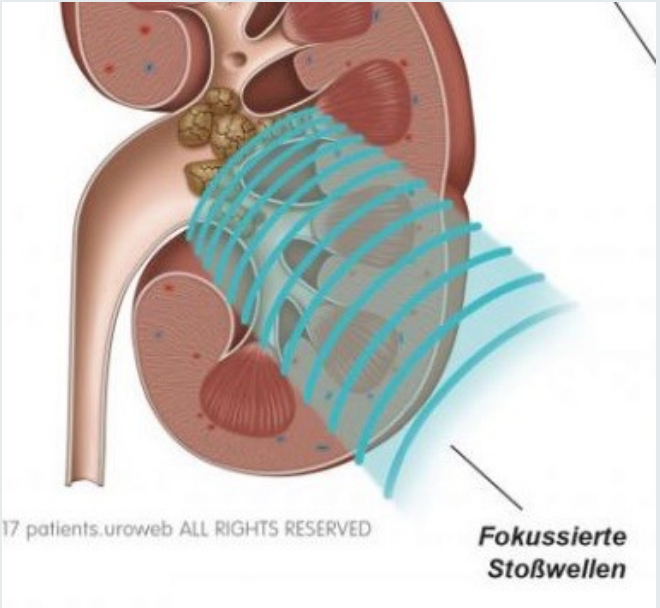
Röntgen

Ultraschall

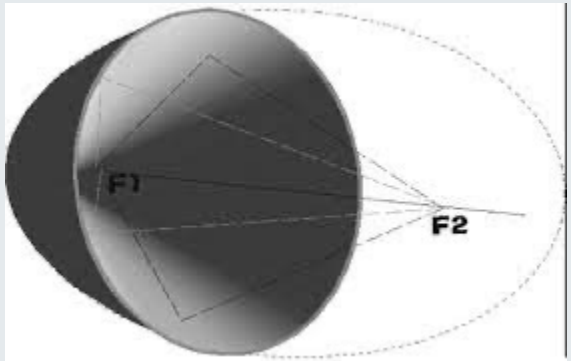
ESWL

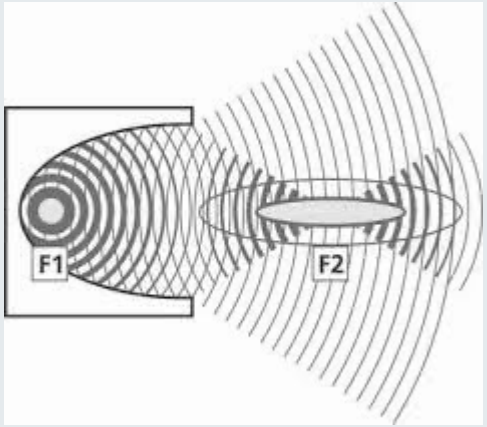
Ultraschall-kontrolliert

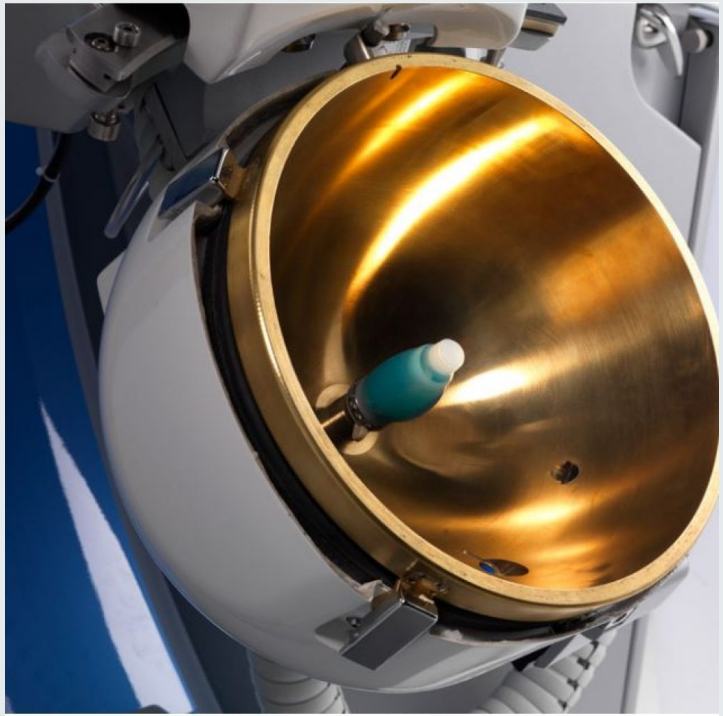
ESWL


17 patients.uroweb ALL RIGHTS RESERVED
Fokussierte
Stoßwellen

ESWL







ESWL

- Ambulant
- Ohne Narkose
- Check-in / check-out: 1h
- Ultraschall-kontrolliert

Minimalinvasive Steintherapien

Ureterorenoskopie (URS)

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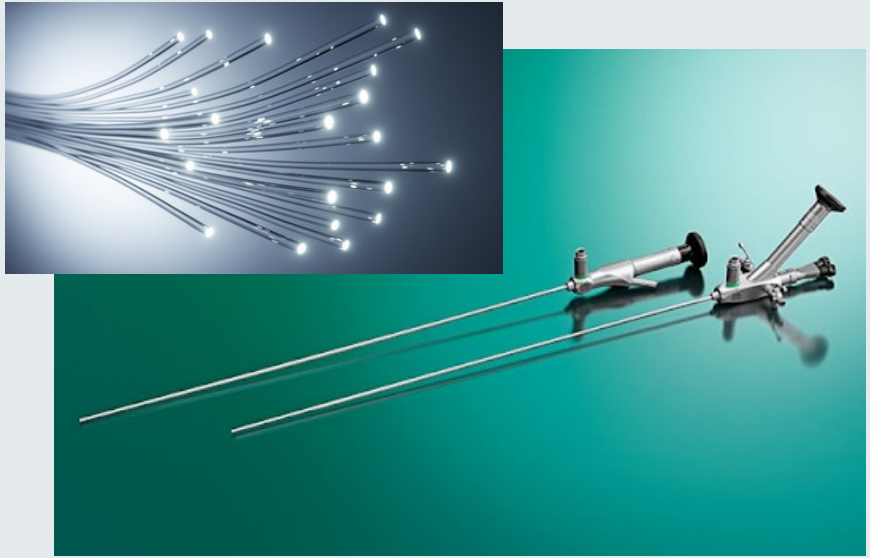
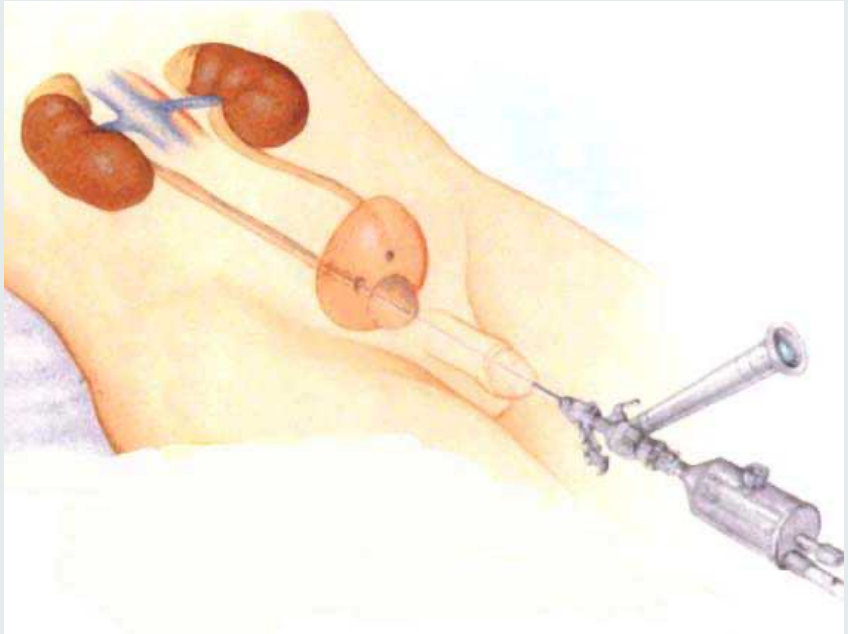
Semi-rigide URS

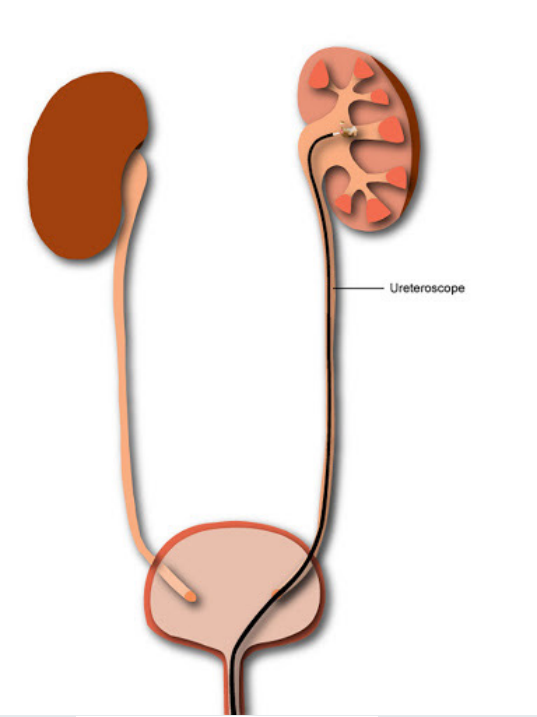


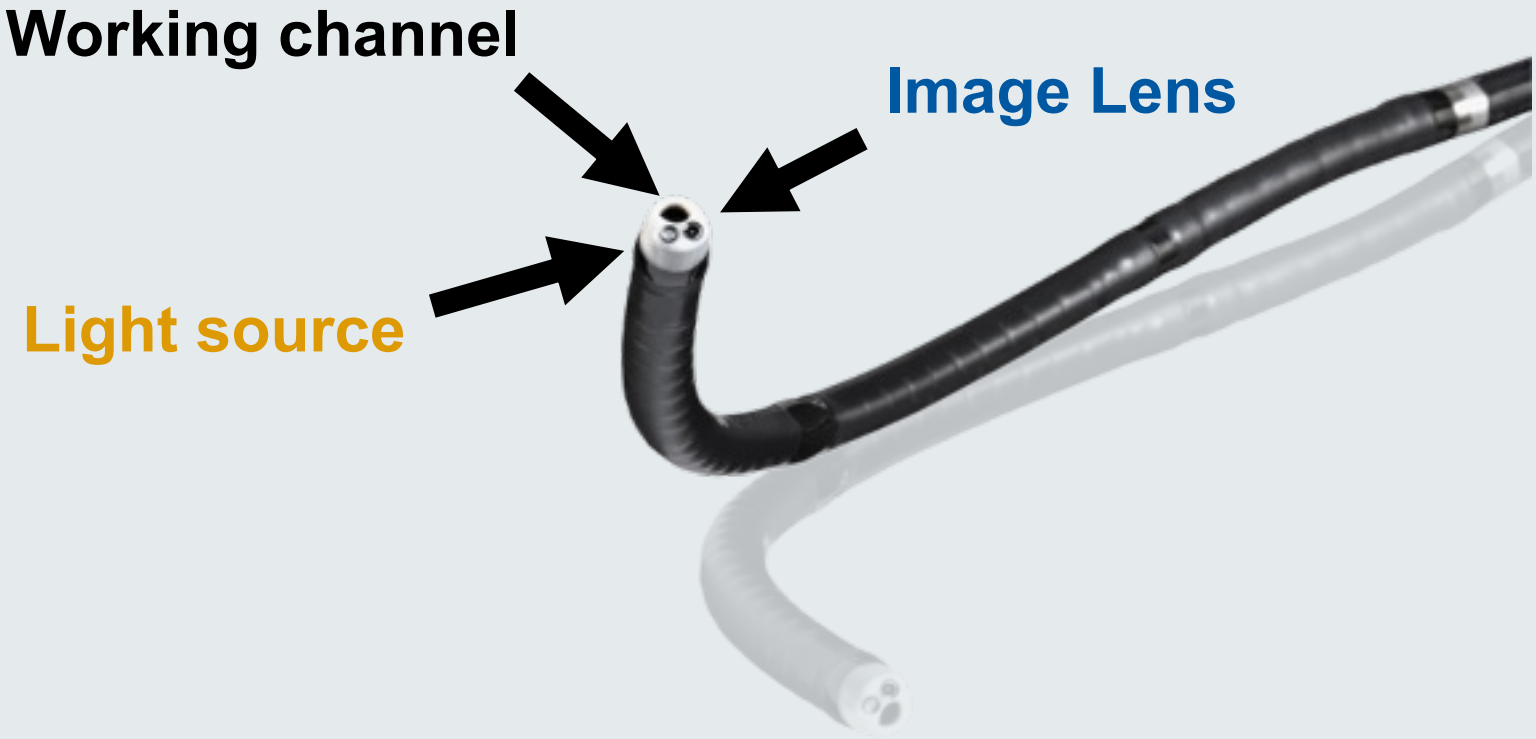
Flexible URS

Semi-rigide Ureteroskopie



Flexible Ureteroskopie





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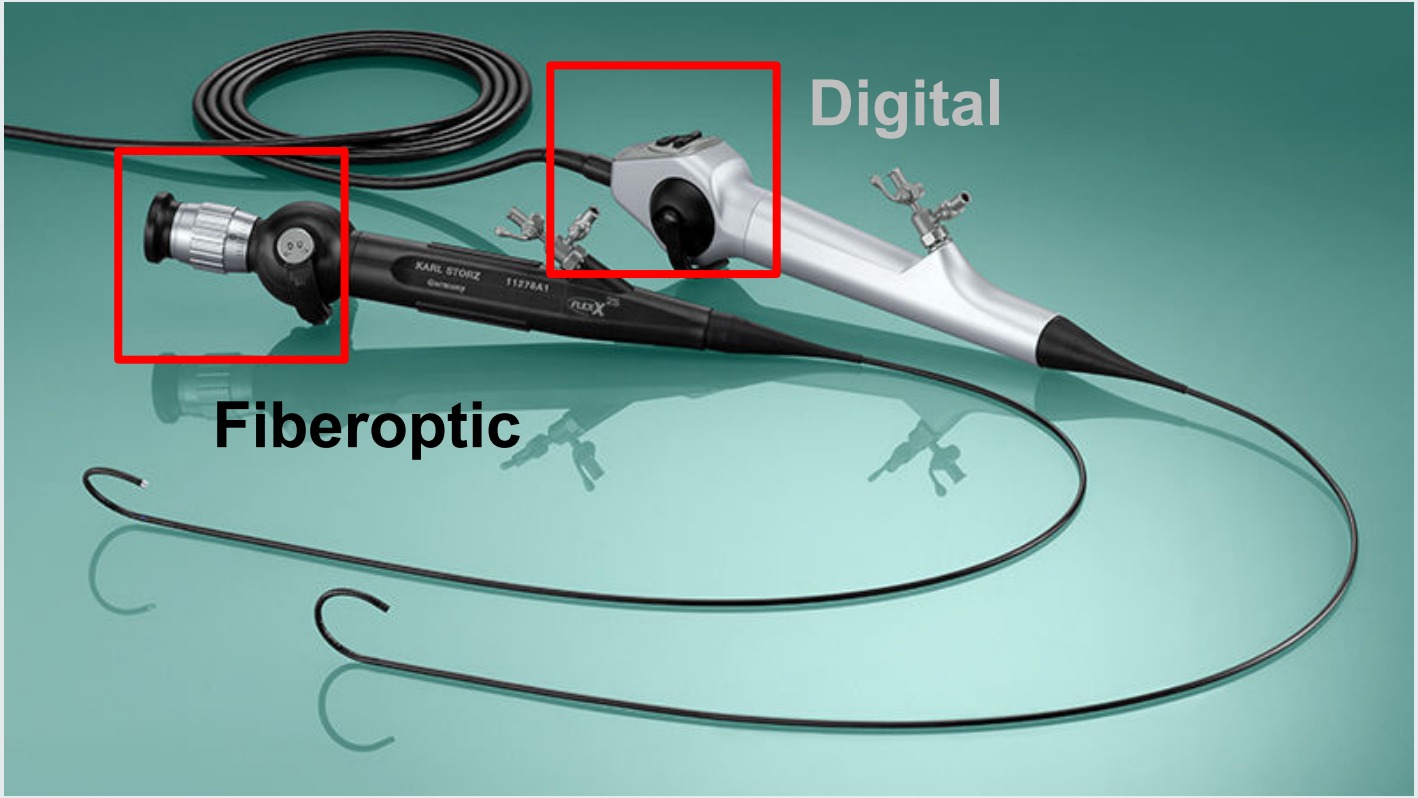
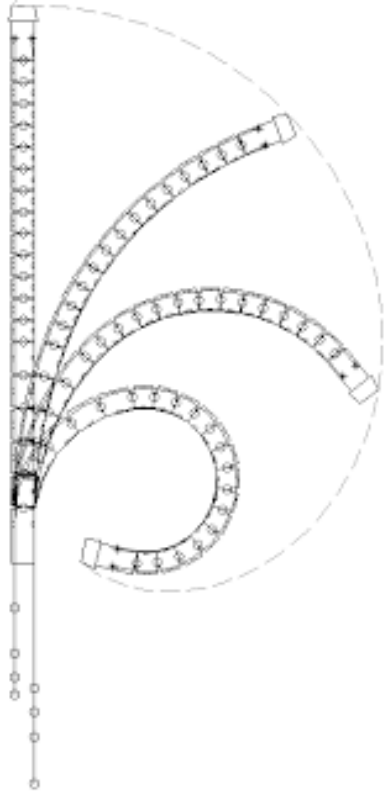
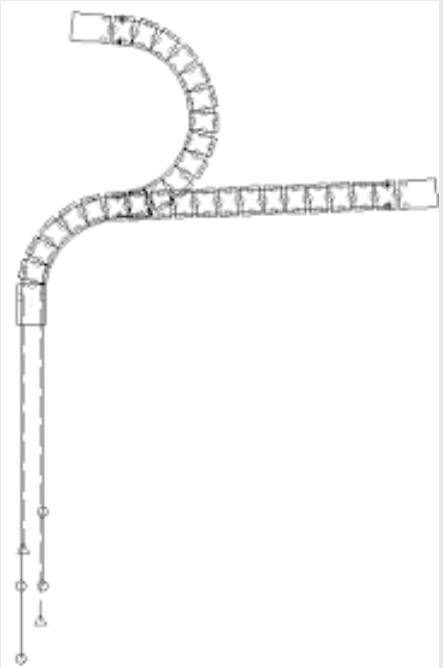

Digital
Fiberoptic
KARL STORZ
11278A1
flexX

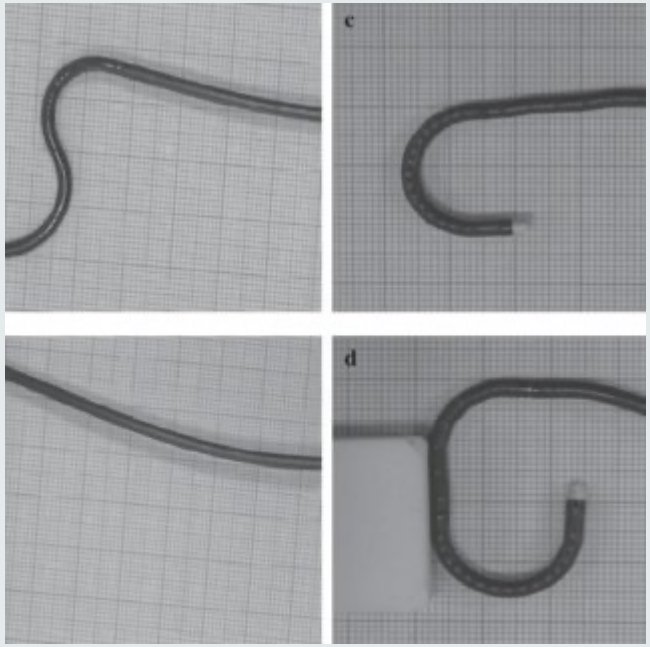
Digital
CCD
CMOS

Deflectable tip

Deflectable tip







MODERNE NIERENSTEINBEHALUNG

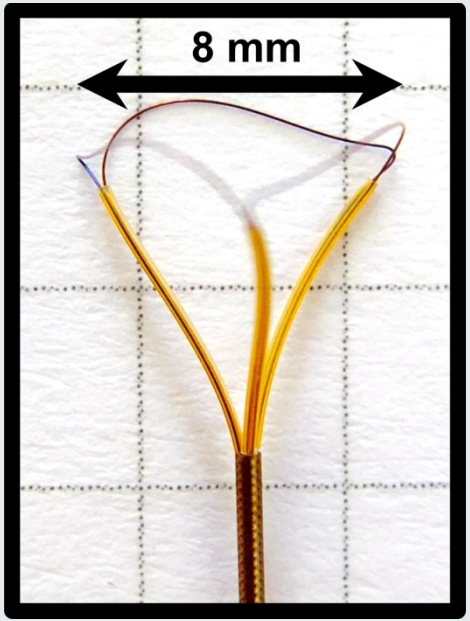
URS: Hilfsmittel

Röntgen Durchleuchtung

C-Bogen

Ureteropyelographie

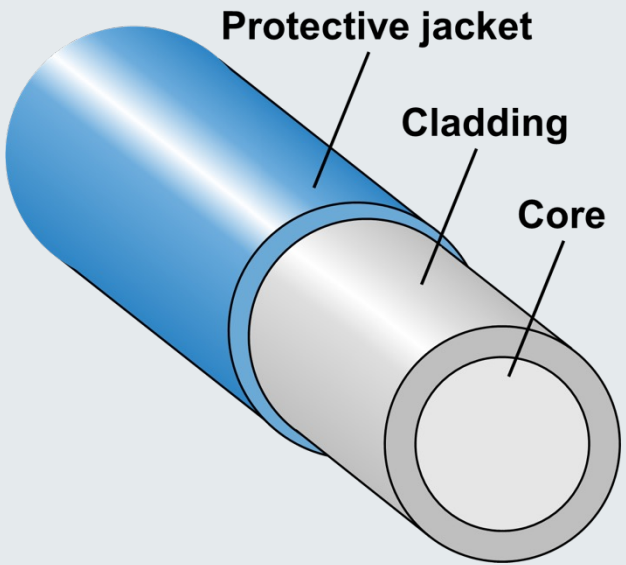
Körbchen



Körbchen

Holmium:YAG

Thulium fiber laser



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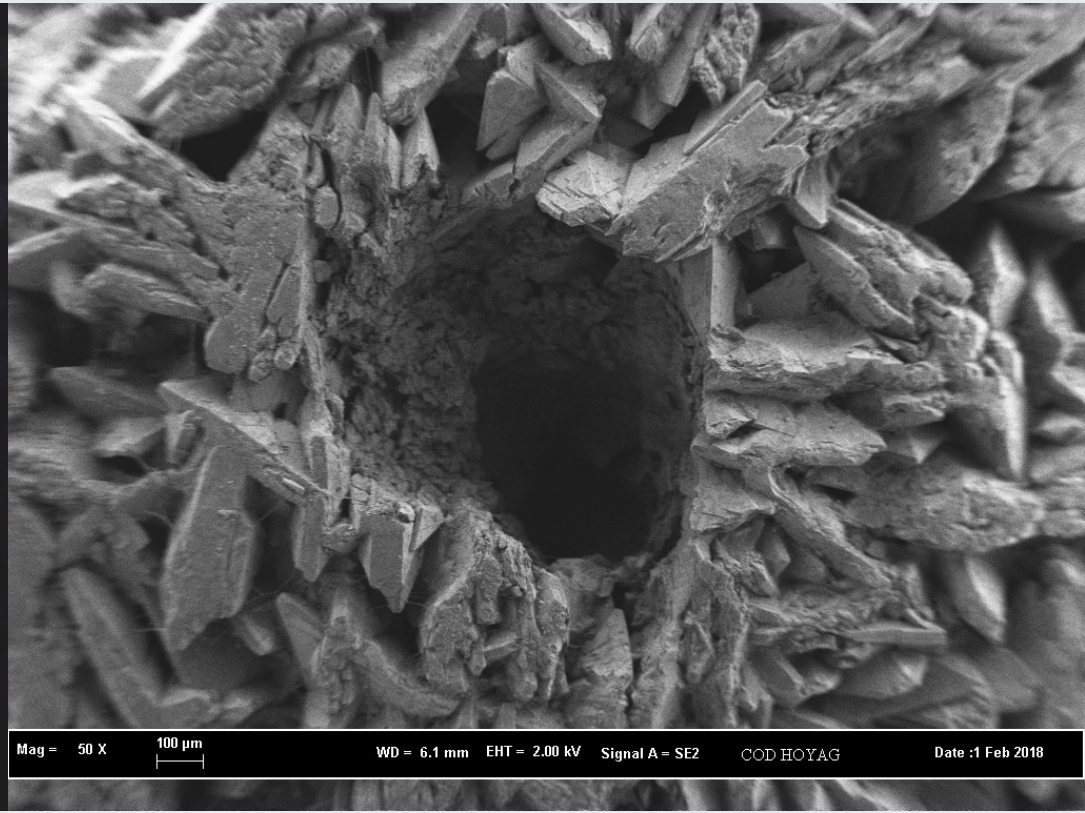
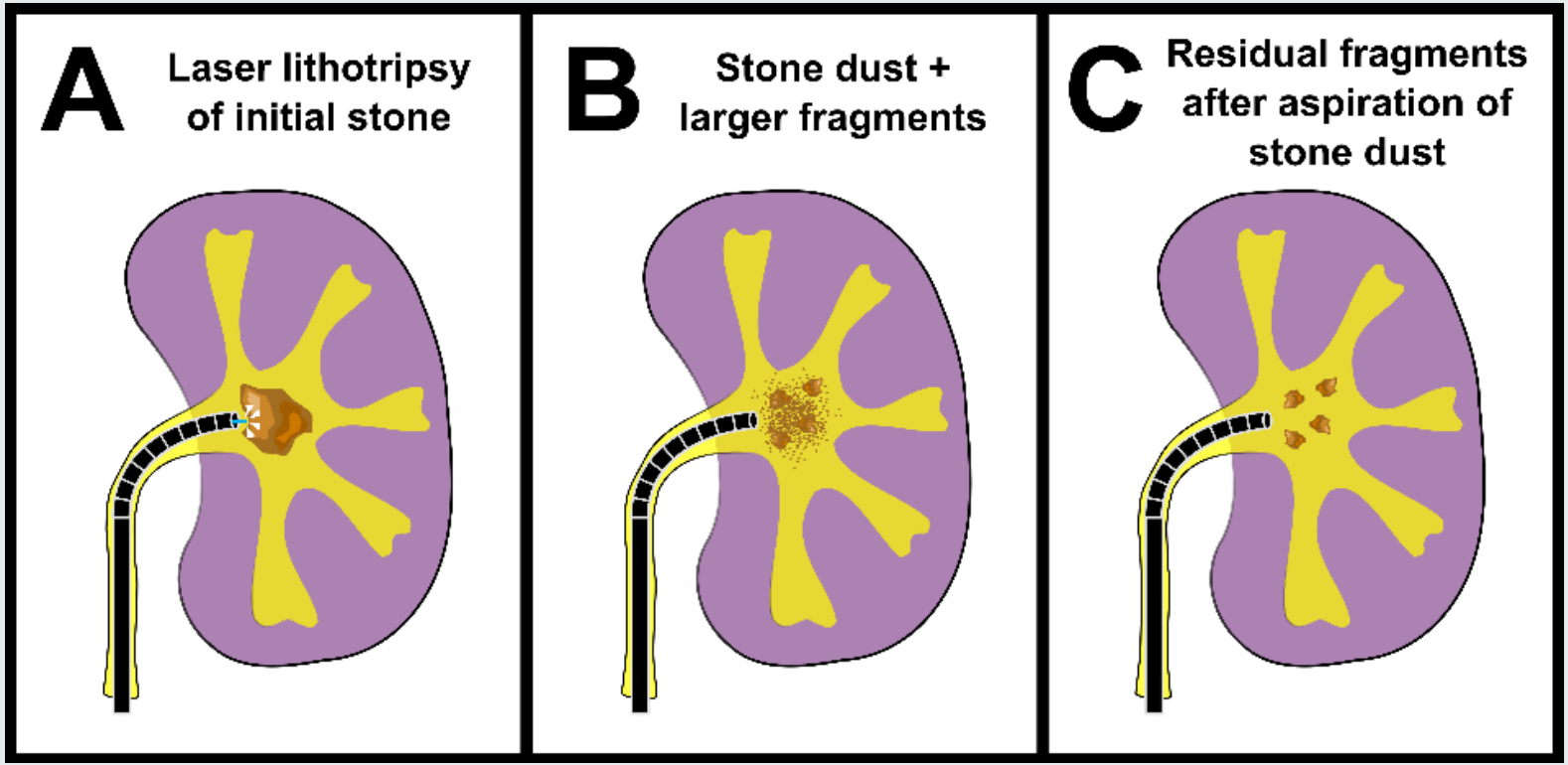

Mag = 50 X
100 µm
WD = 6.1 mm
EHT = 2.00 kV
Signal A = SE2
COD HOYAG
Date :1 Feb 2018



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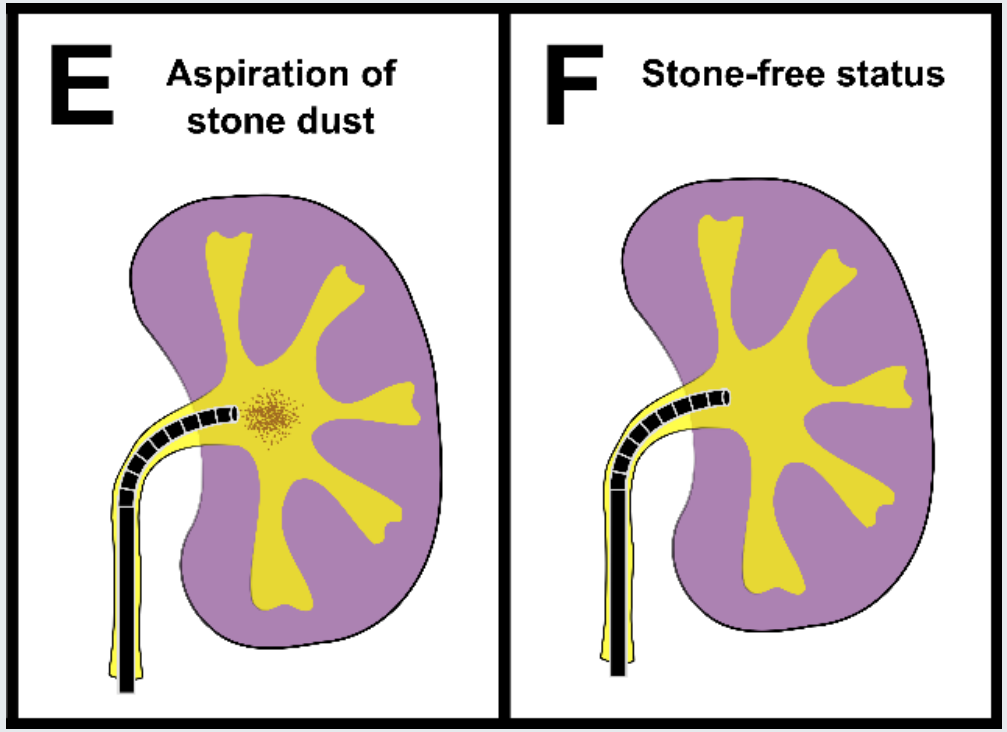

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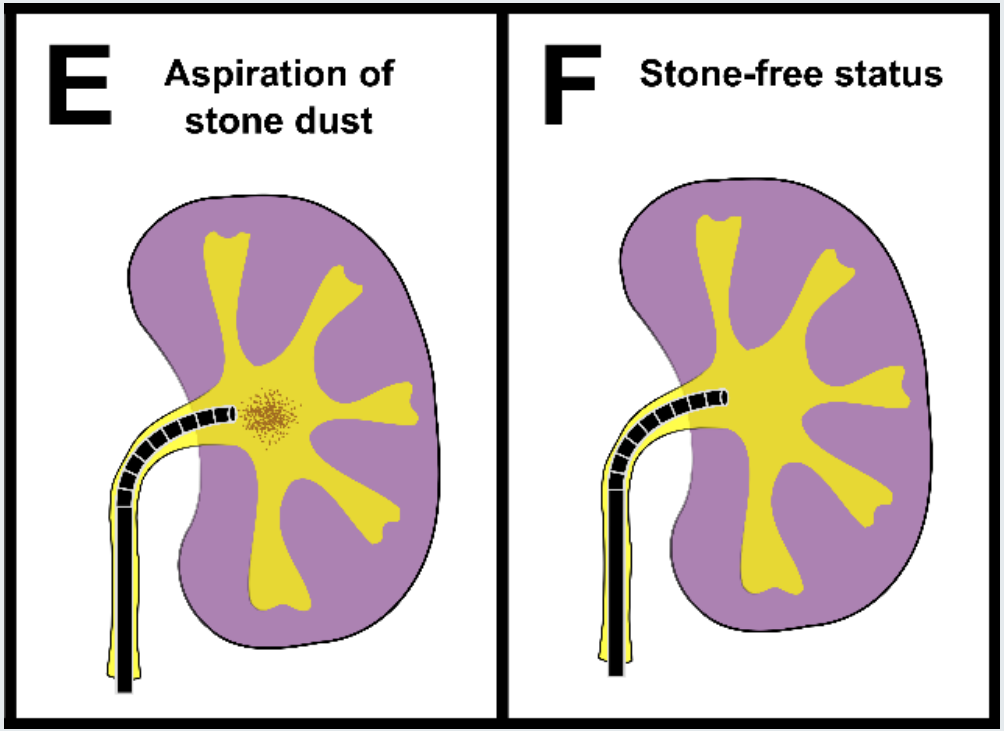
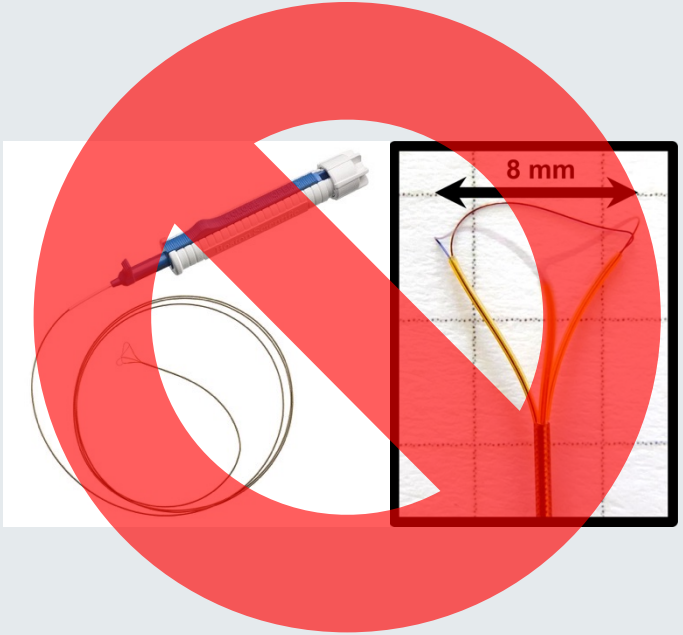

E
Aspiration of stone dust
F
Stone-free status


8 mm

Thulium fiber laser

Semi-Live

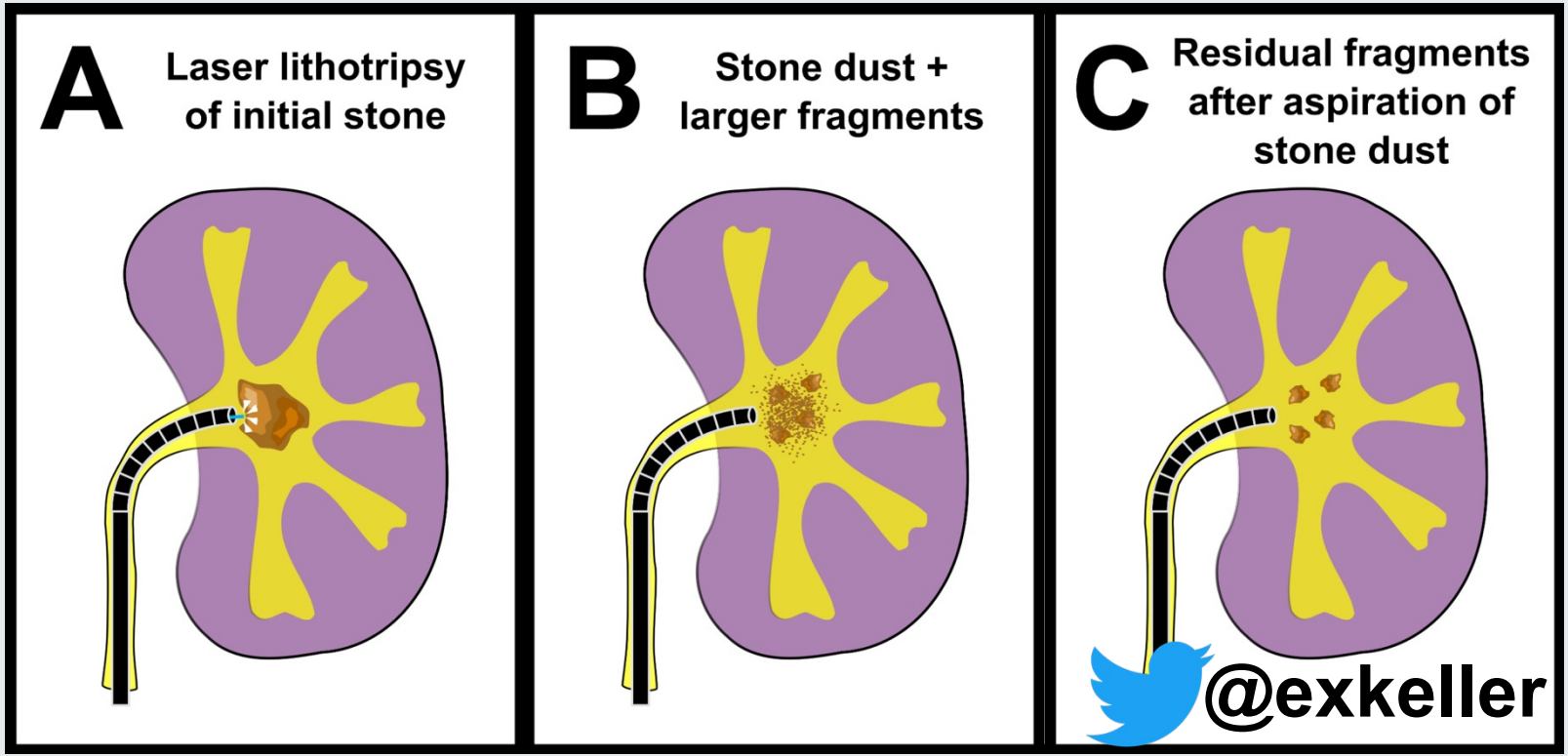
- Stone dusting
- Pop-corning
- Kelchdivertikelinzision
- ECIRS

URS

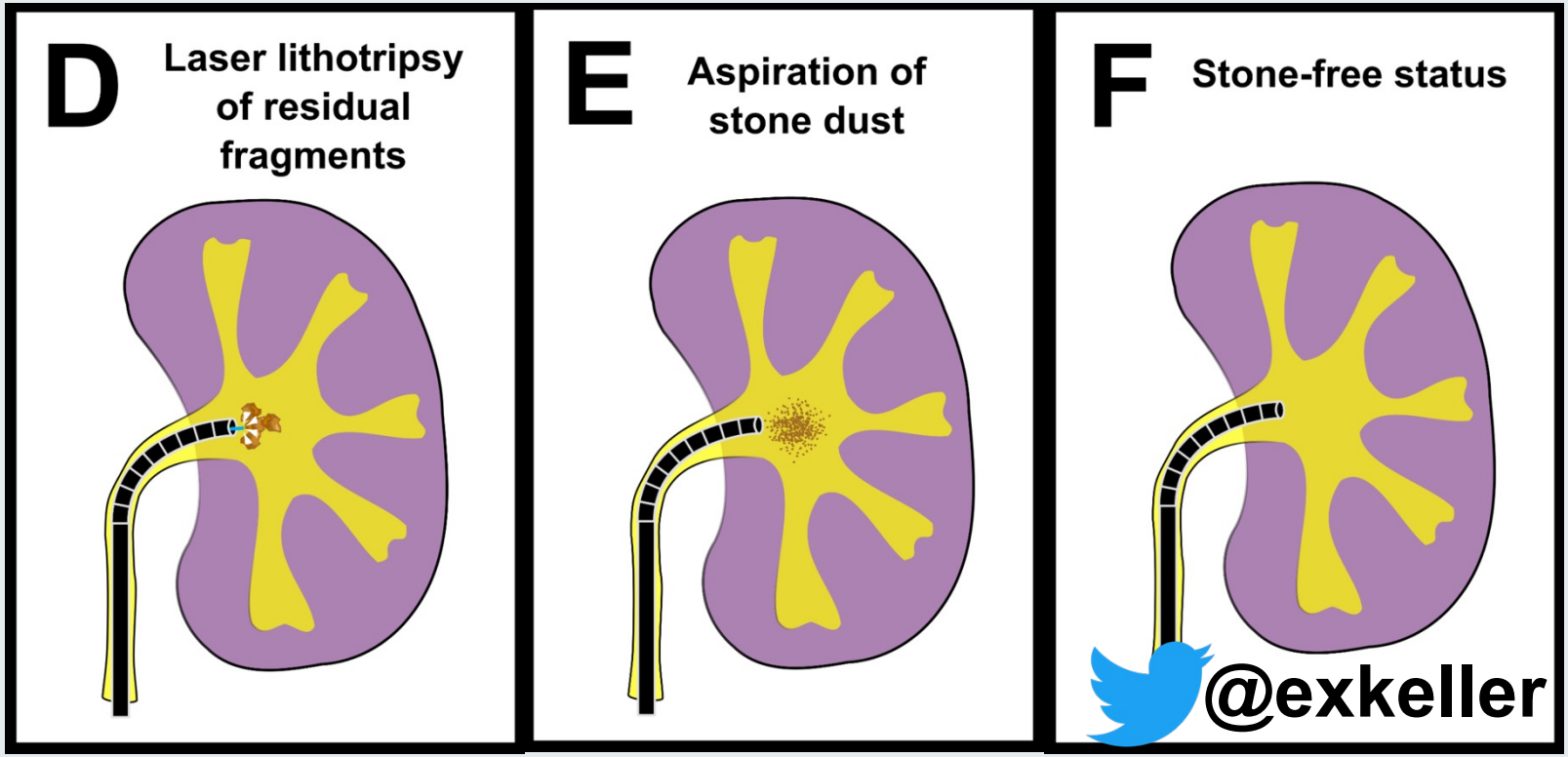
Stone dusting

Stone dusting

- **57-Jahre alt**
- **Kurzdarmsyndrom**
- **Nephrolithiais**
  - 9 mm
  - Unterpol links
  - Calcium-Oxalat monohydrat



Keller et al, Urol Clin North Am 2019



Keller et al, Urol Clin North Am 2019

URS

Pop-corning

Pop-corning

- 65-Jahre alt
- Harnsäure Steine

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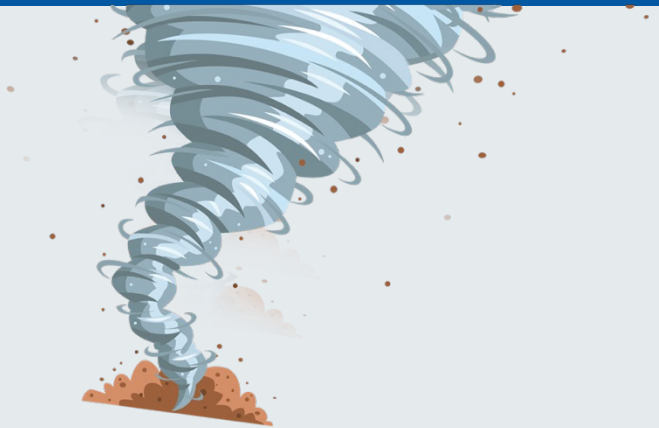


0.2 – 0.4 J
40 - 80 Hz
Short pulse

World Journal of Urology
https://doi.org/10.1007/s00345-020-03178-z

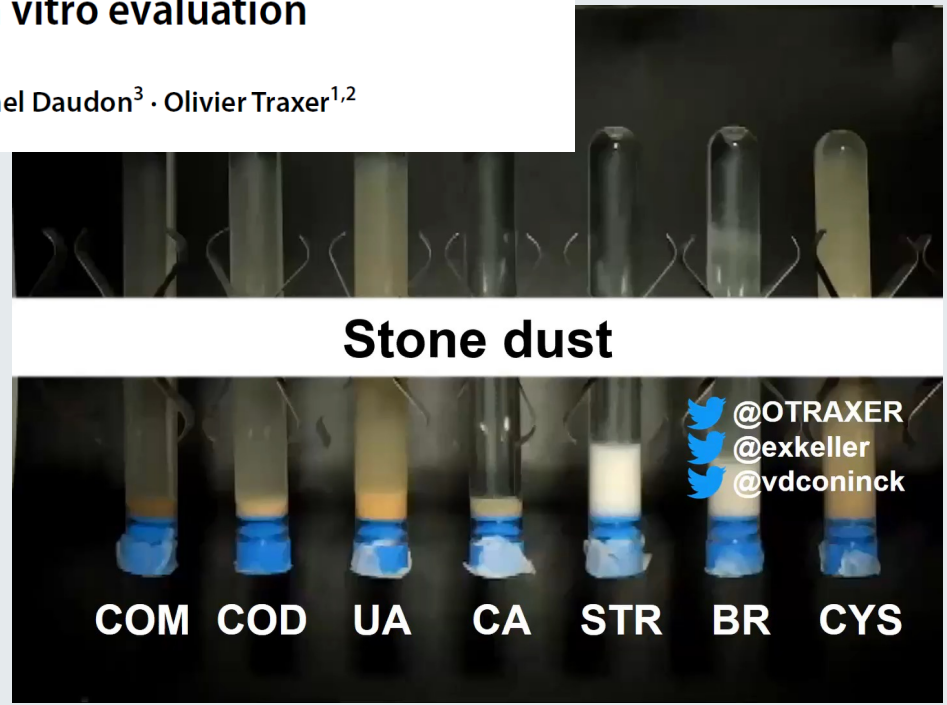
ORIGINAL ARTICLE

Check for updates

What is the exact definition of stone dust? An in vitro evaluation

Etienne Xavier Keller[1,2,4] · Vincent De Coninck[1,2,5] · Steeve Doizi[1,2] · Michel Daudon[3] · Olivier Traxer[1,2]

Stone dust: ≤ 250 µm



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URS

Fragmentieren

Universität Zürich UZH
USZ Universitäts Spital Zürich

Fragmentierung

- 48-Jahre alt
- Kurzdarmsyndrom

Universität Zürich UZH
USZ Universitäts Spital Zürich

URS: Fallbeispiel

URS

Kelchdivertikelstein

Universität Zürich UZH
USZ Universitäts Spital Zürich

Kelchdivertikel

- 24-Jahre alt
- Blasenfuntionsstörung
- Paraplegiker
- Infektsteine

URS

Kelchdivertikelstein

Universität Zürich UZH
USZ Universitäts Spital Zürich

Kelchhalsinzision

- 40-Jahre alt
- Zufallsbefund
- Nach kontrolateralem Spontansteinabgang

URS

Kelchdivertikelstein

Universität Zürich UZH
USZ Universitäts Spital Zürich

Kelchhalsdivertikel

- 42-Jahre alt
- Flankenschmerzen

Universität Zürich UZH
USZ Universitäts Spital Zürich

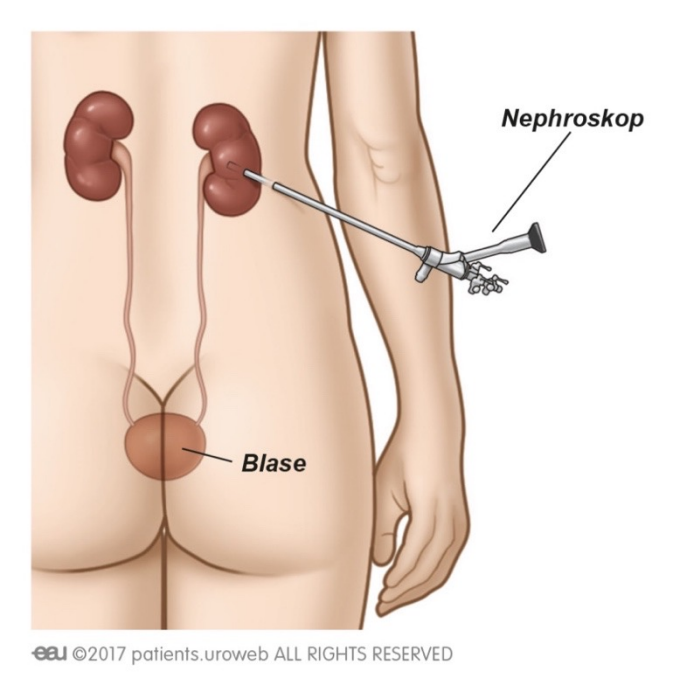
MODERNE NIERENSTEINBEHALUNG

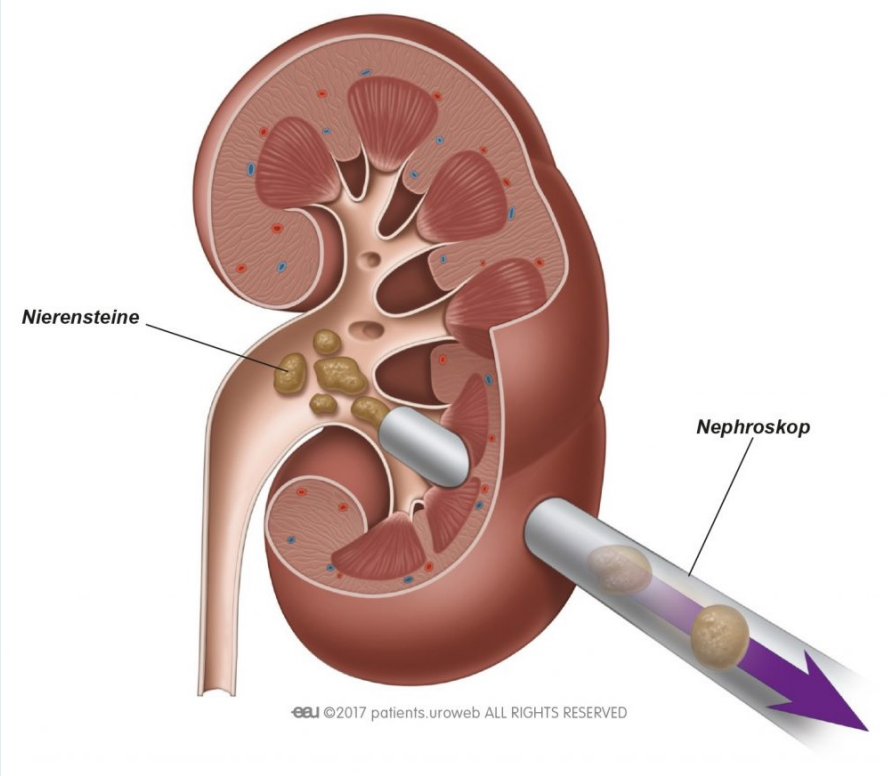
PNL

Universität Zürich[UZH]

USZ Universitäts Spital Zürich

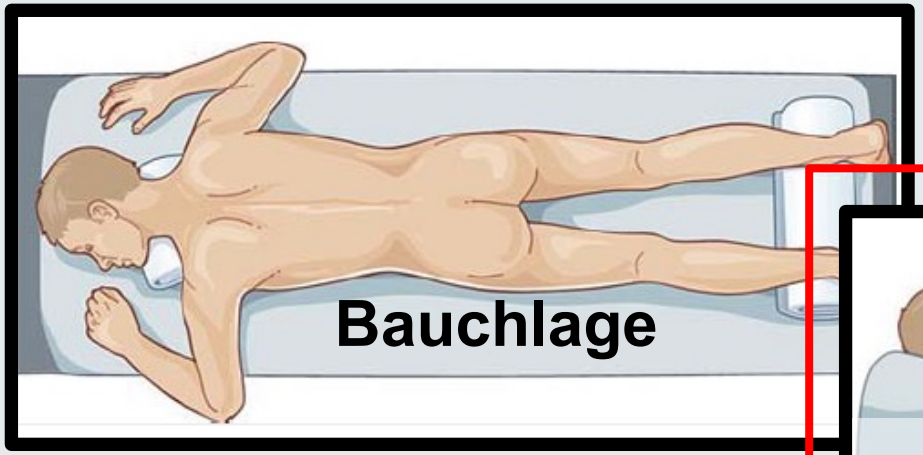
PNL

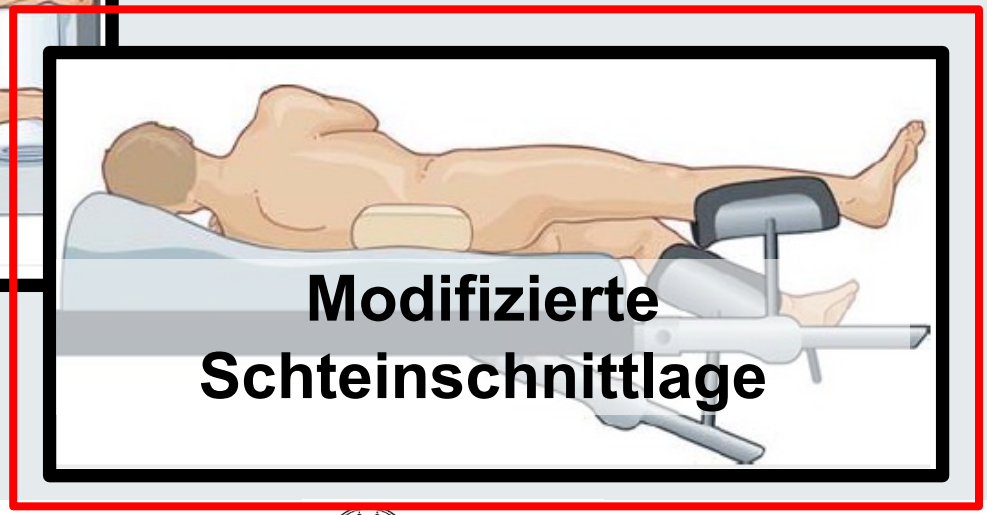




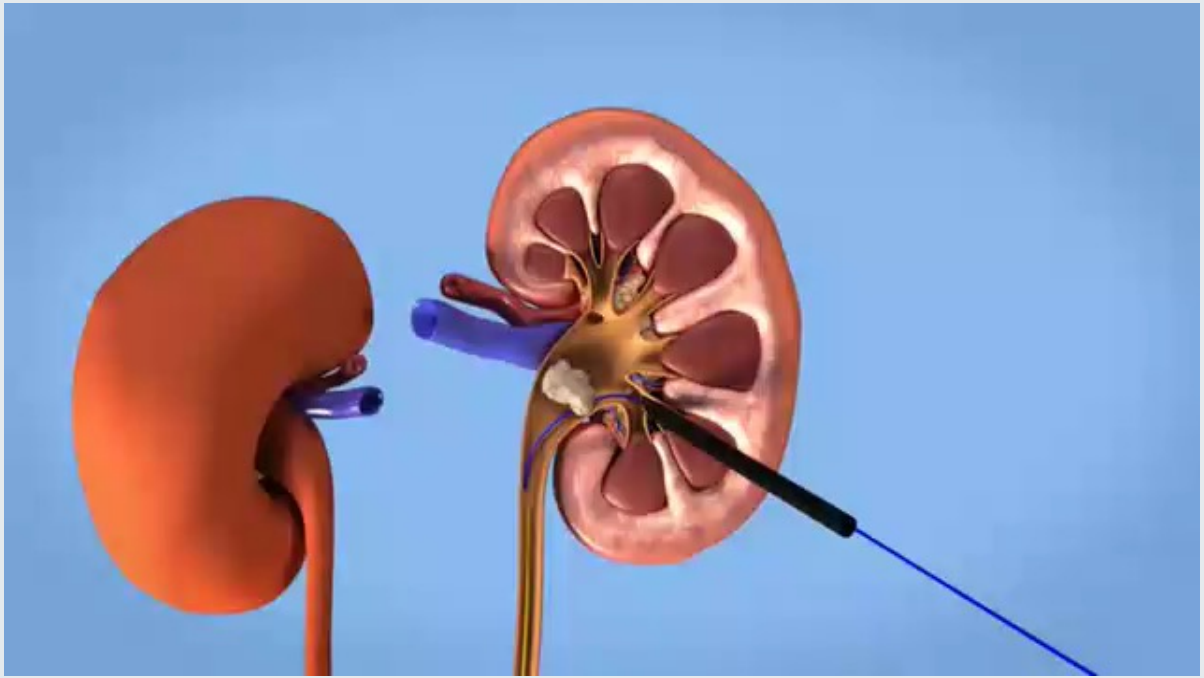
Universität Zürich UZH
USZ Universitäts Spital Zürich

Perkutane Nephrolitholapaxie

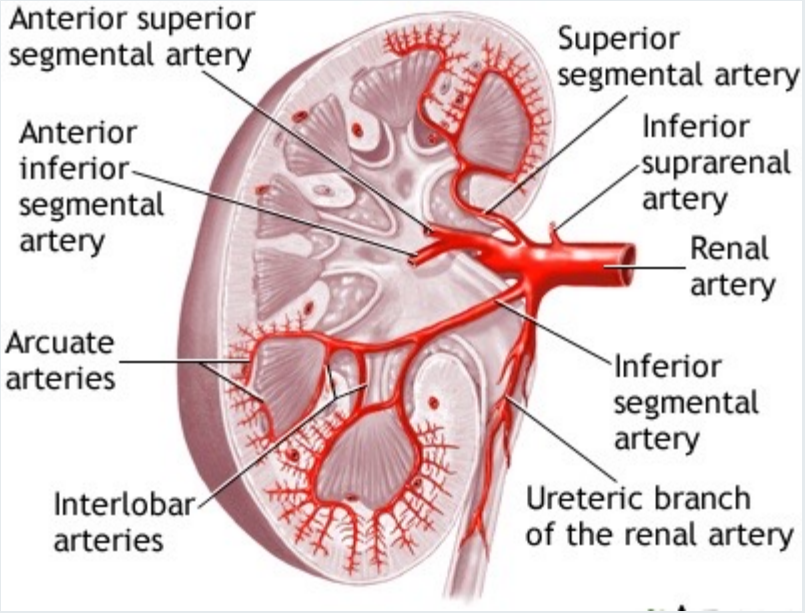


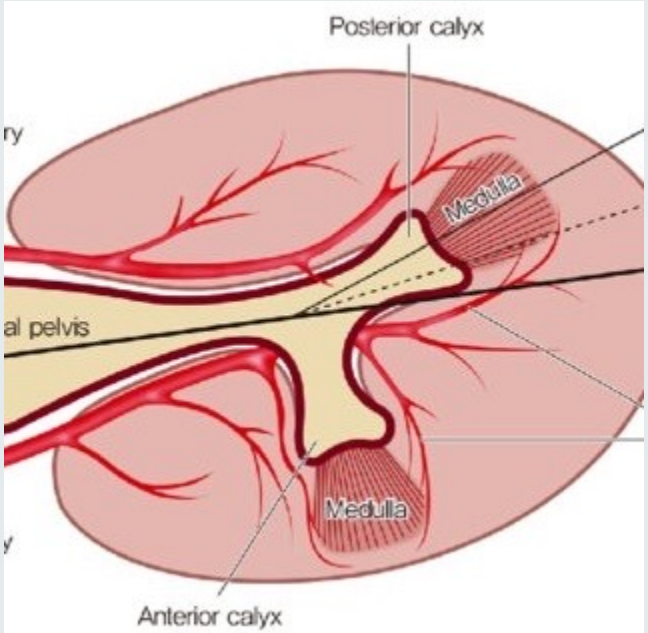


Perkutane Nephrolitholapaxie



PNL: Komplikationen





PNL + URS KOMBINIERT

ECIRS

ECIRS

- **20-Jahre alt**
- **Zytinurie**
- ***Endoscopic combined intrarenal surgery***
  - URS: TLF
  - miniPNL: US-Bohrer (ShockPulse SE)

USZ Universitäts Spital Zürich

Entwicklungszusammenarbeit Urologie – Togo und USZ

Erfahrungen und Eindrücke

Projektleitung

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Le service d'Urologie Centre
hospitalier et universitaire de Kara
En face de l'agence
UTB BP 18, Togo

AIRFRANCE

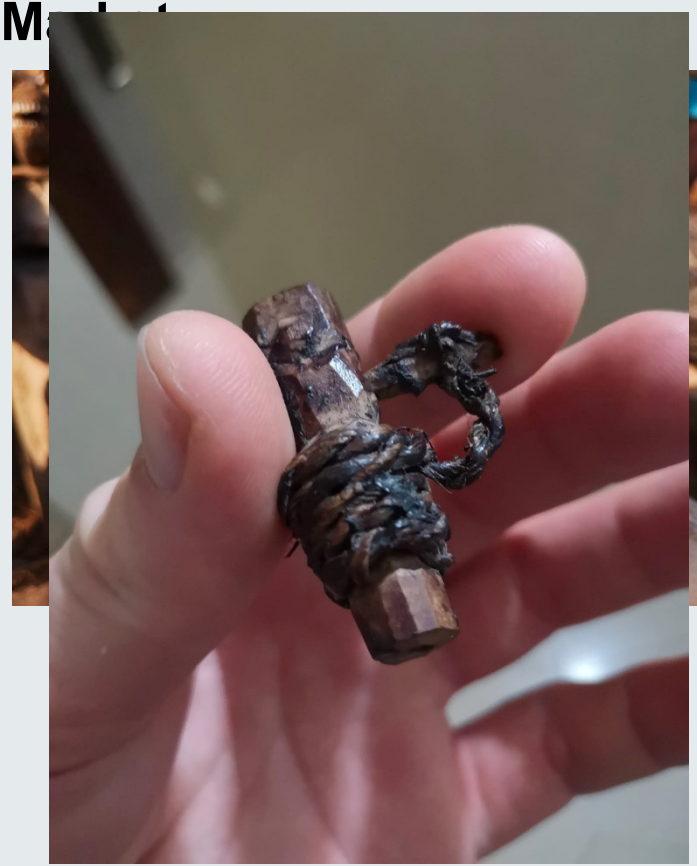
FRAGILE

Lets hit the road……..

Challenge 1

Der Zoll aka «Die Formulare des Monsieur Ahyee» aka Passagierschein A38

Last Ressort »Vodoo-Ma



Universität Zürich UZH
USZ Universitäts Spital Zürich

Vodoo oder – Wunder der Bürokratie ??

Ankunft im CHU KARA - CENTRE HOSPITALIER UNIVERSITAIRE

Und dem besten und musikalisten Driver von Togo

Dankeschön

@exkeller

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