

# Transanální operace Wolfovým rektoskopem

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**TEMS**

**Transanal Endoscopic  
MicroSurgery**

# TEMS

- Endoskopická
- Miniinvazivní
- Mikrochirurgická
- Transanální
- Stereoptická - 3D



TEM Instrument System  
for Transanal Endoscopic Microsurgery

# TEMS

- Gerhard Buess
- 1983
- Tübingen



- Buess G, Hutterer F, Theiss J, Bobel M, Isselhard W, Pichlmaier H. [A system for a transanal endoscopic rectum operation]. Chirurg. 1984;55:677-80

# TEMS - instrumentarium



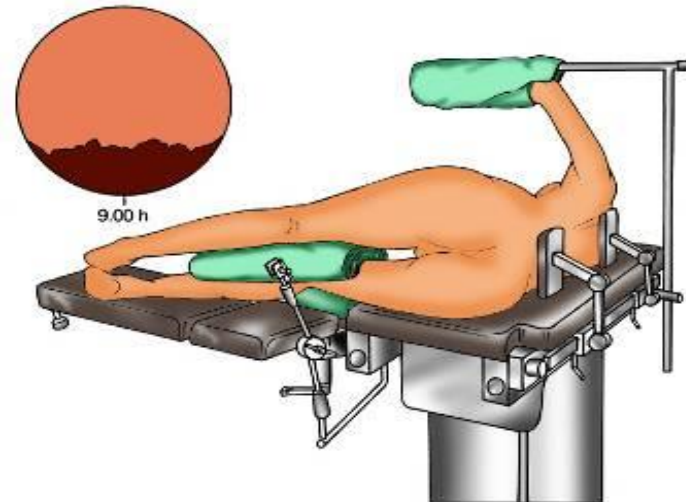
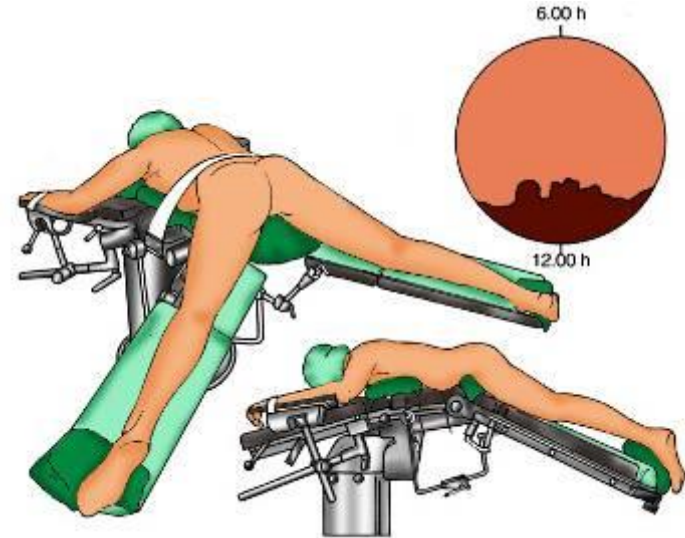
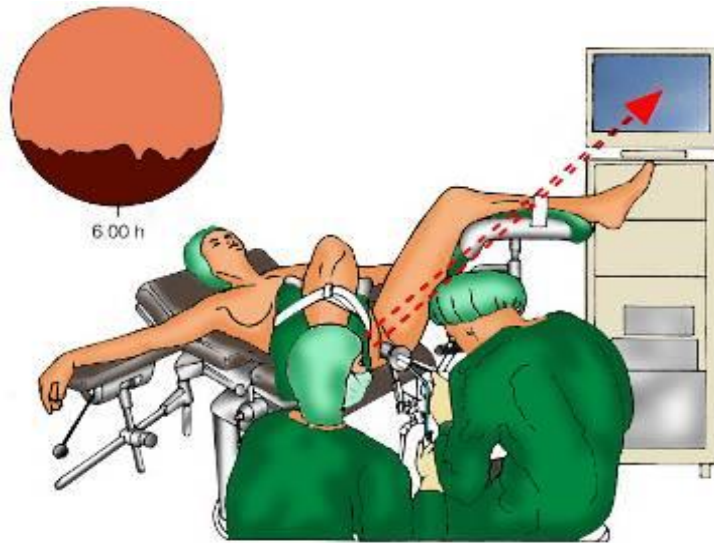
# Technika vyžaduje speciální edukaci operatéra



## Harmonický skalpel

- Snížení krvácení
- Přehlednost
- Zkrácení operace

# TEMS – poloha pacienta



# TEMS - anatomické možnosti

- Přední stěna 12cm
- Laterální stěna 15cm
- Zadní stěna 20cm
- „Resekce na volném střevě“
- „Cirkulární léze“



# TEMS - indikace

- **Benigní**

*polypy*

*adenomy*

*karcinoidy*

*stenozy*

*vysoká píštěl*

*endometrioza*

*abscesy*

*prolapsy*

*cévní dysplazie*

- **Maligní**

*adenokarcinom*

- kurabilní

Tis, T1N0M0 G1-2 L0

- Podmíněně kurabilní

T2N0M0 G1-2 L0

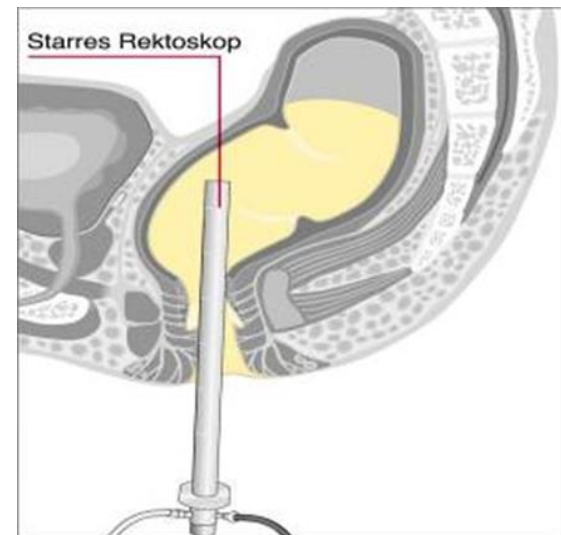
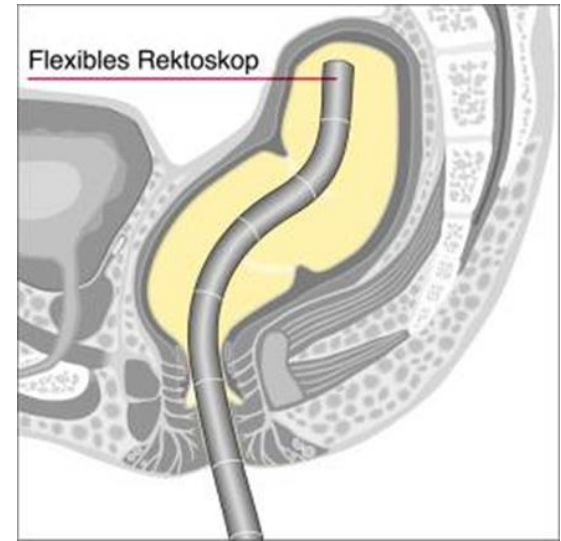
- Paliativní

high-risk Ca T1, T2

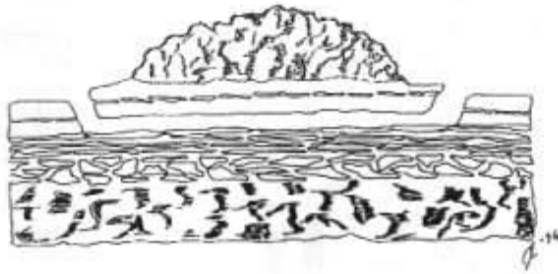
T3, T4

# TEMS – diagnostika

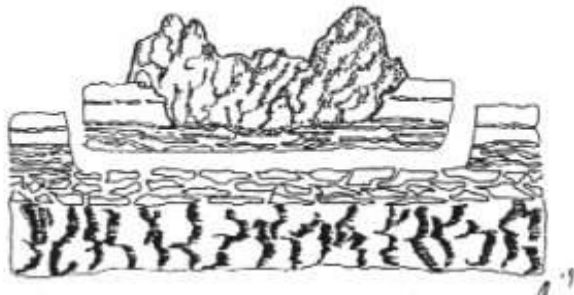
- **Per rectum !!!**
- Kolonoskopie
- Rektoskopie
- Biopsie – histologie
- EndoUZ
- MRI?
- CT plic
- CT břicha
- Onkomarkery
- PET/CT při susp. na meta postižení ?



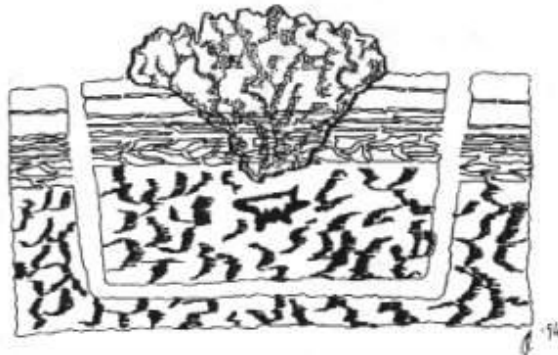
# TEMS - resekce



submukozní resekce



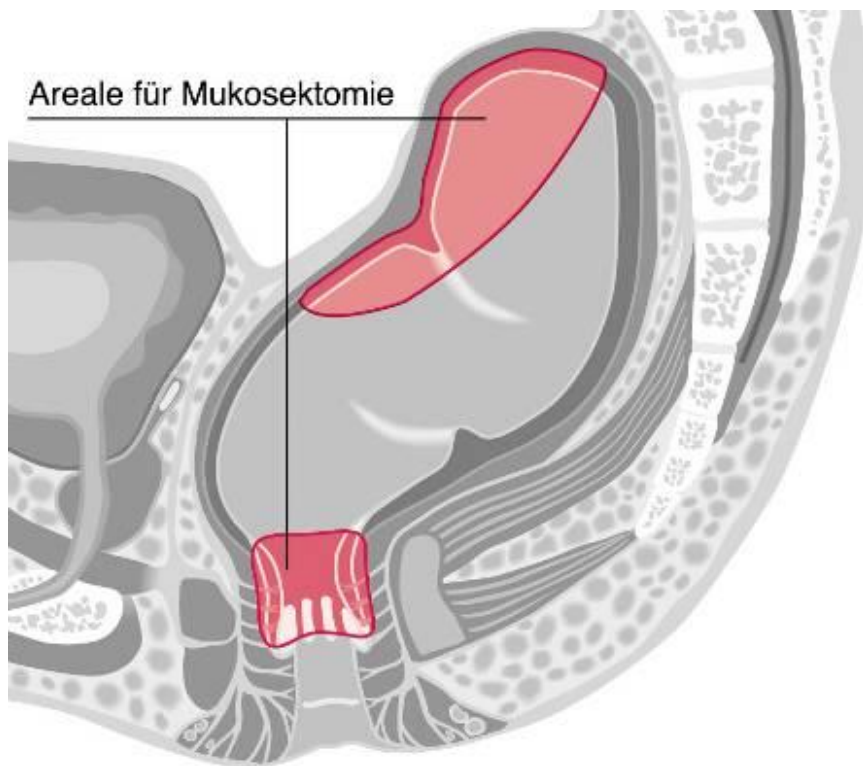
parciální resekce



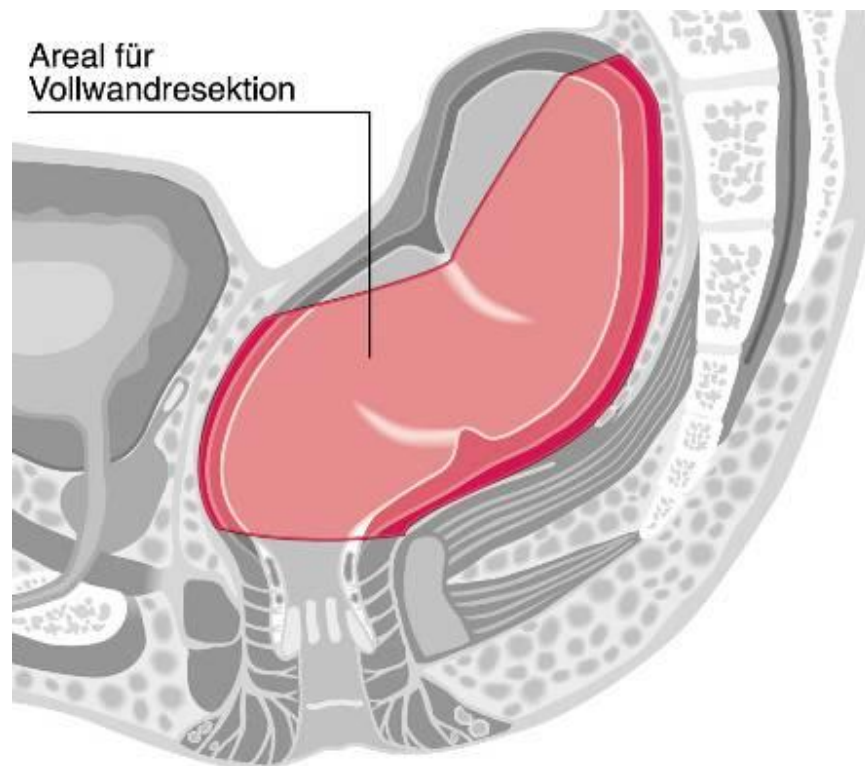
resekce celé stěny

# Zóny resekcce

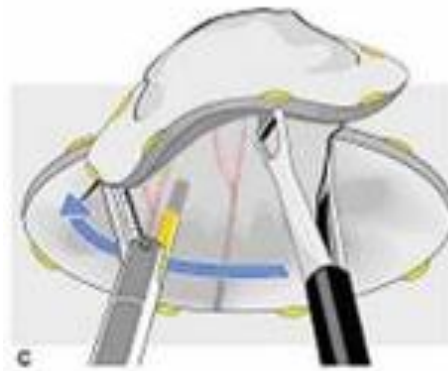
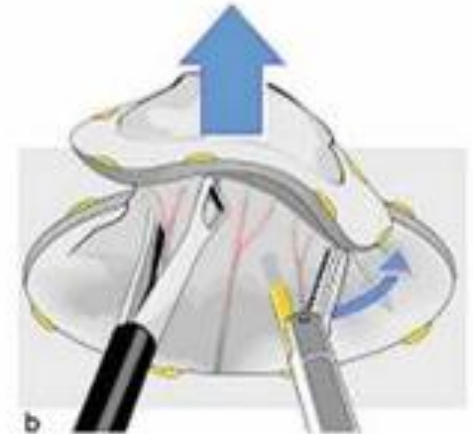
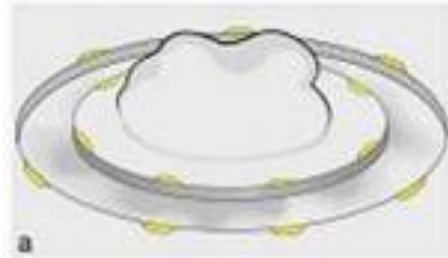
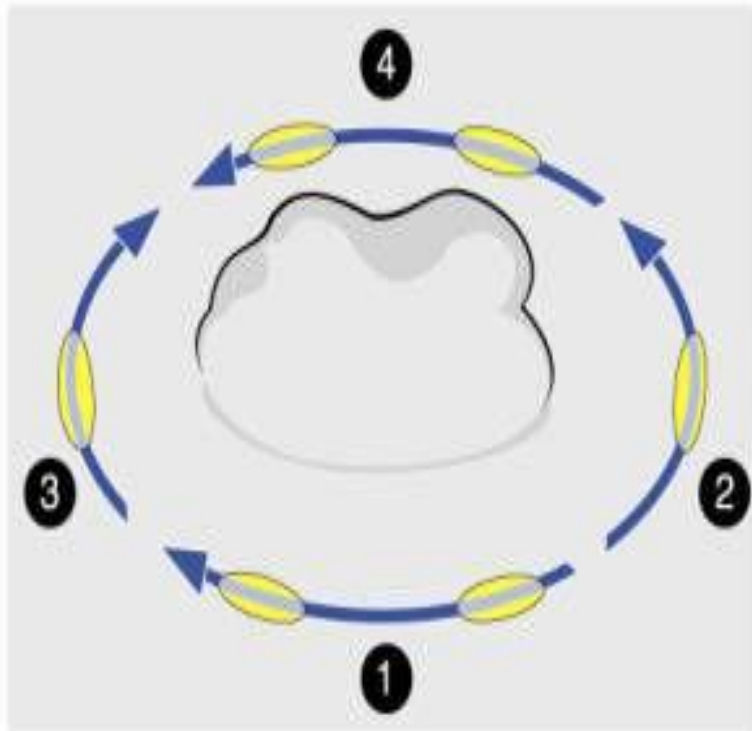
Zona parciální resekcce



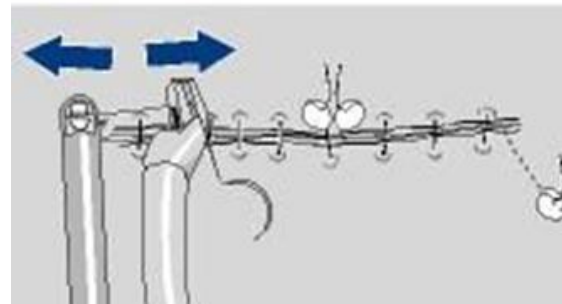
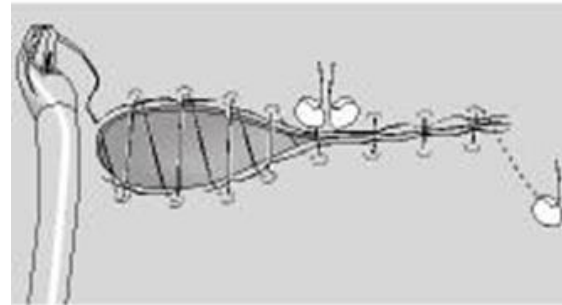
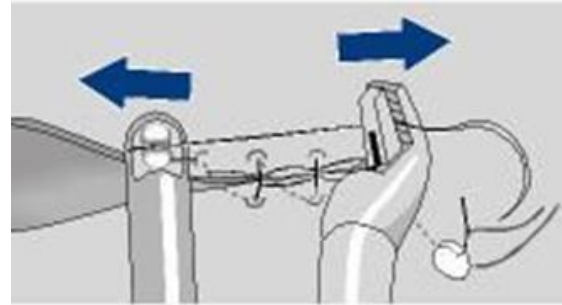
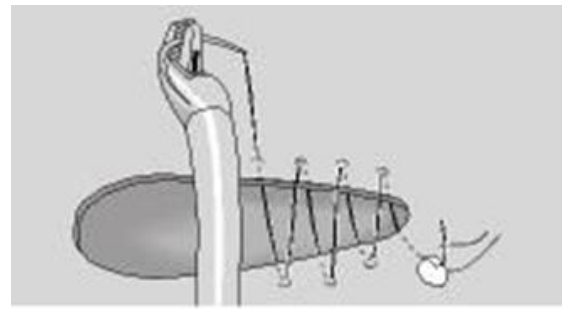
Zona transmurální resekcce



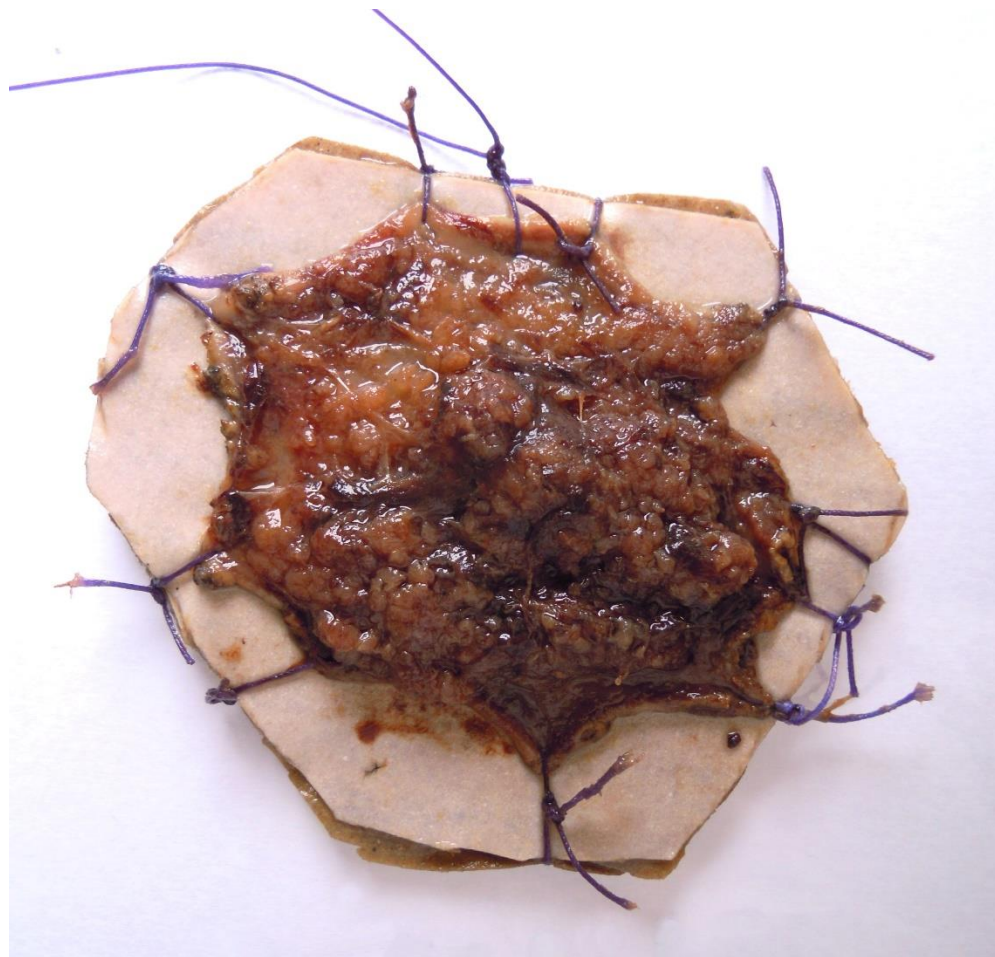
# TEMS – technika resekce



# TEMS technika sutury



# Preparát



# TEMS - adenomy

TEM x TAE x ESD x EMR

- **Early local recurrence after single intervention in the EMR series was significantly higher than in the TEM series (11.2 vs 5.4%, respectively; P=0.04)**

*Barendse RM, van den Broek FJC, Dekker E et al. Systematic review of endoscopic mucosal resection versus transanal endoscopic microsurgery for large rectal adenomas. Endoscopy 2011;43:941–55.*

- **They reported a significantly higher local recurrence rate after TE than after TEM (31.5 vs 8.8%, respectively).**

*Langer C, Liersch T, Su ss M et al. Surgical cure for early rectal carcinoma and large adenoma: transanal endoscopic microsurgery (using ultrasound or electrosurgery) compared with conventional local and radical resection. Int J Colorectal Dis 2003;18:222–29.*



# TEMS - adenomy

## TEM x TE x ESD x EMR

- **ESD is an effective procedure for treating noninvasive non-polypoid colorectal tumors. These tumors may be difficult to resect en bloc by conventional EMR. The use of ESD results in a higher en-bloc resection rate and is less invasive than surgery.**

*Colorectal endoscopic submucosal dissection: Technical advantages compared to endoscopic mucosal resection and minimally invasive surgery Yutaka Saito,1 Masayoshi Yamada,1 Eriko So,1 Seiichiro Abe,1 Taku Sakamoto,1 Takeshi Nakajima,1 Yosuke Otake,1 Akiko Ono<sup>2</sup> and Takahisa Matsuda<sup>1</sup> <sup>1</sup>Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan; and <sup>2</sup>Digestive Diseases Department, Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain*

- **The ESD procedure appears to be a safe technique, but TEM achieves a higher R0 resection rate when performed in full-thickness fashion, significantly reducing the need for further abdominal treatment. The R0 resection rate was 74.6 % (95 % CI 70.4–78.4 %) for the ESD patients versus 88.5 % (95 % CI 85.9–90.6 %) for the TEM patients (P\0.001).**
- *Systematic review and meta-analysis of endoscopic submucosal dissection versus transanal endoscopic microsurgery for largenoninvasive rectal lesions Alberto Arezzo Received: Surg Endosc (2014) 28:427–438*

# TEMS - karcinom rekta indikace

- Tis, T1N0M0, G1-2, L0, V0, PNI 0
- Velikost  $\leq 3\text{cm}$
- Okraje min.3mm
- Vzdálenost max. 8-12cm
- Max. 30-40% obvodu
- Mobilita léze
- St.p. EPE malignizovaného polypu -  
nejasná histologie

# Multidisciplinary team MDT

- Chirurg
- Onkolog
- Radiolog
- Gastroenterolog
- Patolog

# Guidelines

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Comprehensive  
Cancer  
Network®

## **NCCN Guidelines Version 1.2015 Panel Members Rectal Cancer**

[NCCN Guidelines Index](#)  
[Rectal Cancer Table of Contents](#)  
[Discussion](#)

## **Rectal cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up†**

*These Clinical Practice Guidelines are endorsed by the Japanese Society of Medical Oncology (JSMO)*  
*Correspondence to: ESMO Guidelines Working Group, ESMO Head Office, Via L. Taddei 4, CH-6962 Viganello-Lugano, Switzerland; E-mail: [clinicalguidelines@esmo.org](mailto:clinicalguidelines@esmo.org)*

# nemožnost současné lymfadenektomie

- studie zabývající se rizikem vzniku uzlinových a vzdálených metastáz

## Management of Early Invasive Colorectal Cancer

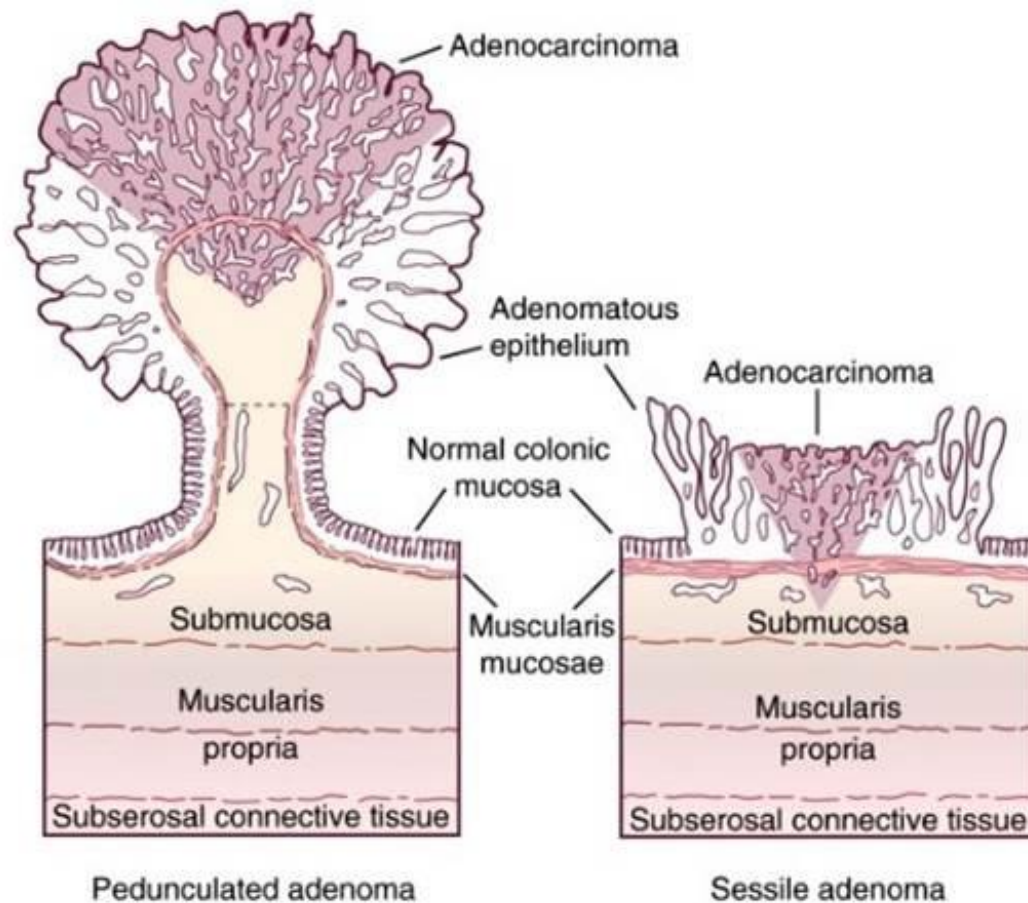
### Risk of Recurrence and Clinical Guidelines

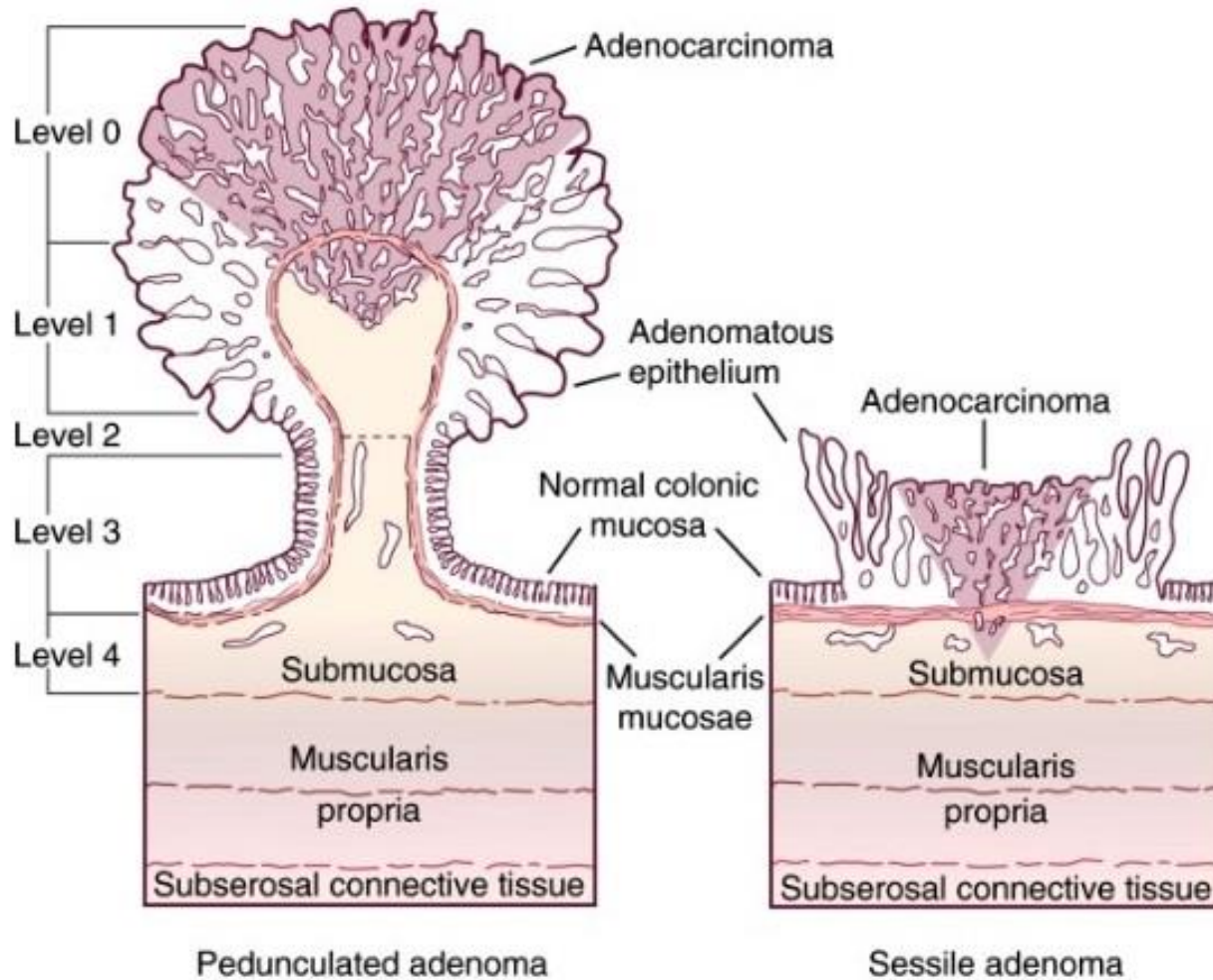
Ryuichi Kikuchi, M.D.,\* Masahiro Takano, M.D.,\* Koichi Takagi, M.D.,\*  
Naoyuki Fujimoto, M.D.,\* Ryoichi Nozaki, M.D.,\* Tateshi Fujiyoshi, M.D.,†  
Yuzo Uchida, M.D.‡

*From \*Coloproctology Center of Takano Hospital, Kumamoto, Japan, †Fujiyoshi Clinic, Kumamoto, Japan,  
and ‡Second Surgery, Oita Medical University, Oita, Japan*

# Invaze do submukózy (pT1, Vienna 5)

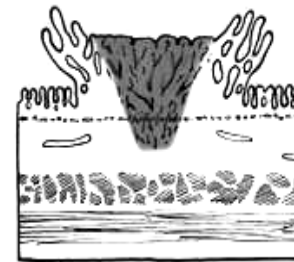
- stopkaté polypy - Haggitt
- přisedlé léze (sessile) - Kikuchi





Haggitt level 1,2,3 = Kikuchi Sm1  
 level 4 = Sm1, Sm2 or Sm3

# Kikuchi Levels and LN involvement



T1 sm1a

Invasive depth  
<1/3 through  
submucosa,  
usually <0.3mm.  
Invades <1/3 of  
width of adenoma

T1 sm1b

Invasive depth  
<1/3 through  
submucosa,  
usually <0.3mm.  
Invades >1/3 &  
<2/3 of width of  
adenoma

T1 sm1c

Invasive depth  
<1/3 through  
submucosa,  
usually <0.3mm.  
Invades >2/3 of  
width of adenoma

T1 sm2

Invasive depth  
>1/3 and <2/3  
of submucosa

T1 sm3

Invasive depth  
>2/3 of submucosa  
but not into  
M.propria

1-3%

8-10%

23-25%



# Management malignizovaných polypů

- sm1
  - kurativní výkon, když nejsou další rizikové faktory
- sm2 – stopkatý
  - kurativní, pokud je čistý resekční okraj
- sm2 – přisedlý
  - doporučuje se chirurgická resekce
- sm3
  - chirurgická resekce nutná

# TEM vs. TME

- **For patients with T1 rectal cancer, the distant metastasis, overall survival and disease-free survival rates did not differ between the TEM and TME groups, although the local recurrence rate after TEM was higher than that after TME**

*Comparison of Transanal Endoscopic Microsurgery and Total Mesorectal Excision in the Treatment of T1 Rectal Cancer: A Meta-Analysis* Jun-Yang Lu, Guo-Le Lin\*, Hui-Zhong Qiu, Yi Xiao, Bin Wu, Jiao-Lin Zhou Department of General Surgery, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China 100730, PLOS ONE | DOI:10.1371/journal.pone.0141427 October 27, 2015

- **Globally, a significantly lower postoperative complication rate was reported after TEM, compared with TME (8.2 vs 47.2%; P=0.01), with no mortality, confirming the safety of TEM, even in the treatment of early rectal cancers. A significantly higher local recurrence rate was found after TEM (12 vs 0.5%; P=0.004). However, the wide range of local recurrence rates from 4–18%**

*Wu Y, Wu YY, Zhu BS et al. TEM and conventional rectal surgery for T1 rectal cancer: a meta-analysis. Hepatogastroenterology 2011;58:364–68.*

# TEM x TME

- **Ten trials including 942 patients were retrieved. There was a trend toward a higher risk of local recurrence (odds ratio 2.78; 95% confidence interval 1.42, 5.44;  $z = 2.97$ ;  $P < 0.003$ ) and overall recurrence ( $P < 0.01$ ) following TEMS compared with RR. The risk of distant recurrence, overall survival (odds ratio 0.90; 95% confidence interval 0.49, 1.66;  $z = 0.33$ ;  $P = 0.74$ ) and mortality was similar. TEMS was associated with a shorter operation time and hospital stay and a reduced risk of postoperative complications ( $P < 0.0001$ ). The included studies, however, were significantly diverse in stage and grade of rectal cancer and the use of neoadjuvant chemoradiotherapy.**

*M. S. Sajid, S. Farag, P. Leung, P. Sains, W. F. A. Miles and M. K. Baig Department of General and Laparoscopic Colorectal Surgery, Western Sussex Hospitals NHS Trust, Worthing Hospital, Worthing, UK*  
*Systematic review and meta-analysis of published trials comparing the effectiveness of transanal endoscopic microsurgery and radical resection in the management of early rectal cancer. Colorectal Dis. 2014 Jan;16(1):2-14. doi: 10.1111/codi.12474*



# Výsledky FN Motol 2009 - 2014

- 92 výkonů s 3 konversemi do laparotomií.
- Z 92 výkonů TEM bylo histologicky potvrzeno 38 karcinomů - 41%
- 22 pacientů odesláno s dg. karcinomu
- U 40 pacientů, kteří byli odesláni s dg. nezhoubného polypu, byl karcinom nalezen v 16 případech, tedy v 40% .

# Pooperační komplikace

n=4

4,2%

3 x močová retence

1 x krvácení

Časné recidivy do 1 roku

5/36 – 13,8 %

# Závěr

- TEM je ověřená a bezpečná metoda
- Prioritní postavení v resekcích objemných adenomů
- Kurativní léčba low risk časného karcinomu rekta
- Paliativní léčba u vyšších stadií karcinomu rekta
- **Zlatý standard léčby karcinomu rekta je stále chirurgická resekce + TME**



# Závěr

- Pečlivý předoperační staging
- Histopatologie – Vídeňská klasifikace, hodnocení invaze do submukozy, velikost, lokalizace, grading, lymfatická invaze, venozní invaze, budding
- Individuální přístup

# Děkuji za pozornost

Koloproktologická skupina III. chirurgické kliniky 1. LF UK a FN Motol



Prof. MUDr. Svatopluk Adámek, CSc.

MUDr. Pavel Hladík

MUDr. Jiří Skořepa

MUDr. Ondřej Polanecký

MUDr. Jan Pastor