

Overview of technical devices in CRS

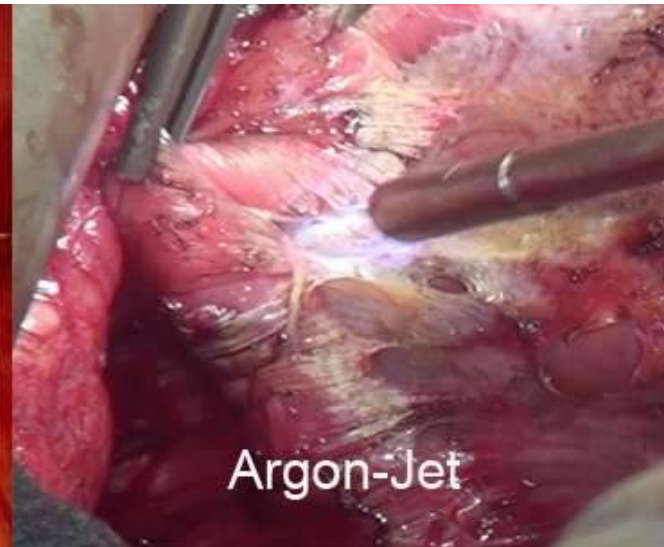
Prof.Dr.H.G.Rau, Th., 10:45

Technical Devices

- Scissor
- Blunt dissection
- Water jet
- High frequency momopolar
- High frequency bipolar (Scissor,Byclamp,Ligasure)
- Ultracision (Ultrasound)
- Thunderbeat (com bination of Ultrasound and High frquency bipolar)
- Argon jet



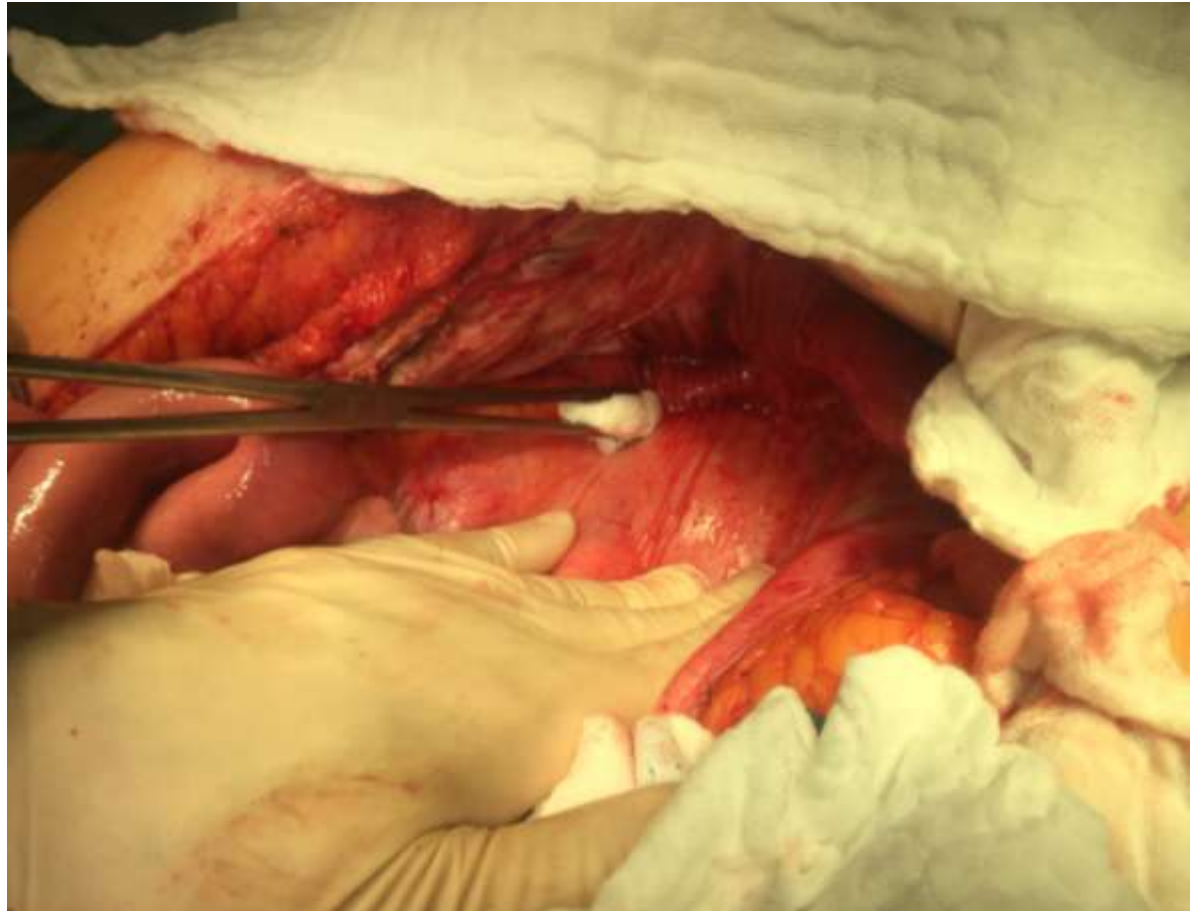
Technical Divices



Blunt Dissection

Best locations:

Diaphragma
Lateral abdominal wall
pelvis

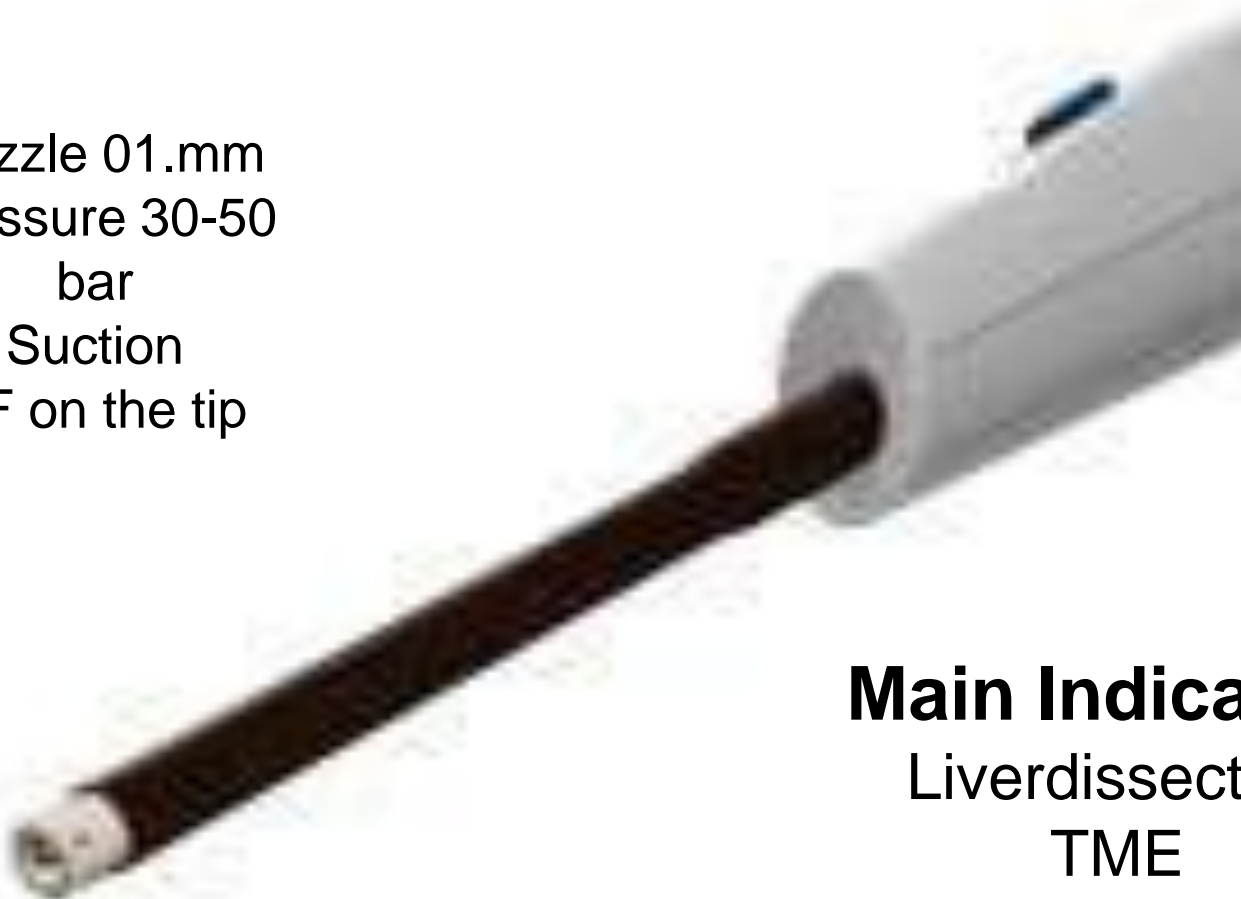


- Combination of
 - HF
 - Argonbeamer
 - Bicvlamp
 - Water-jet
 - Nossle 0,1 mm
 - Pressure 30-40 bar



Water-Jet

Nozzle 01.mm
Pressure 30-50
bar
Suction
HF on the tip



Main Indication
Liverdissection
TME
Deperitonealisation

Water-Jet

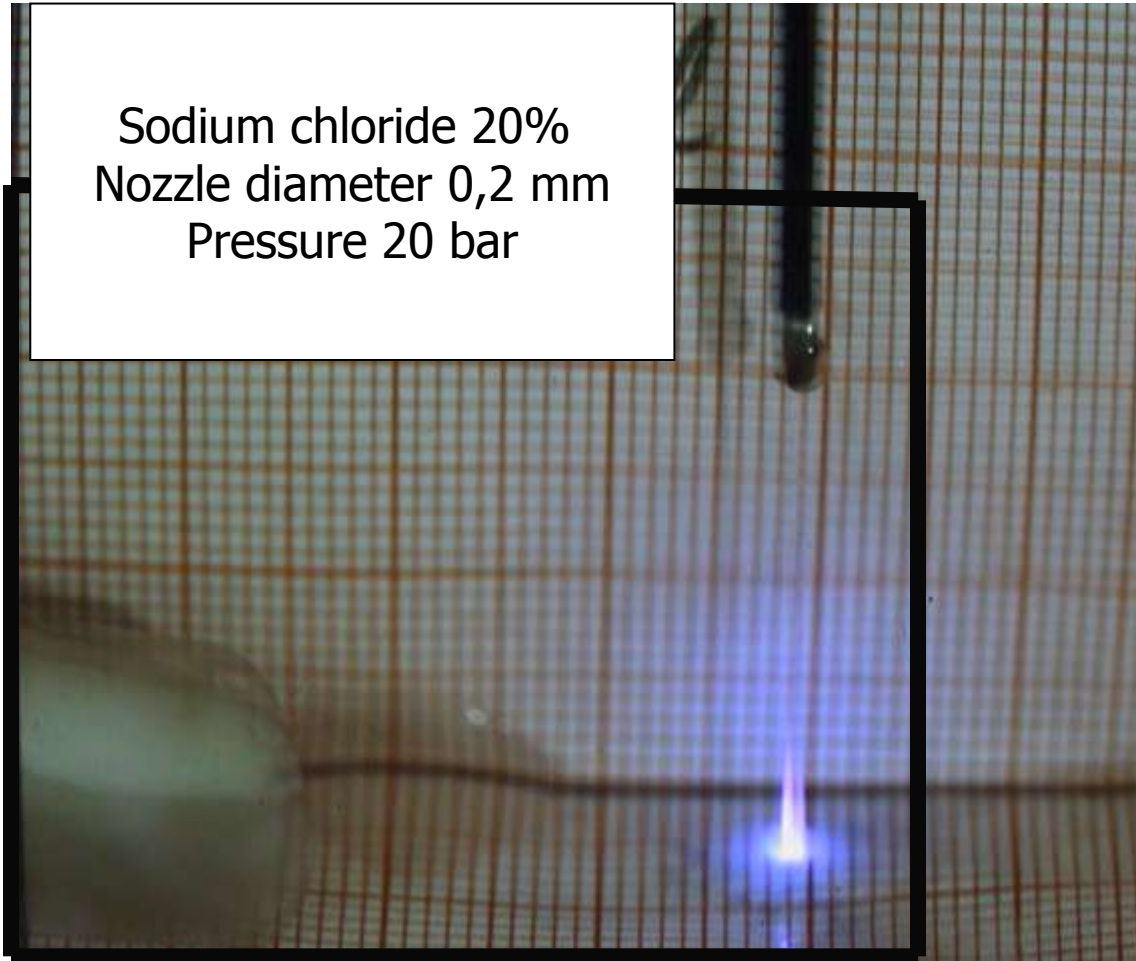
- **Best locations:**
- Diaphragma
- Lateral abdominal wall
- pelvis



Combination with high frequency-coagulation



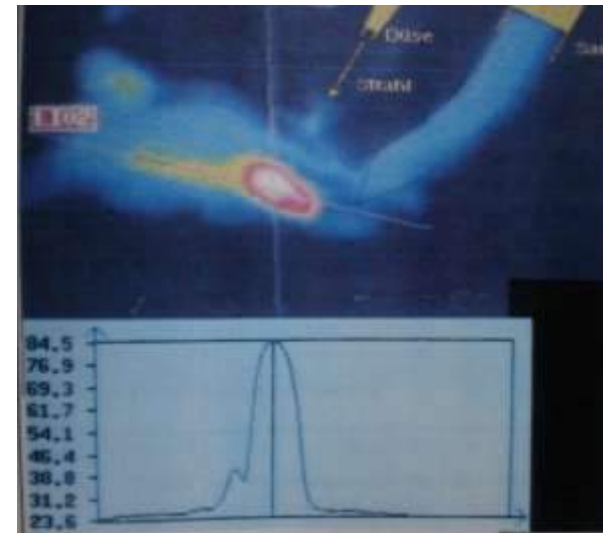
Sodium chloride 20%
Nozzle diameter 0,2 mm
Pressure 20 bar



Water jet and HF

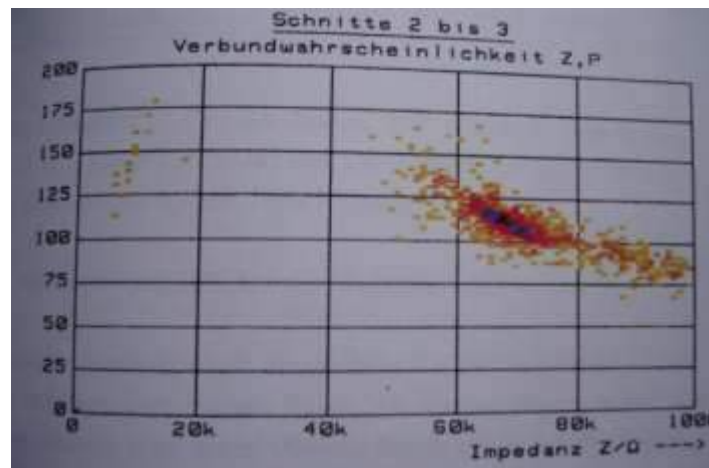


Liver cut
HF-Jet

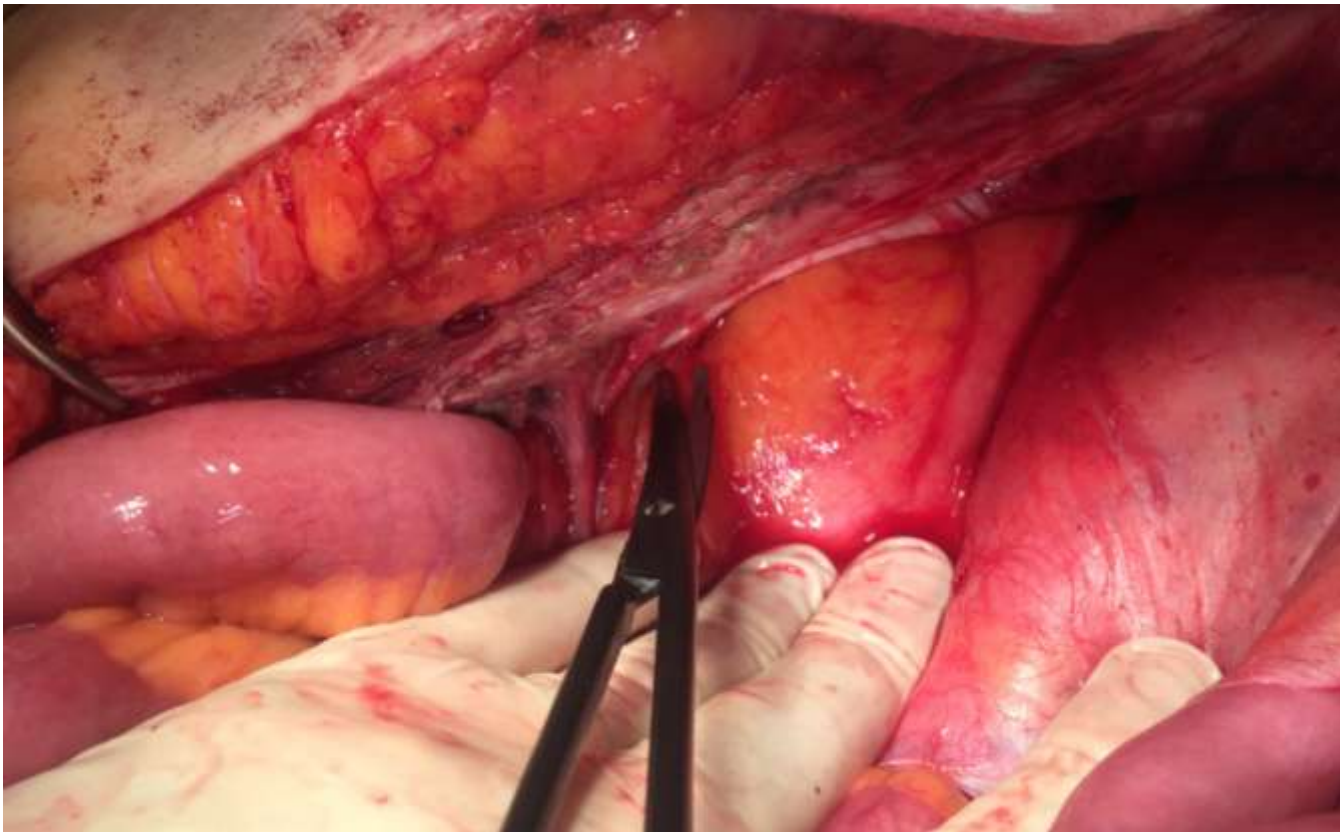


Infrared measurement
of temperature

Impedance and power



Bipolar scissor



Dissektionstechniken



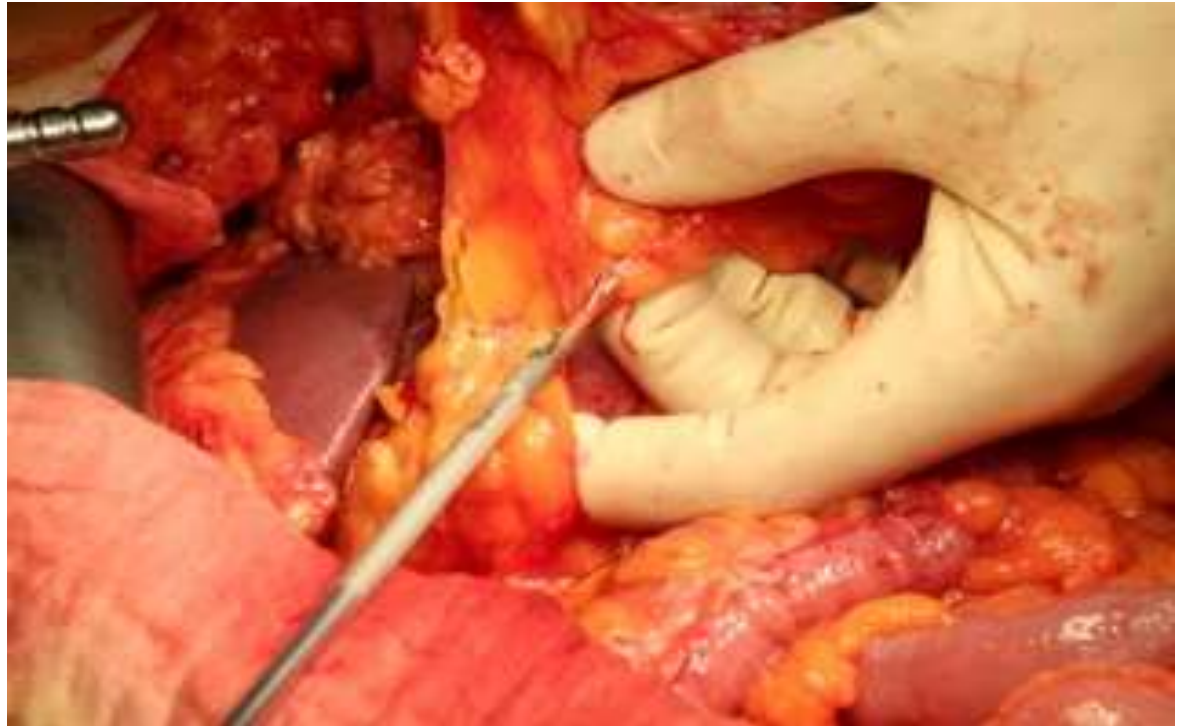
Vesselsealing Ultrasound Bipolar HF



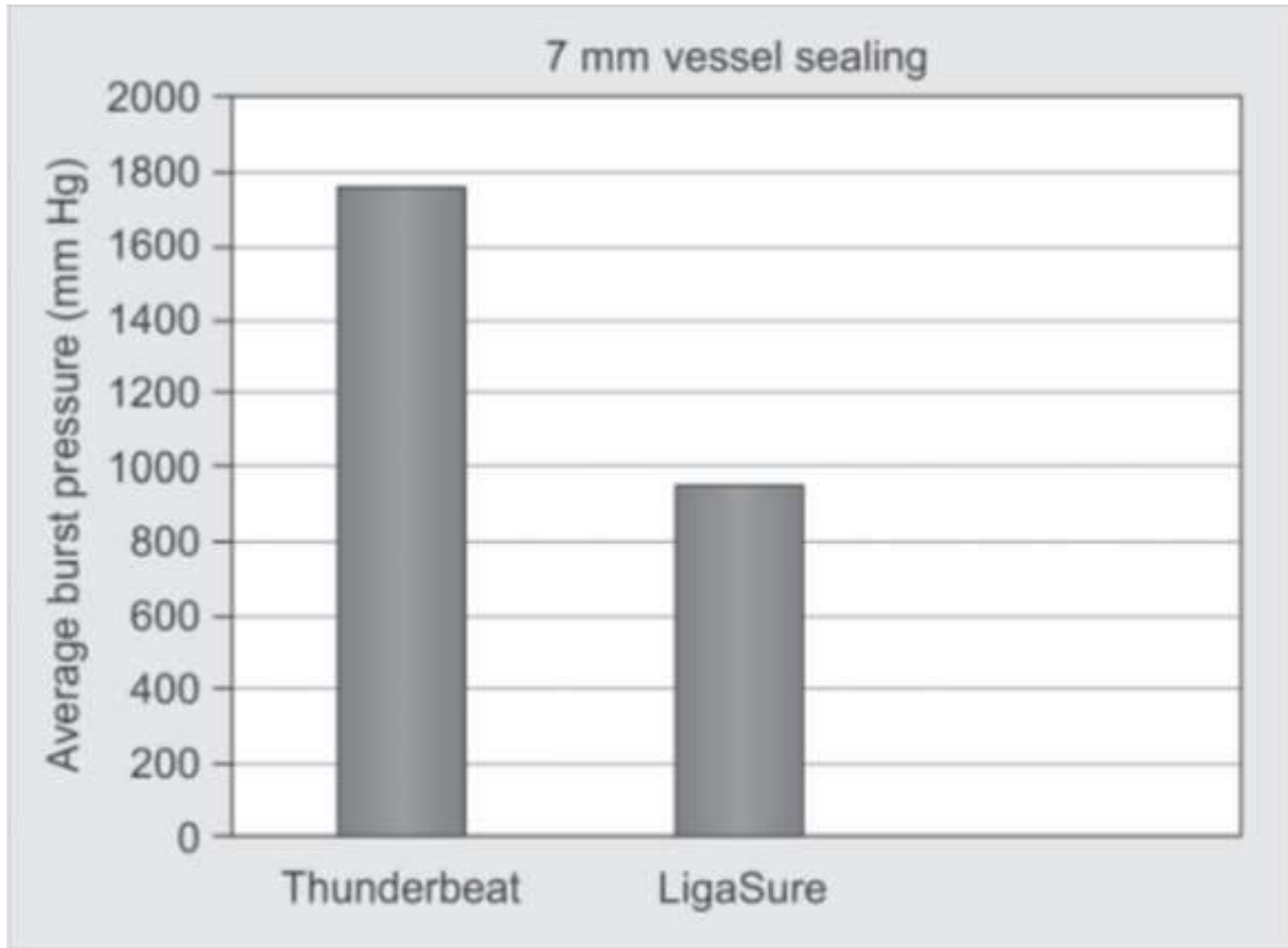
Einsatzgebiet
 Ablösen des Omentum majus
 Dissektion des Mesos
 Parenchydissektion (Leber)

Vessel sealing Ultracision

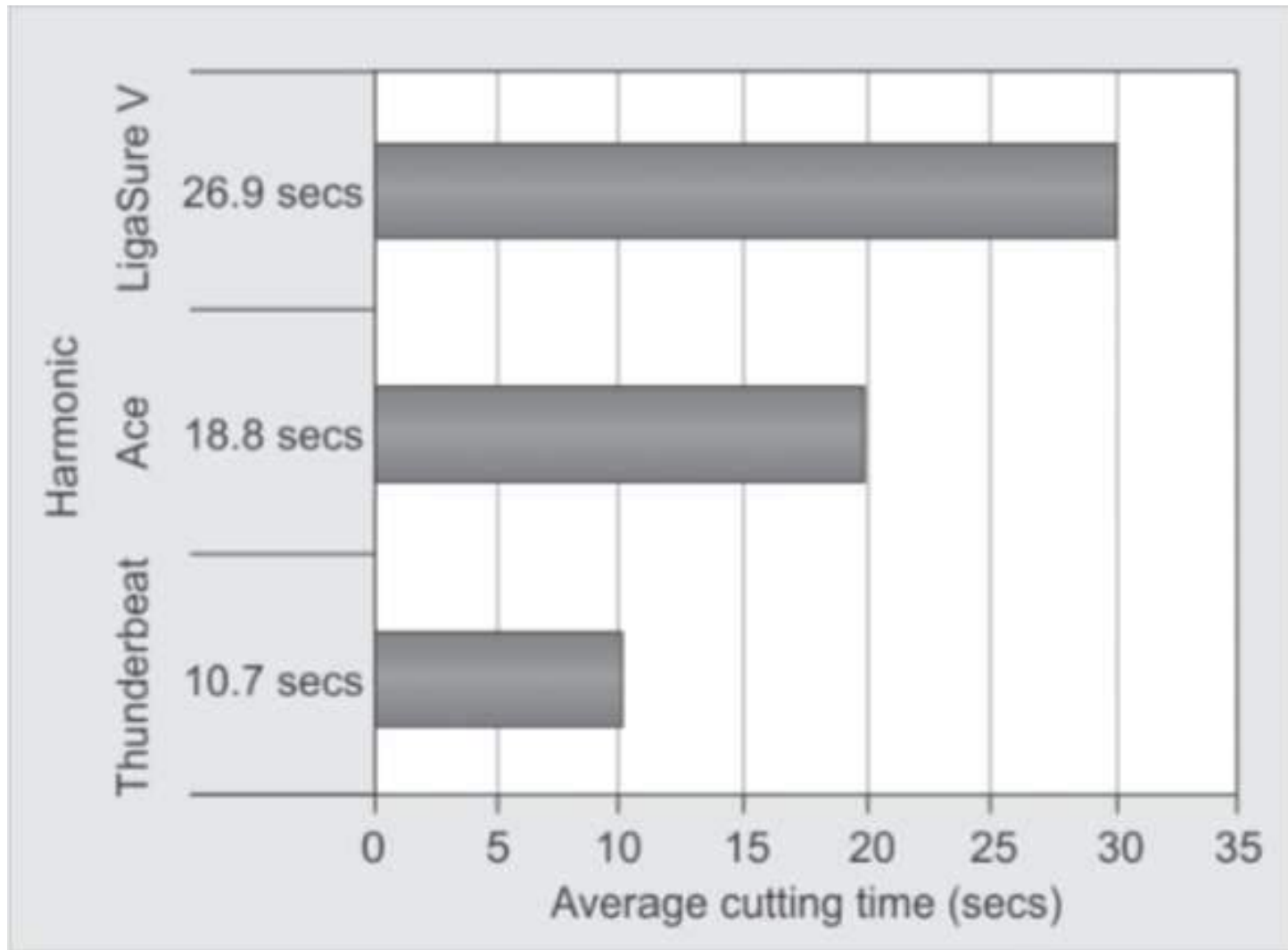
- 5mm Instrument
- Vesselsealing up
- to a Diameter of
- 3 cm



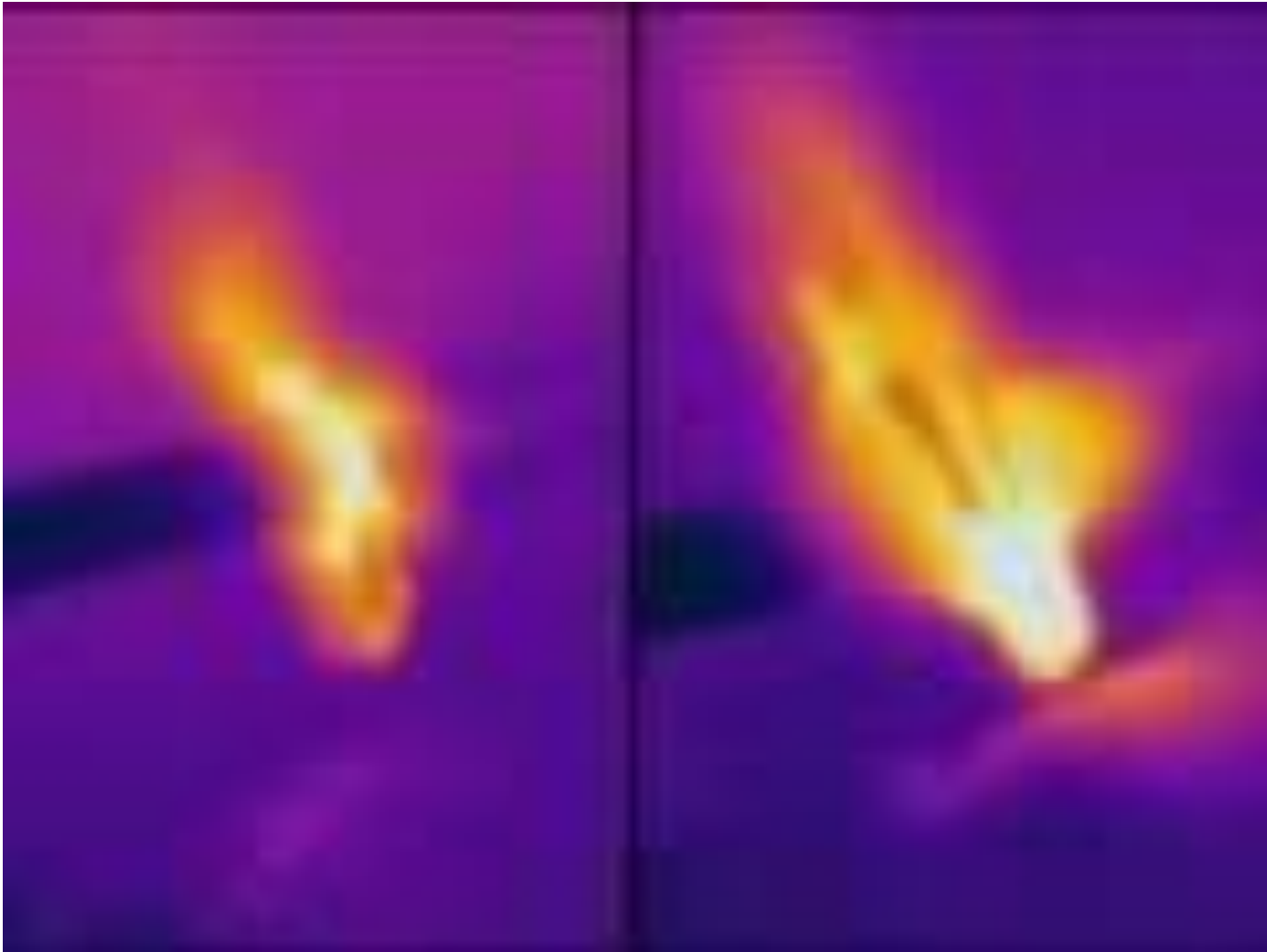
Differences in bursting pressure



Differences in duration of surgery



Thunderbeat vs. Ligasure thermal spread



Differences in visibility, operation time burst pressure and thermal spread



<i>Energy system</i>	<i>Visibility</i>	<i>Operation time</i>	<i>Burst pressure</i>	<i>Thermal spread</i>
Thunderbeat	Unimpaired visibility	Fastest in class cutting	Highest mean burst pressure	Least lateral thermal spread
LVSS	Smoke production affecting visibility	Slow surgery	Moderate mean burst pressure	2 mm lateral thermal spread
HS	Mist production affecting visibility	Slower surgery	Lowest mean burst pressure	Less than 1 mm thermal spread

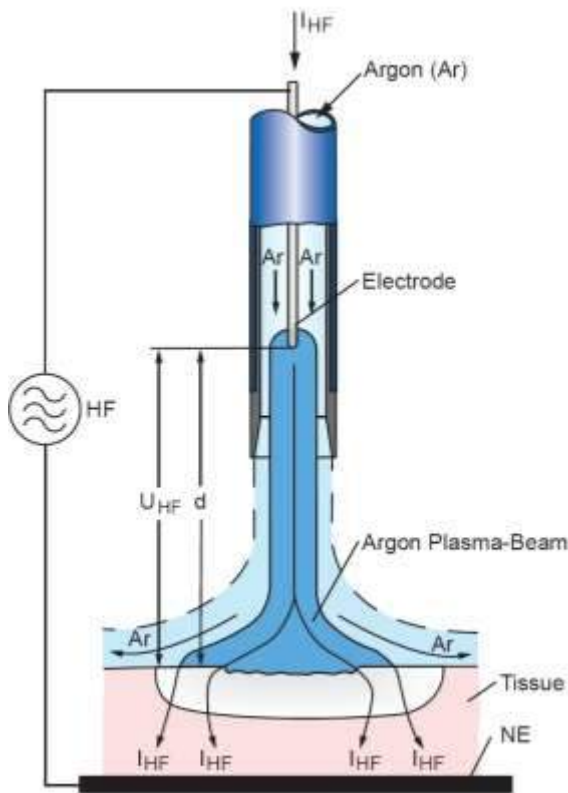
George Chilaka Obonna, RK Mishra

10.5005/jp-journals-10033-1215

Argon beamer

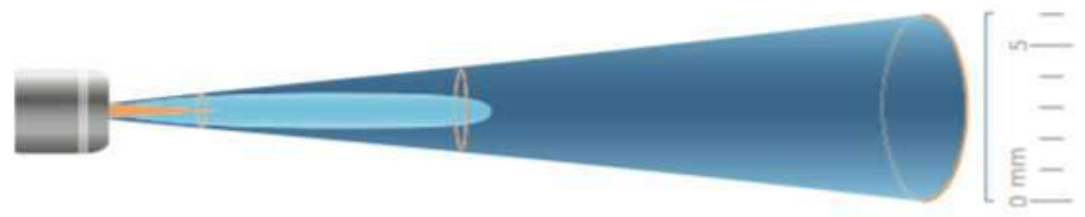
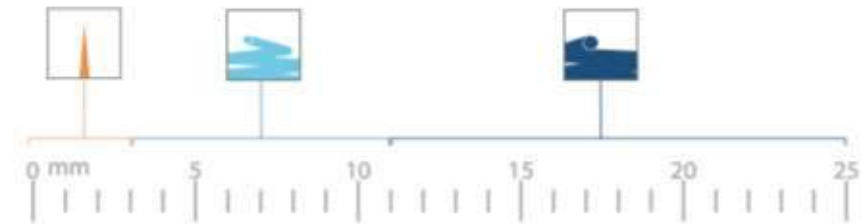
PLASMACHIRURGIE = "APC" (Argon Plasma Coagulation)

- Argongasstrom zwischen Elektrode und Gewebe
- .. wird durch hohe Spannung zum Plasma
= Nonequilibrium- oder "kaltes" Plasma
- Plasma dient als Stromleiter zwischen Elektrode und Gewebe
- Strom erwärmt Gewebe endogen
= Monopolares Verfahren





<p>INZISION</p> <p>3 mm x 1 mm</p> <p>Präziser und effektiver Inzisionsbereich</p>	<p>ABLATION</p> <p>11 mm x 2,5 mm</p> <p>Ablationsgewebe mit minimaler Wärmeausbreitung</p>	<p>KOAGULATION</p> <p>25 mm x 6 mm</p> <p>'Umhüllende' Koagulation umgibt die Inzisions- und Ablationsbereiche</p>
---	--	---







Vielen Dank!

HELIOS Kliniken

www.helios-kliniken.de

Jeder Moment ist Medizin