

Nové možnosti lokální destrukce nádorů pankreatu

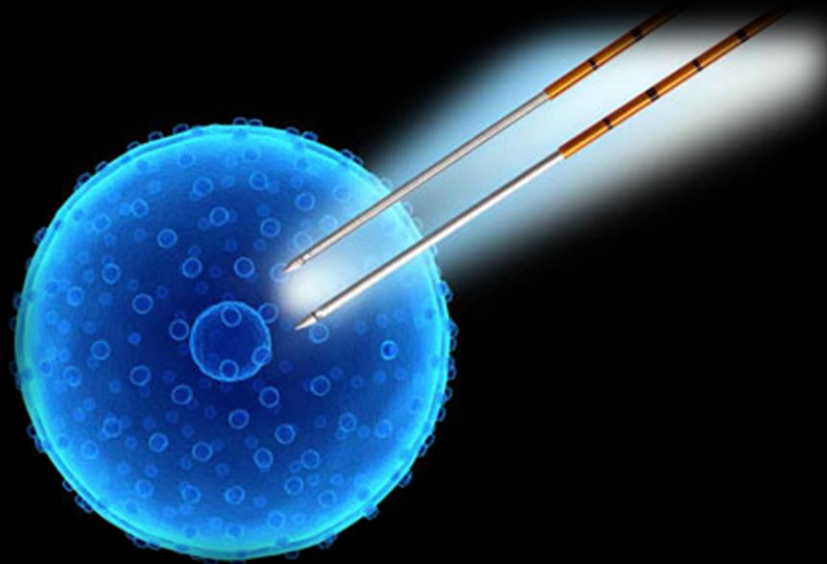
Chirurgická Klinika LFMU FN Brno Bohunice



Kala Z., Hlavsa J. et. Al.

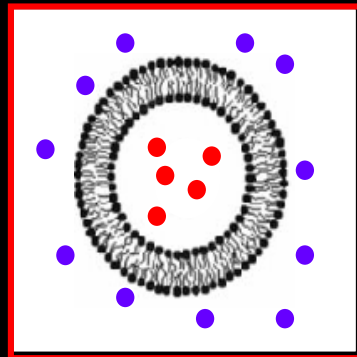
NanoKnife

Ireverzibilní Elektroporace



What is ELECTROPORATION?

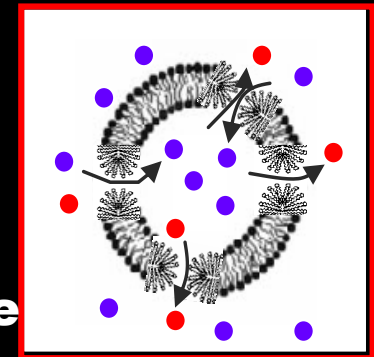
1. Technique that increases the permeability of cell membranes by changing the transmembrane potential resulting in disruption of the cell membrane



Intact Cell
Membrane

Electroporation

**Application of short pulse
high-voltage DC current**



Disruption
of
Cell Membrane

Technique (Electroporator)

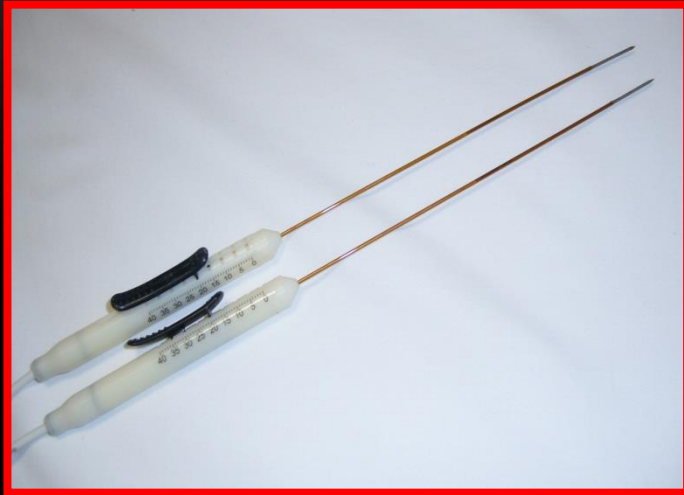


➔ Generator (AngioDynamics)

- Energy output - 3kv, 50 amp maximum energy output

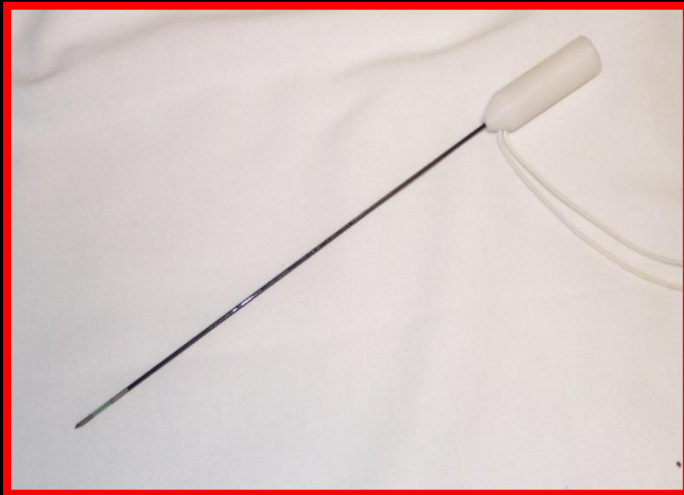
- Default treatment parameters for 2, 3 and 4 cm treatment zones. Plus a “custom” section that allow the physician to design treatment arrays

Technique (Probe)



➡ Single probe x 2

- 19 gauge needle
- Echogenic surface
- Maximum depth = 15 cm
- 1.5 cm spacing = 2 x 3 x 3 ablation zone



➡ Bi-polar probe

- 16 gauge needle
- Echogenic surface
- Maximum depth = 18 cm
- Single probe = 2 x 2 x 3 ablation zone

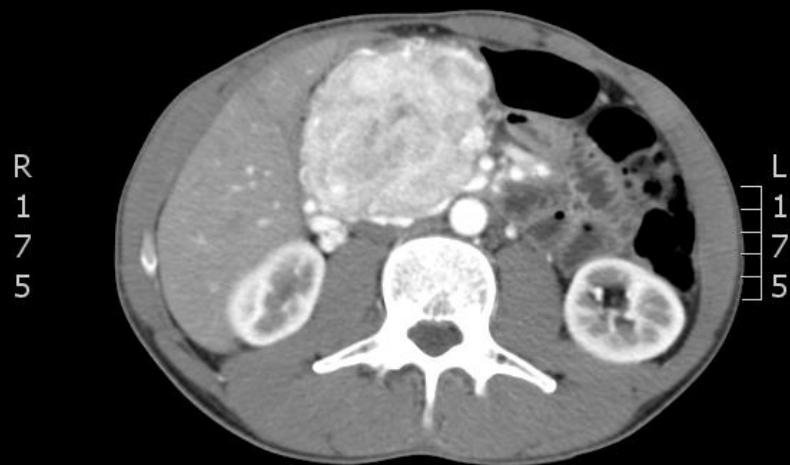
VLASTNÍ SOUBOR

$n=4$

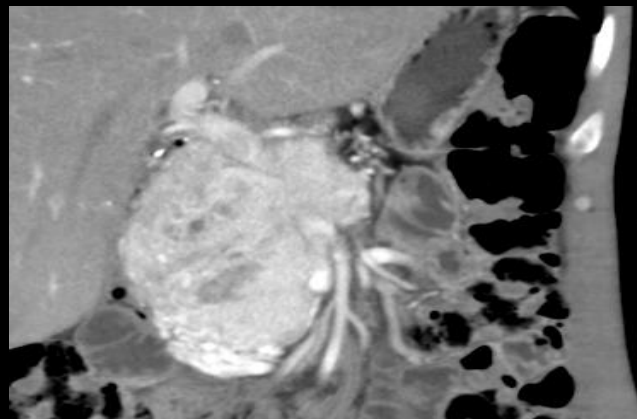
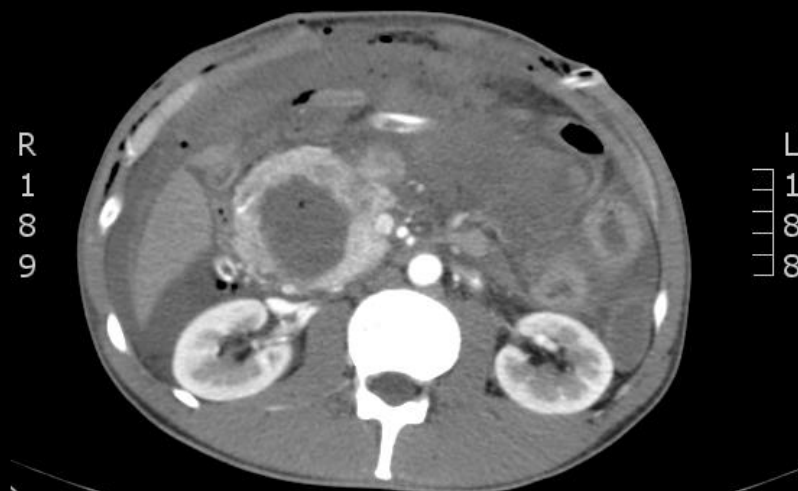
- 1x PNET gr. II
- 3x DA

Muž 38 let

Před



7 dní po



Muž 62 let

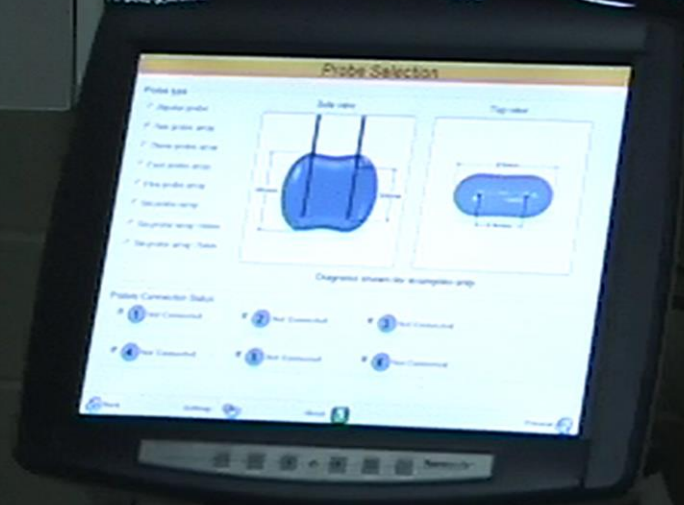


Před



7 dní po





Muž 52 let

Před

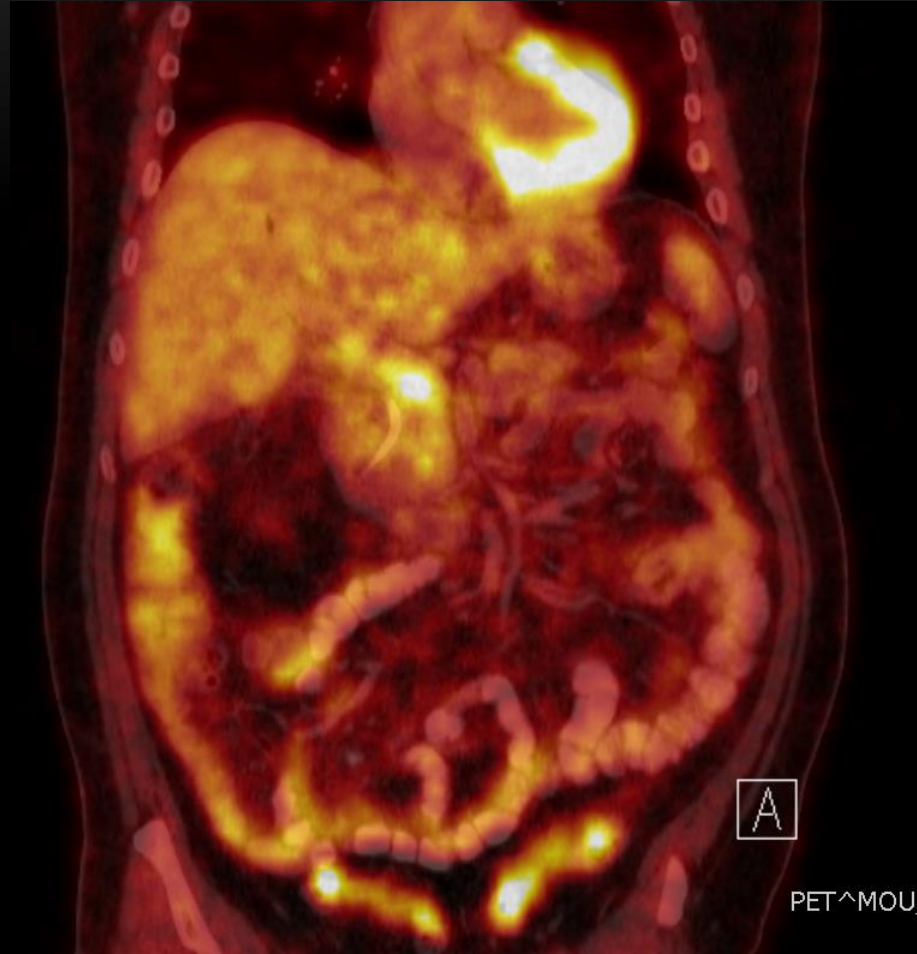


7 dní po

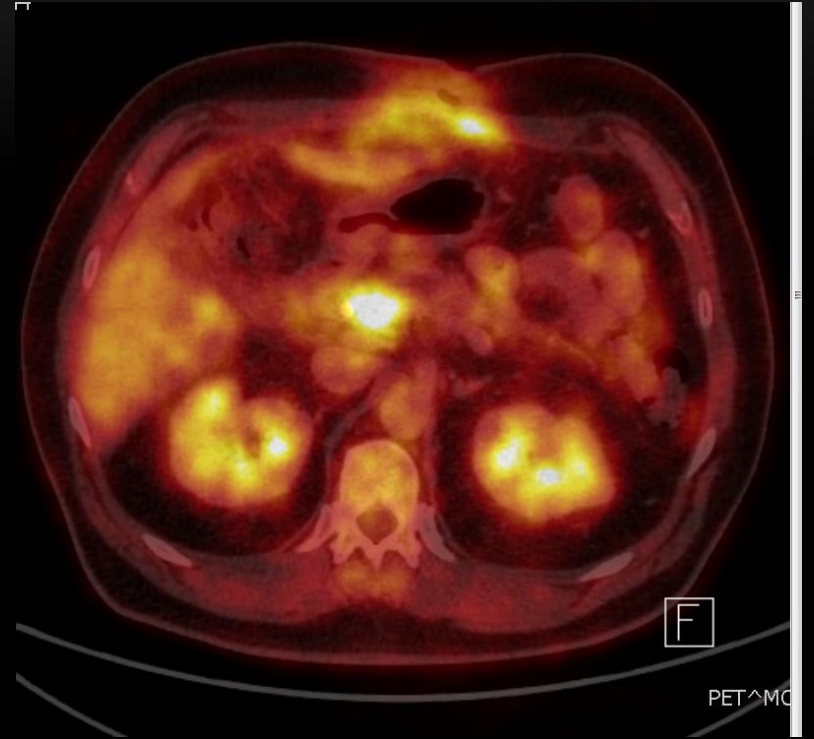
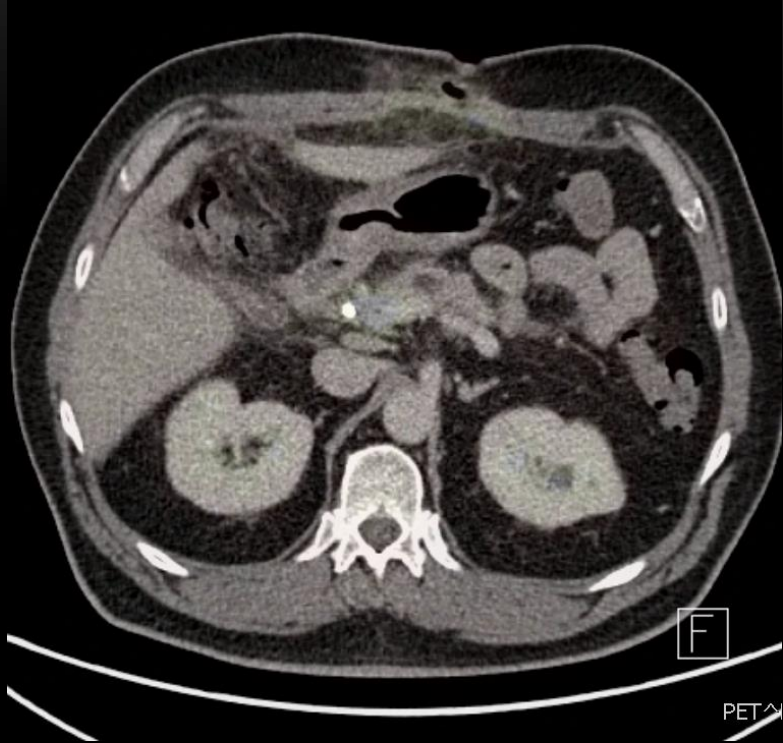


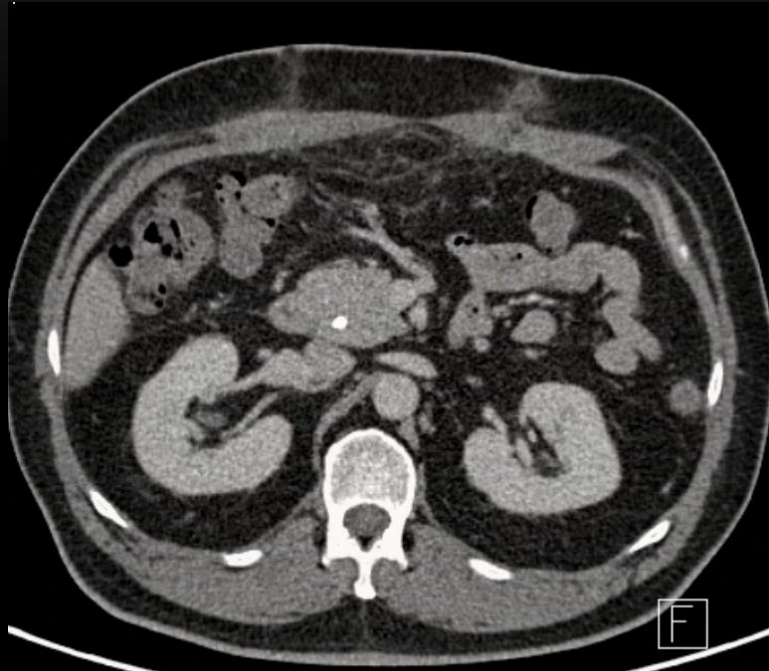


PET^



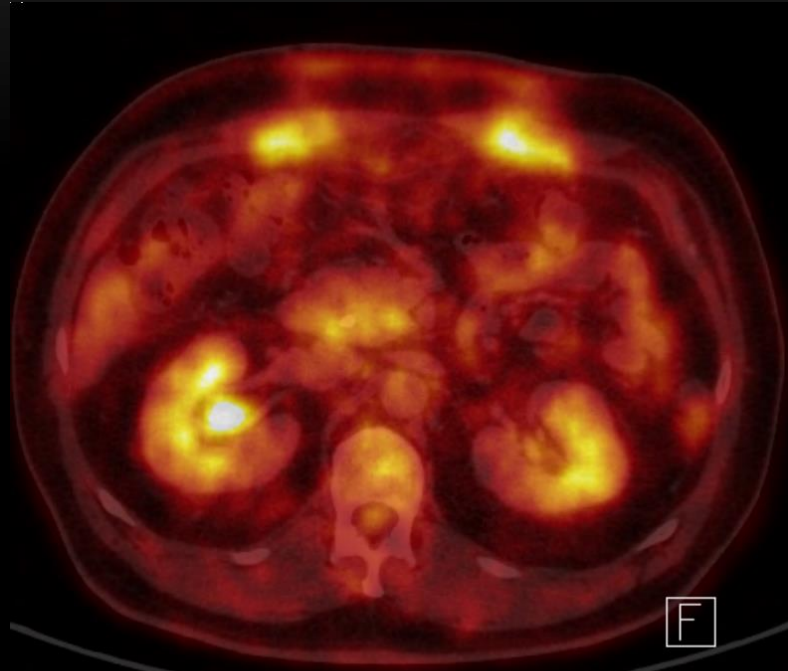
PET^MOU





F

PET^M



F

PET^MC

BUDOUCNOST

Ireverzibilní elektroporace u karcinomu pankreatu ??

Skepse

Biologické vlastnosti karcinomu pankreatu

Minimal residual disease

- **Histologická negativita uzlin nemusí být pravdivá**
(z 22 histologicky negativních uzli / 16 RT-PCR (K-Ras) pozitivních).
- **Mikrometastázy v kostní dřeni**
(24 pacientů podstoupilo R0 resekci / 16 z nich mělo mikrometastázy v kostní dřeni).
- **Mikrometastázy v játrech**
(17 pacientů bez patrných meta jater / 13 z nich PCR (K-Ras) verifikované mikrometastázy).

Demeure MJ et. Al., Cancer. 1998 Oct 1;83(7):1328-34.

Thorban S et. Al., Zentralbl Chir. 1996;121(6):487-9; discussion 490-2.

Inoue S et. Al., Jpn J Cancer Res. 1995 Jul;86(7):626-30.

BUDOUCNOST

- IRE u lokálně pokročilých neuroendokrinních nádorů

Optimismus

Alternativa debulking resekce ??

DĚKUJI ZA POZORNOST