

Retrieval Basket with coaxial integrated laser fiber for minimal invasive procedure in urology

Jessica Becker | 01/18/2021

EPIC Online Technology Meeting on Specialty Fiber and Fiber Sensors Applications

Endosmart GmbH

Location Karlsruhe, Germany

Founded 2002

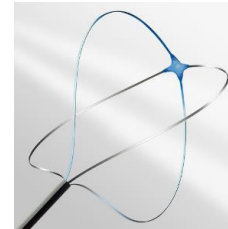
CEO & Owner Dr. Bernd Vogel

What we offer Development and Production of medical solutions out of Nitinol

Supporting customers in the registration process



Single use instruments



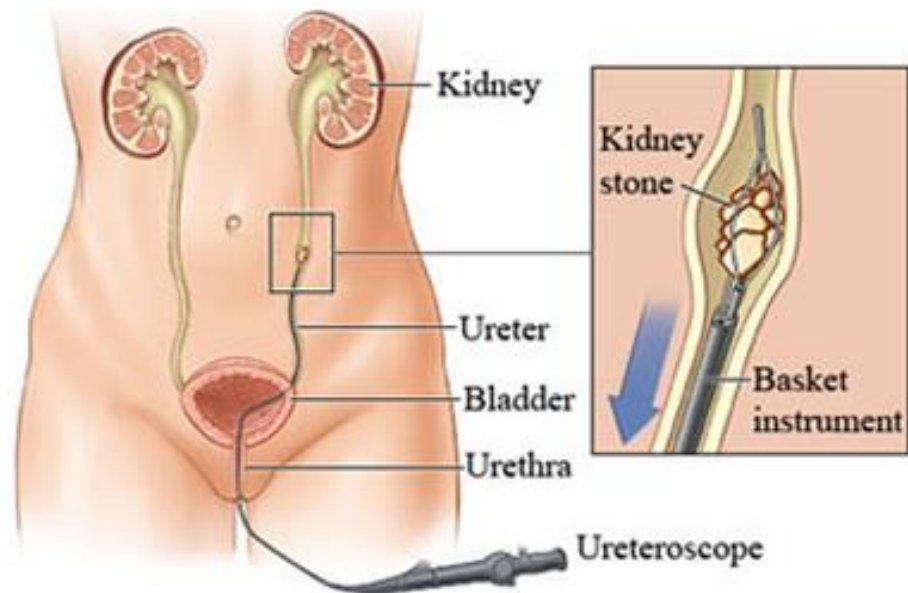
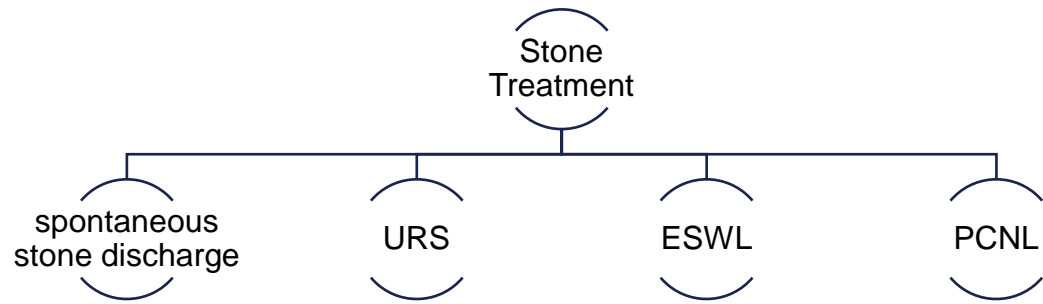
Reusable instruments



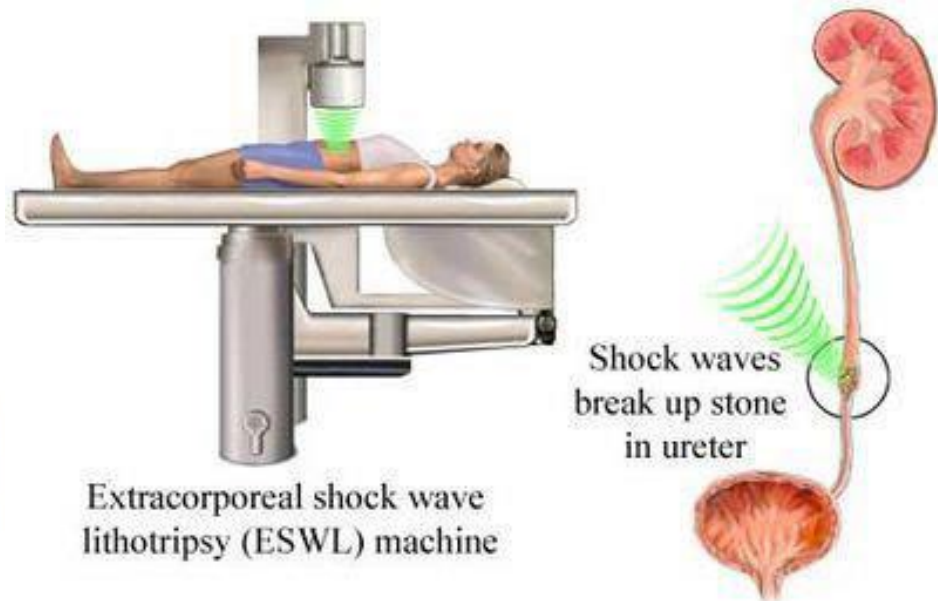
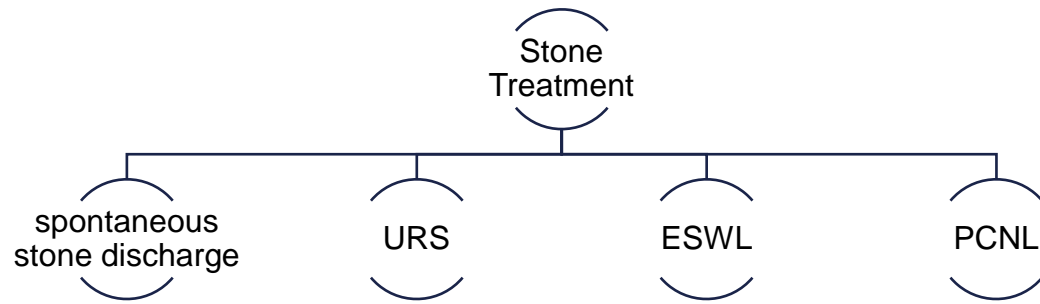
Implants



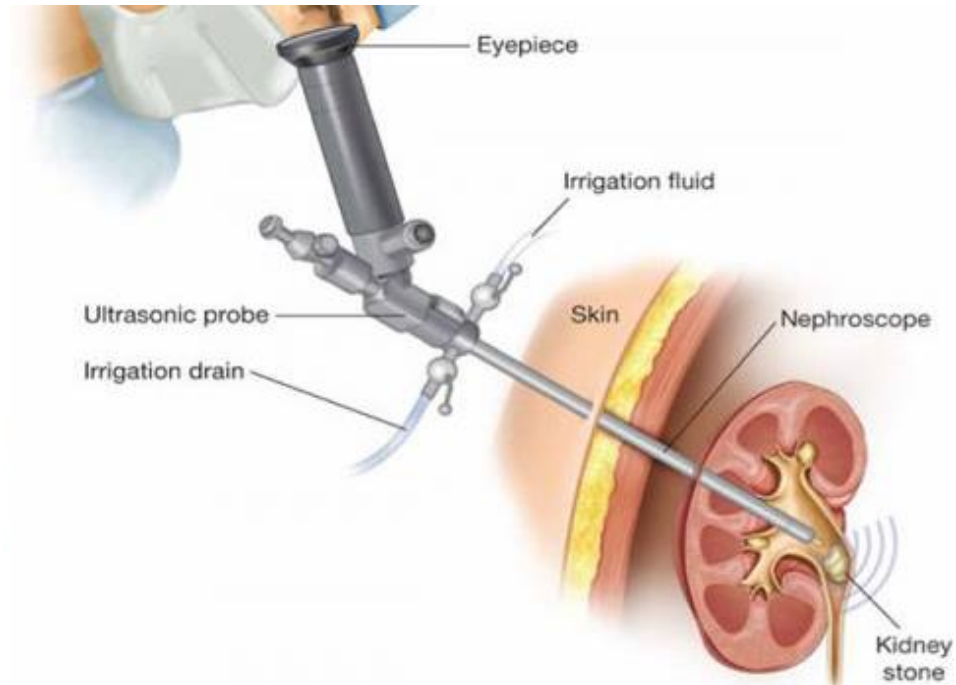
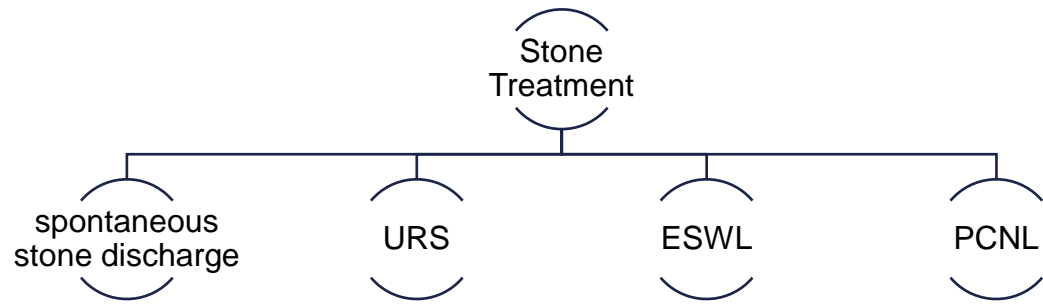
State of the art – removal of ureteral stones



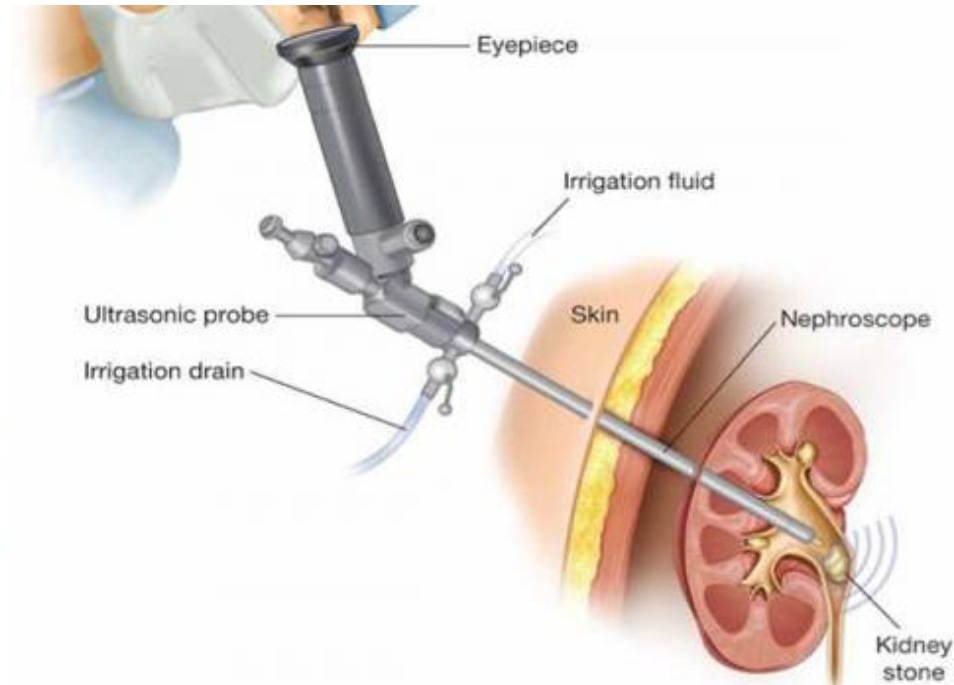
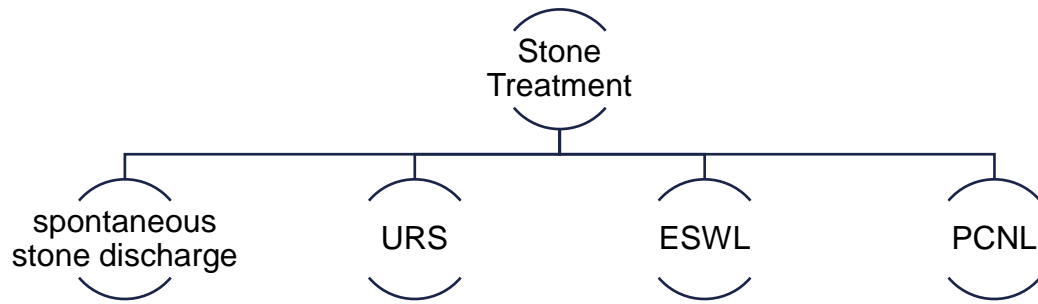
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State of the art – removal of ureteral stones



Intracorporeal Lithotripsy

- laser technology for stone treatment
- holmium laser (2100 nm)
- dusting: resulting particles are excreted naturally
- fragmentation: fragments are removed from the body with a retrieval device

Issue Fragmentation

- two devices are necessary → laser fiber + basket
- stones jumping through pulse wave → duration of surgery is increased



Development Endosmart

Retrieval Basket with coaxial integrated laser fiber for URS

Goal

- outer diameter of Basket: 1.9 FR (0.63mm)
- outer diameter of laser fiber: 0.20mm

Advantages

- exact positioning of retrieval basket and laser fiber
- captured stones can be fragmented centrally
- avoid „stone jumping“
- simplification of handling for the surgeon
- coaxial technique allows the use of more compact endoscopes → reduction of access trauma

General conditions laser fiber

- low-loss transmission of the power even under bending stresses of the fiber
- fracture stability
- good gliding properties

- Power 6-10 Watt
- Energy 0.6-1.5 Joule
- Frequency 5-10 Hertz

