



# Der sanfte Weg für den Darm - mit dem Roboter im Bauch?

Reinhold A. Lang



w/m/d



# Darmkrebs Therapieplanung TUMOR- Board !!!

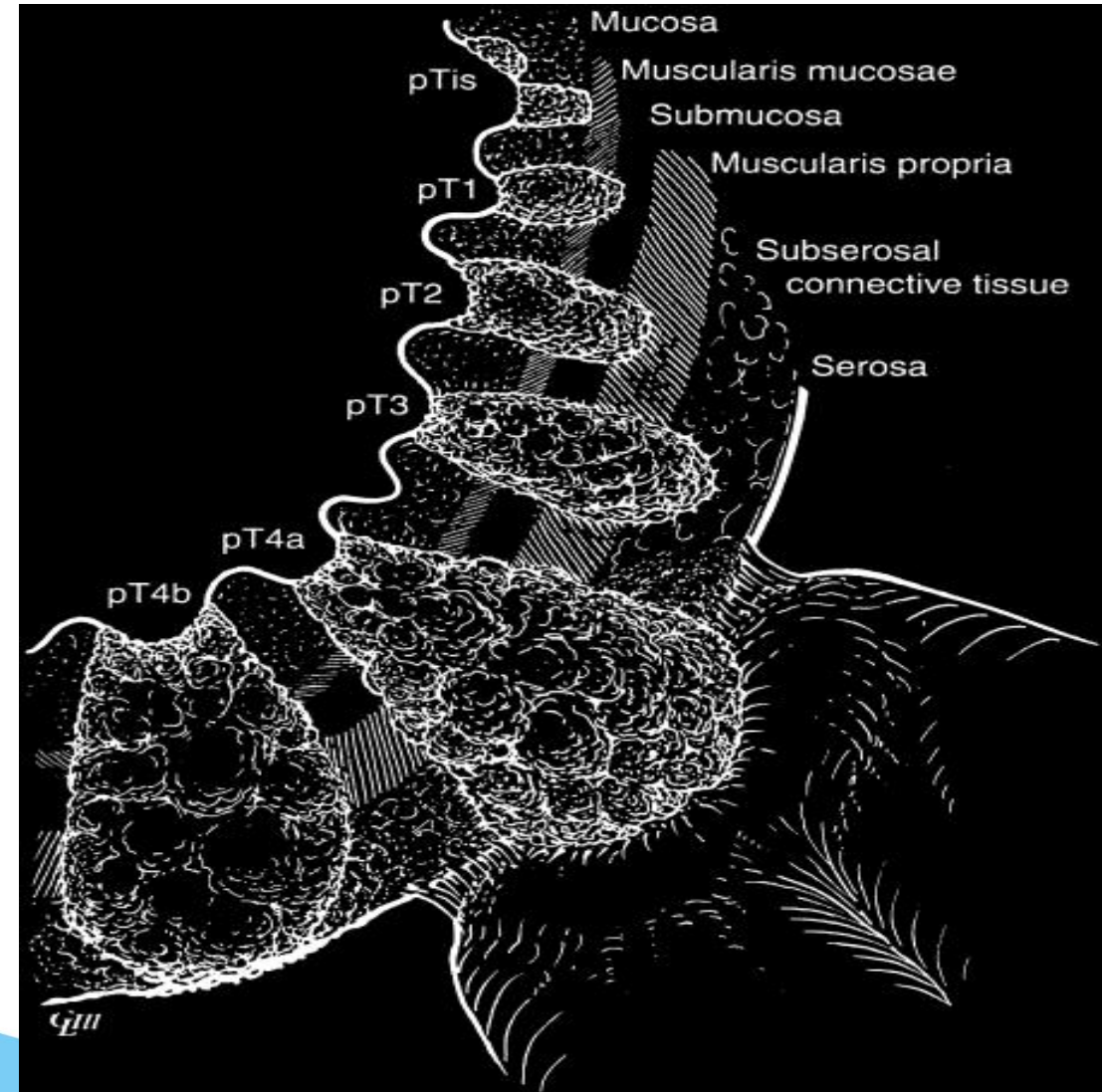
## Tumor-Staging

## TNM-Klassifikation

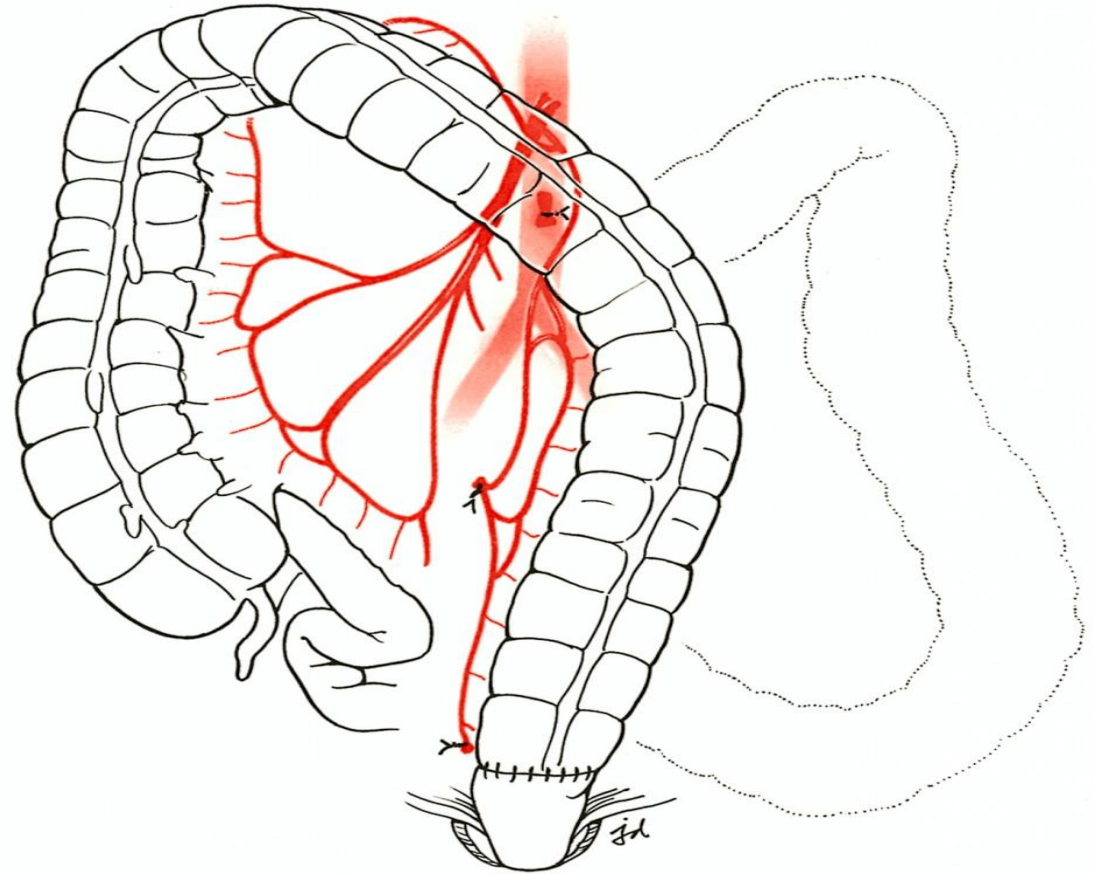
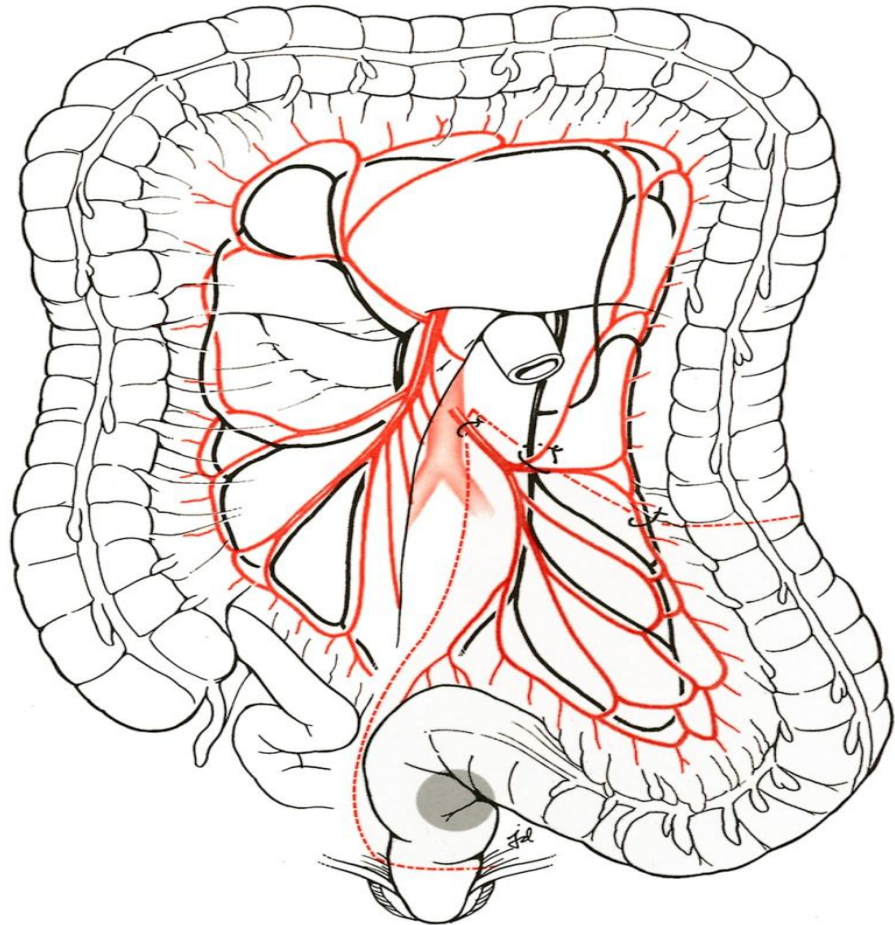
Operation ?

Neoadjuvante Therapie ?

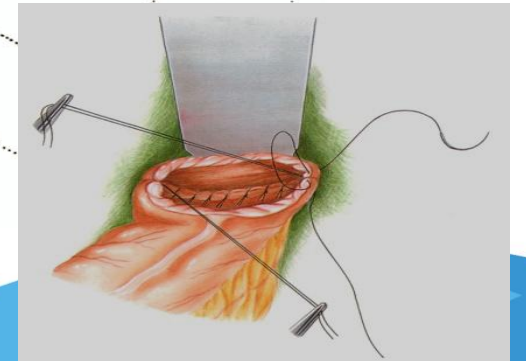
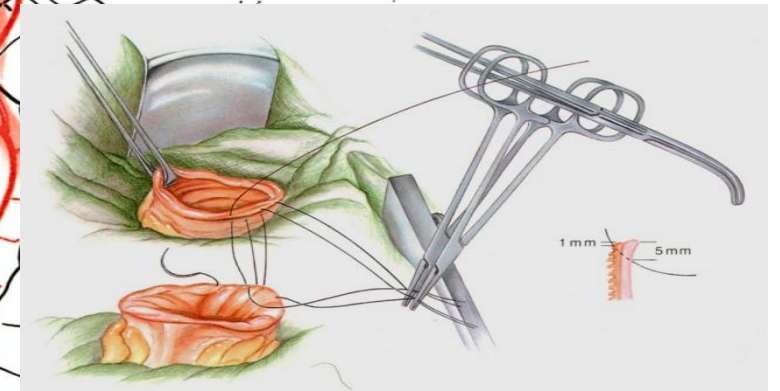
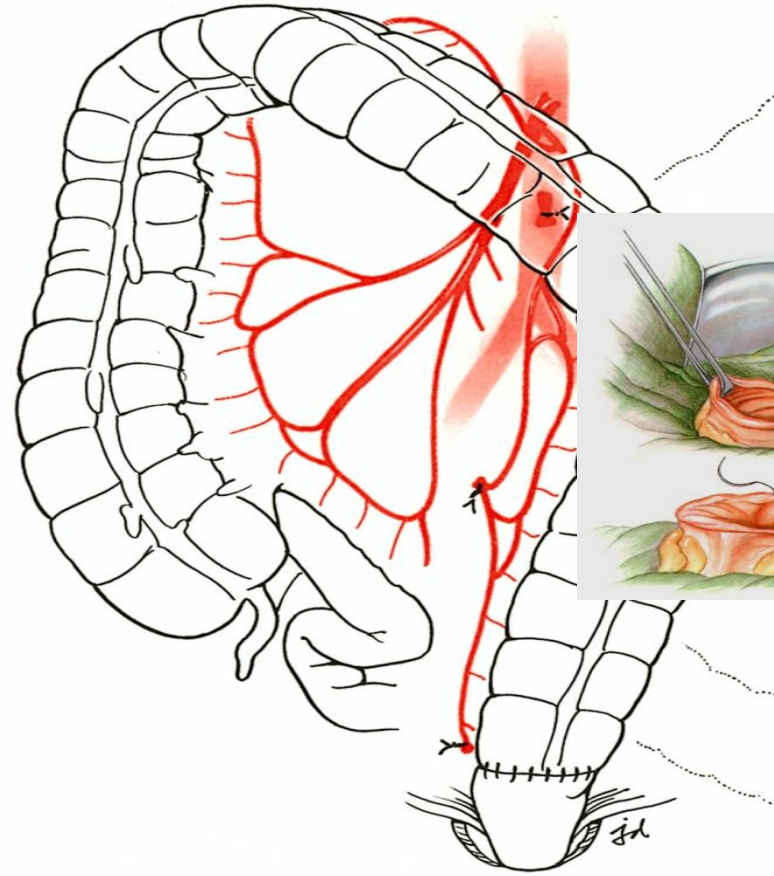
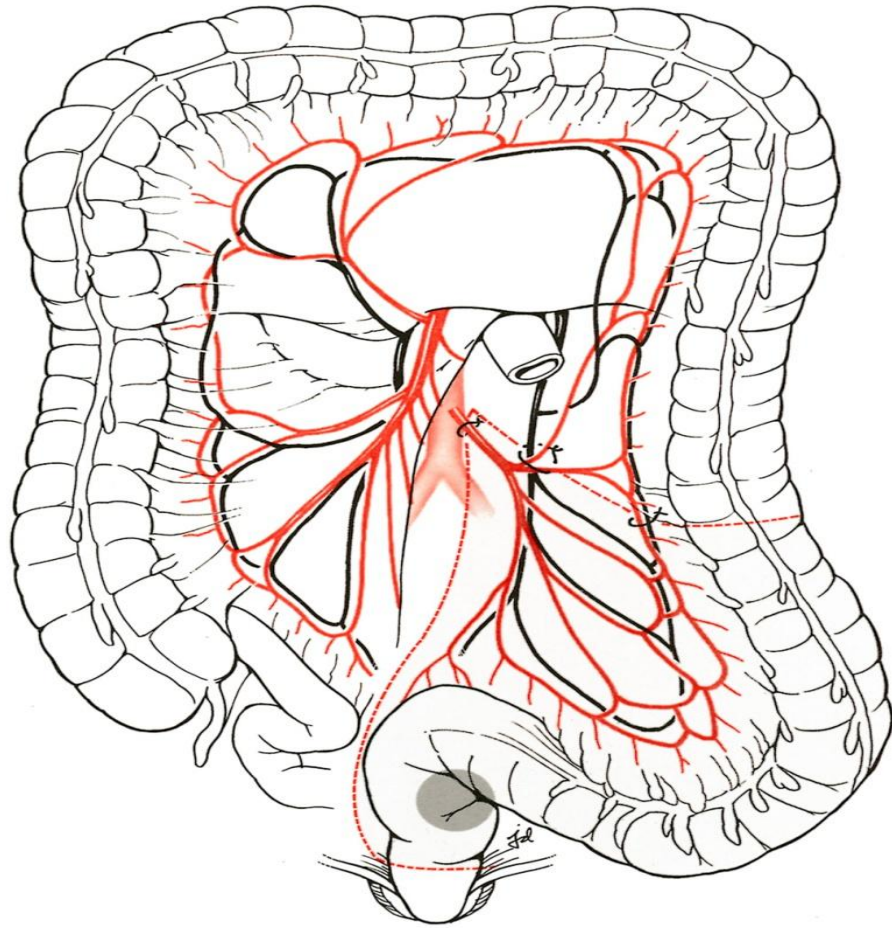
Adjuvante Therapie ?



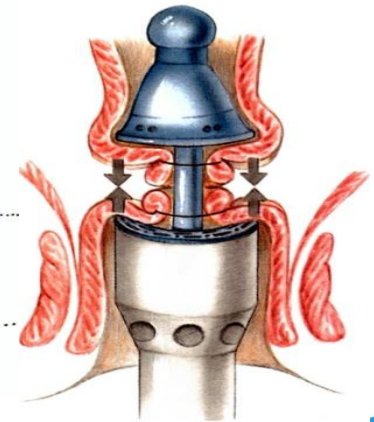
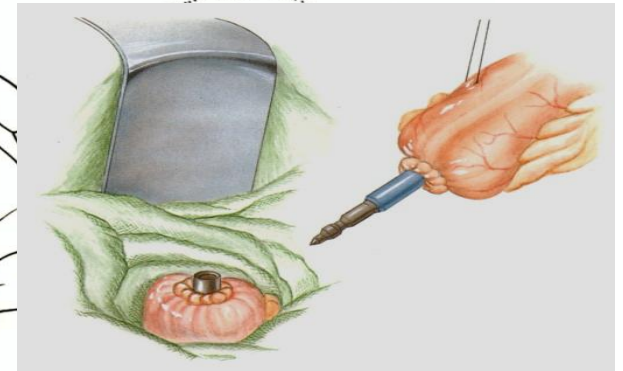
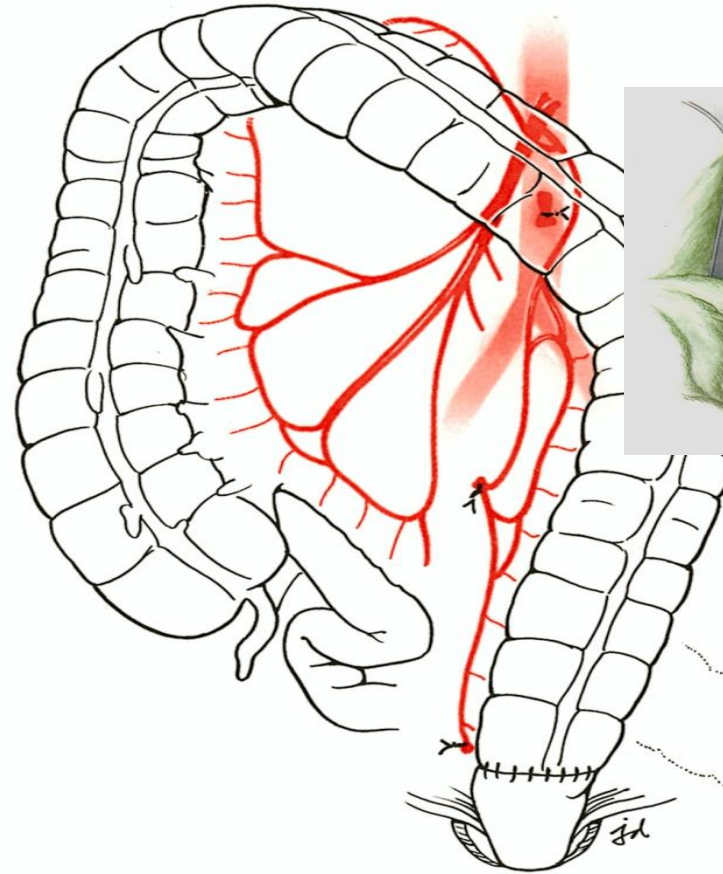
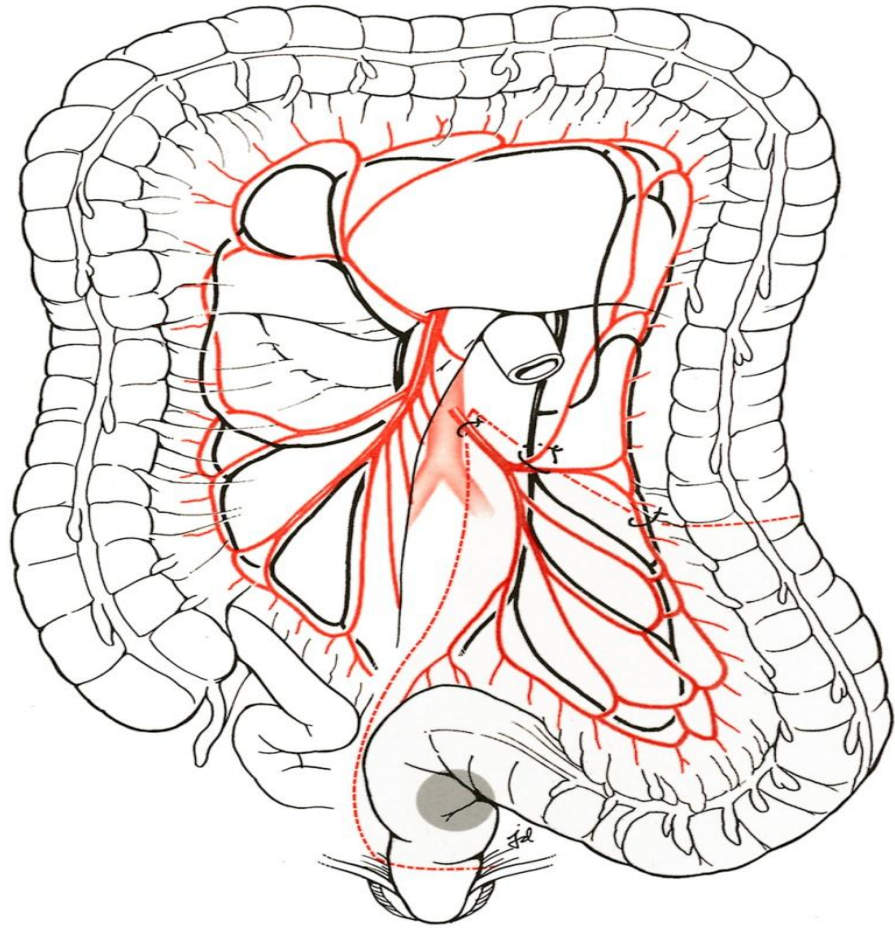
# Darmkrebs Operation



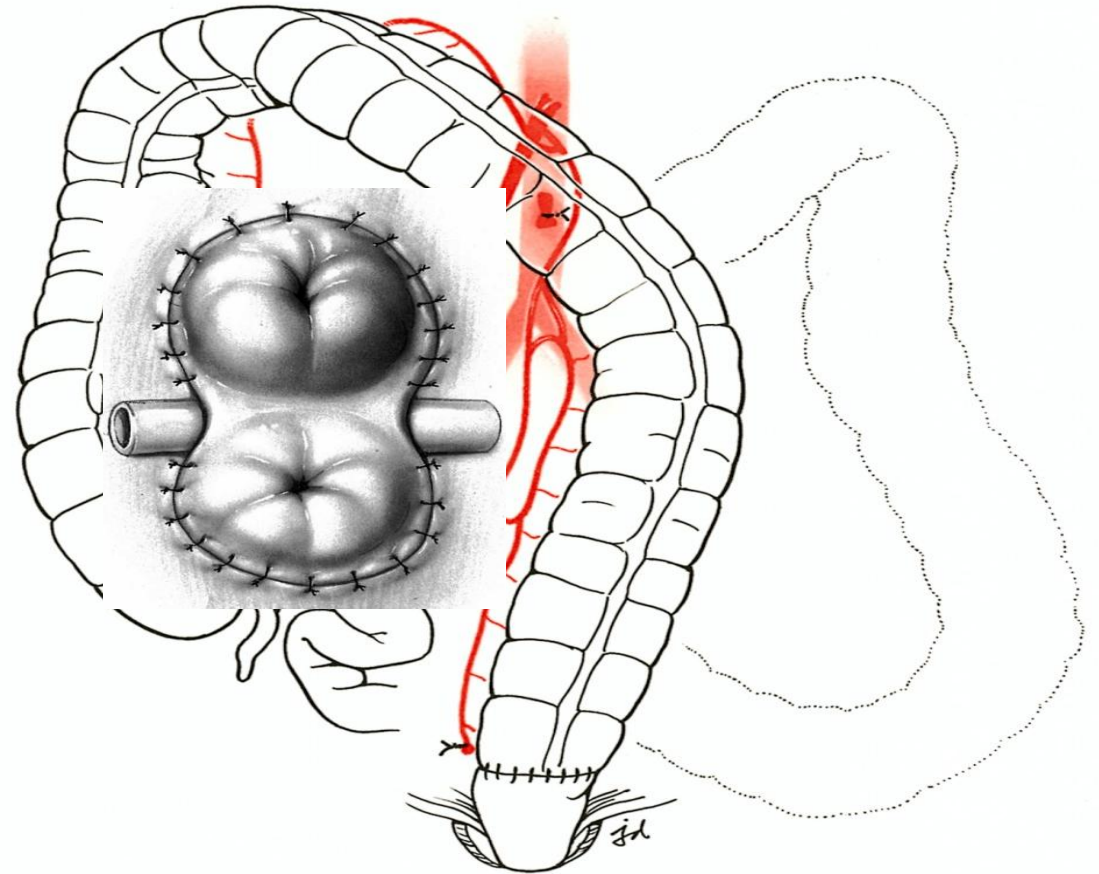
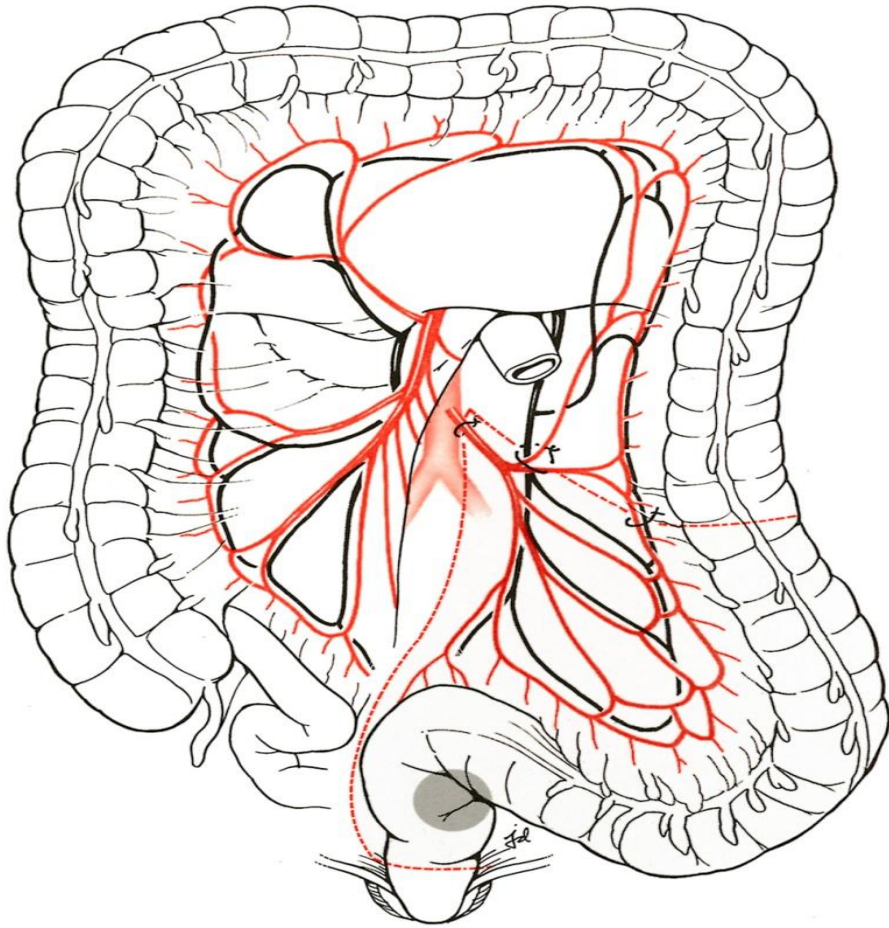
# Darmkrebs Operation



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# Darmkrebs Operation

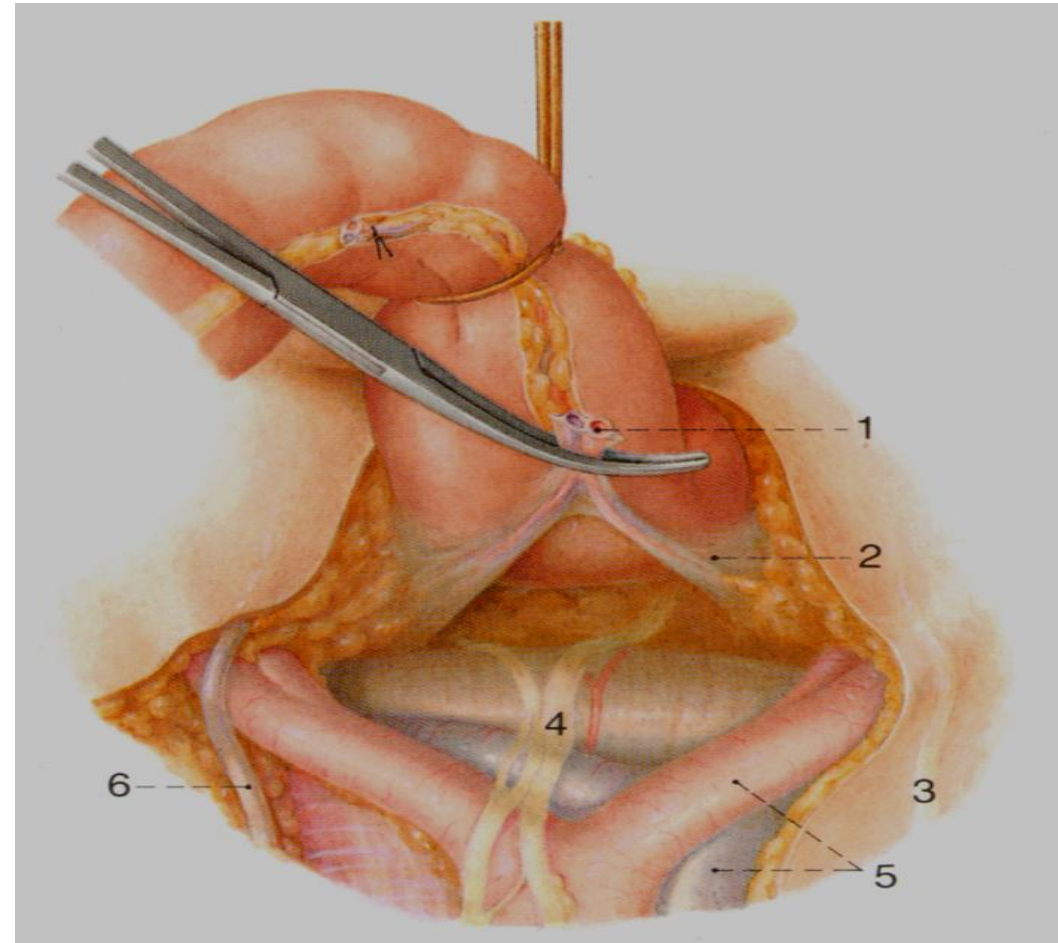


**Sexuelle  
Funktionsstörungen**

**33 – 95%**

**Blasenfunktions-  
störungen**

**bis zu 50%**



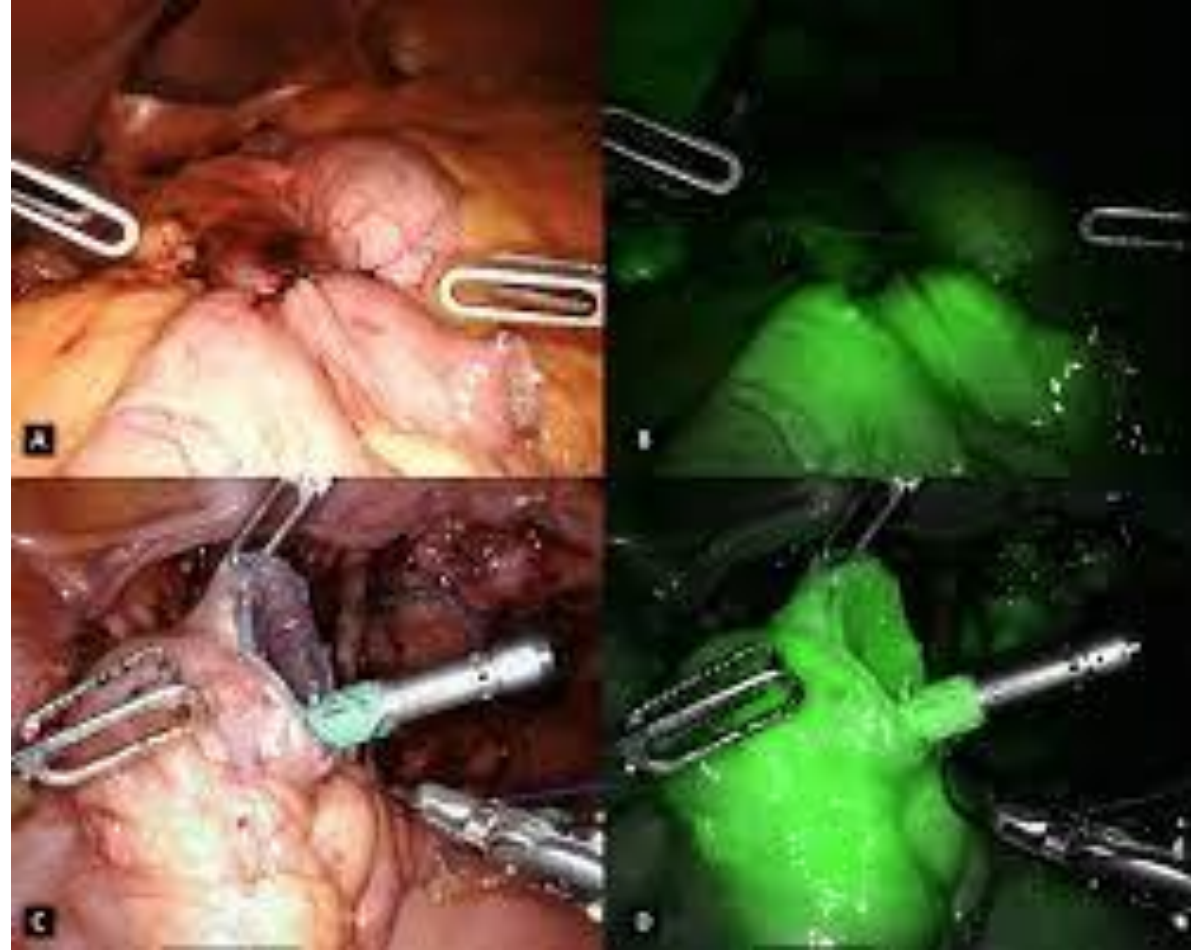
# Darmkrebs Operation



## Nahtundichtigkeit:

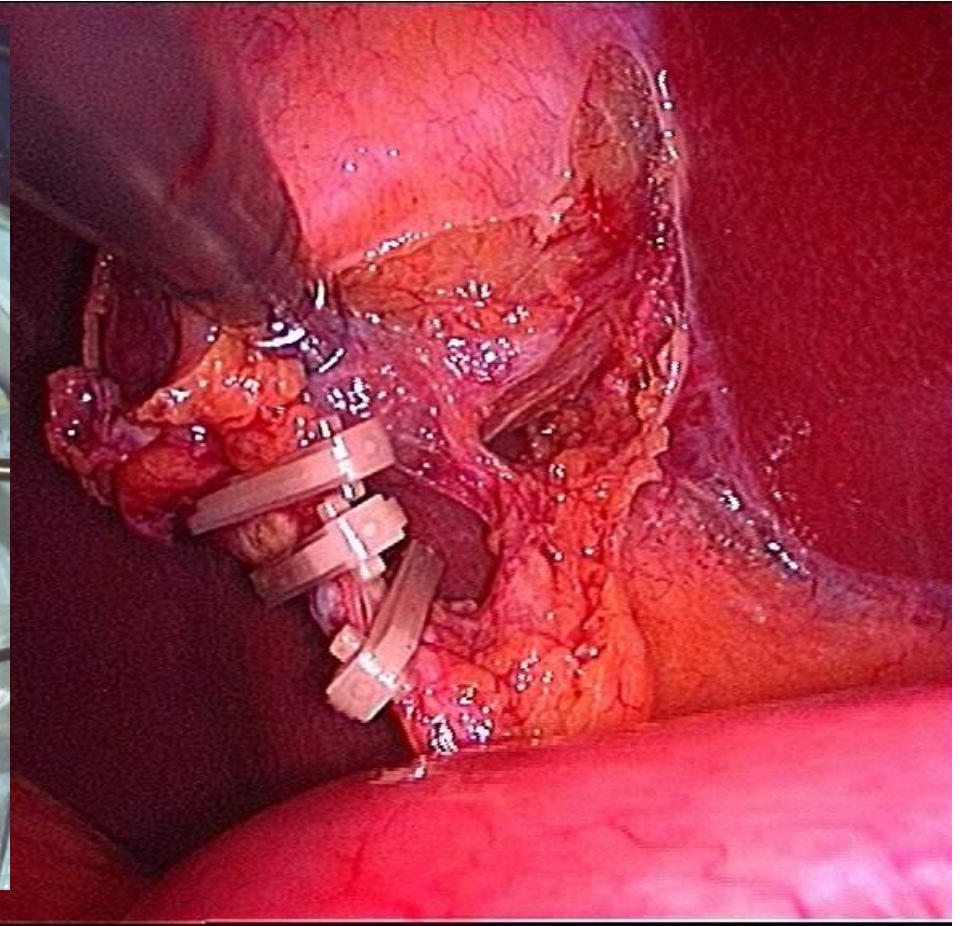
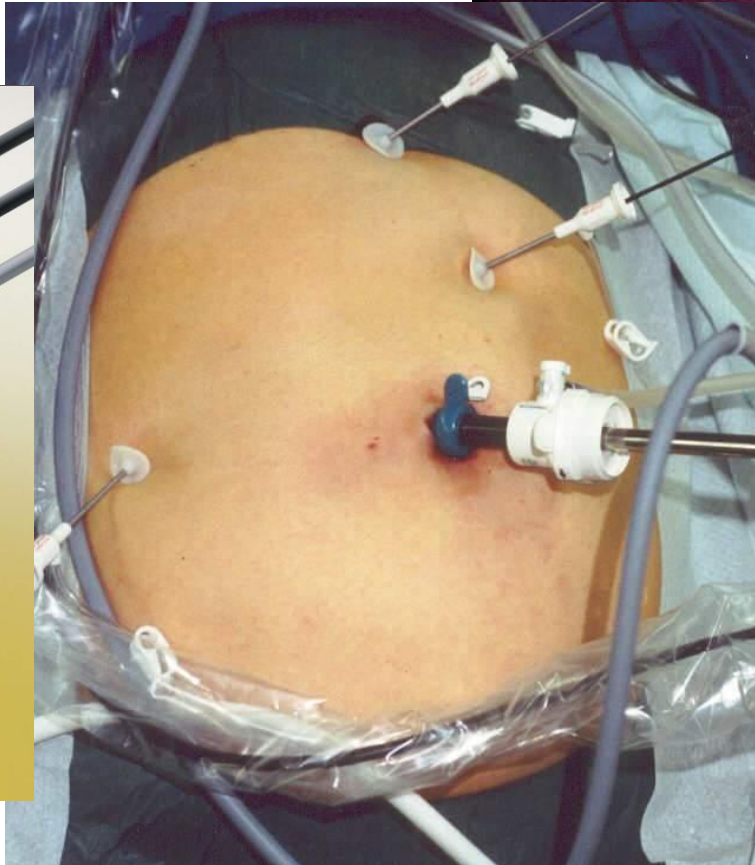
Ant. Resektion: bis 7 %

Tiefe ant. Res: bis 14 %

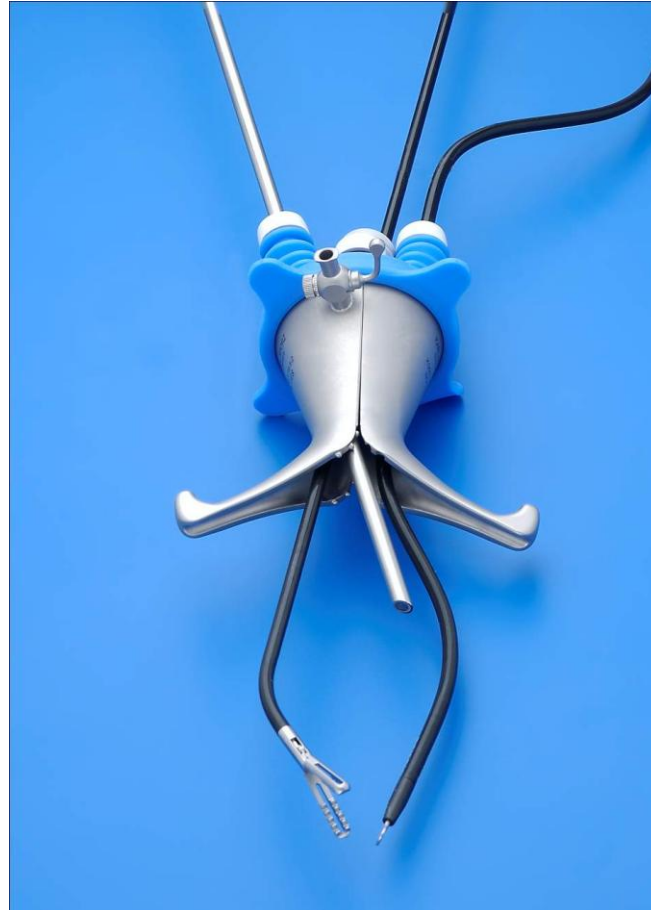




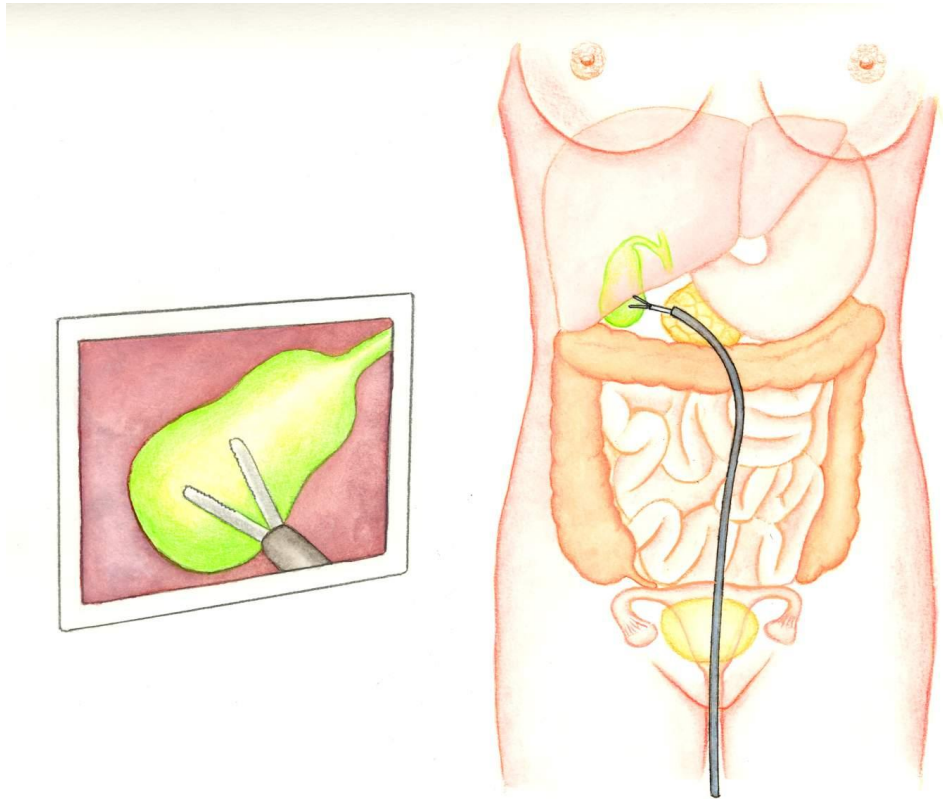
# Wunsch – Chirurgie & Medizin



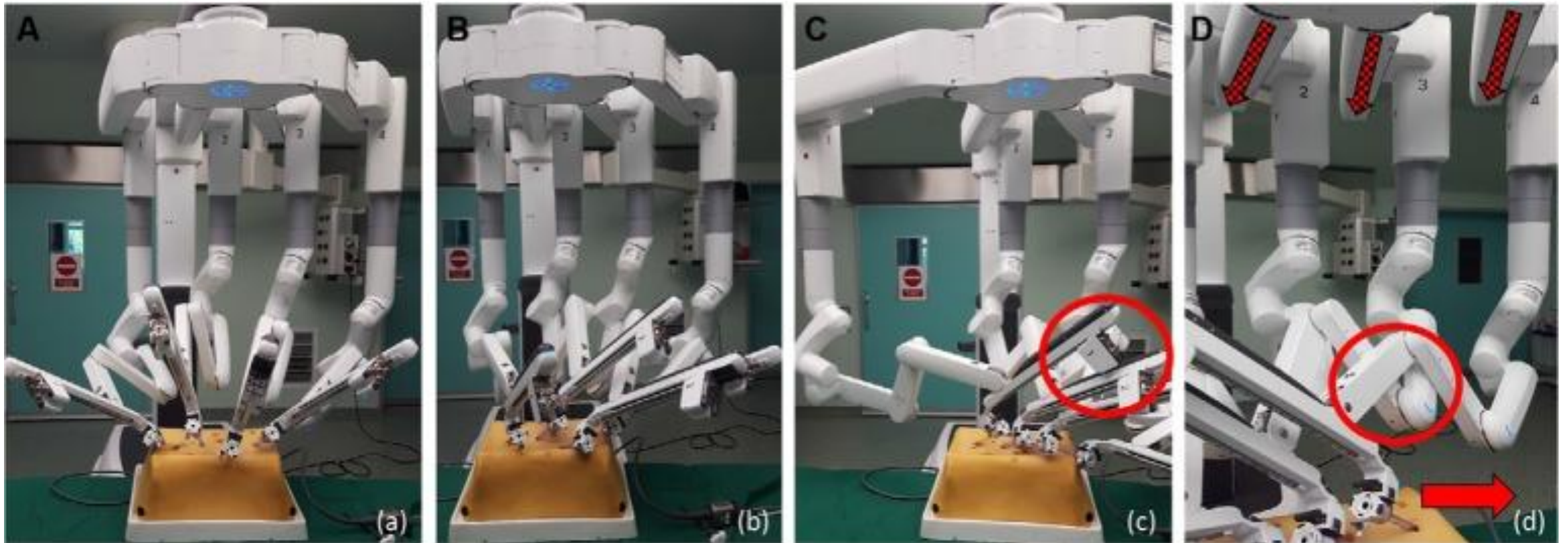
# Lösungsansätze



# Lösungsansätze

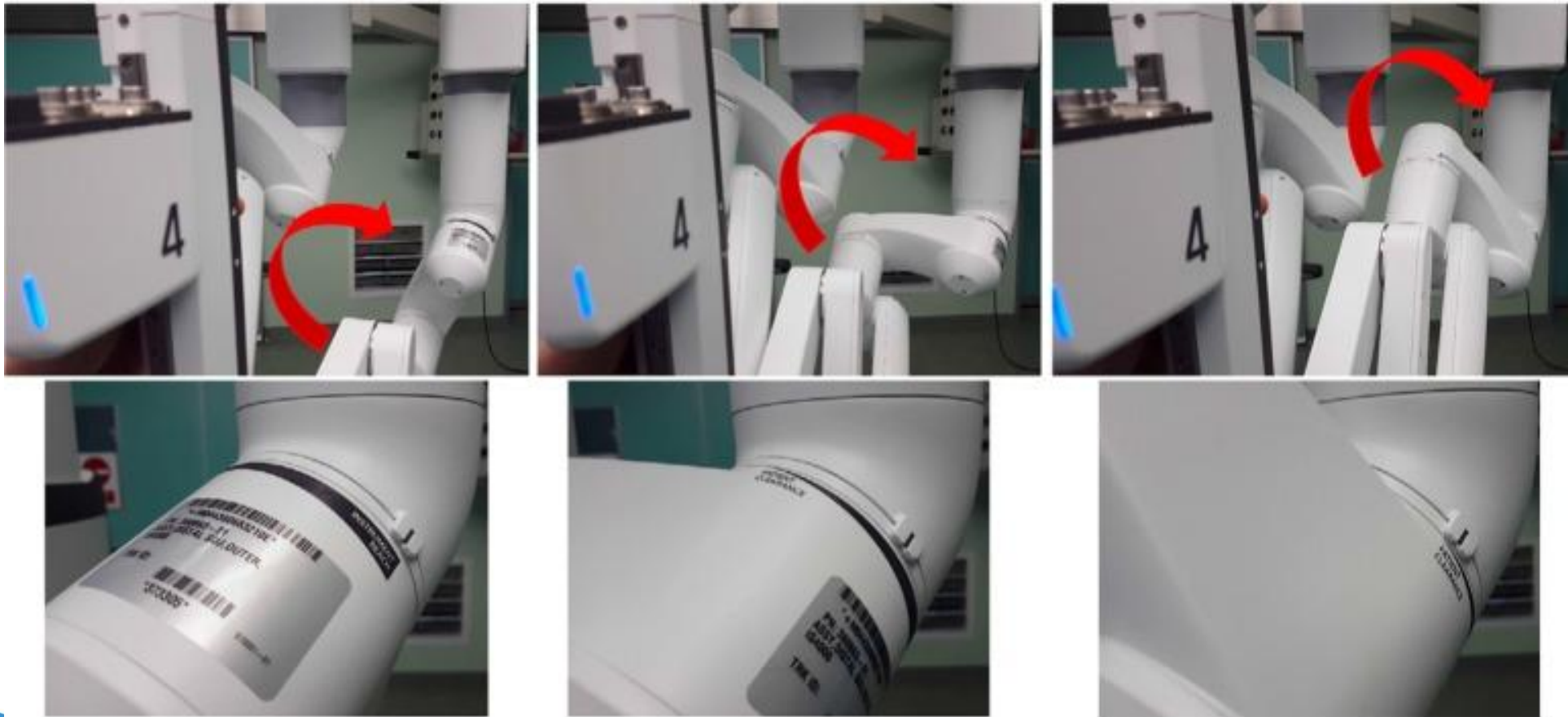


# Roboter - Da Vinci XI





# Da Vinci XI ! – Wendigkeit !

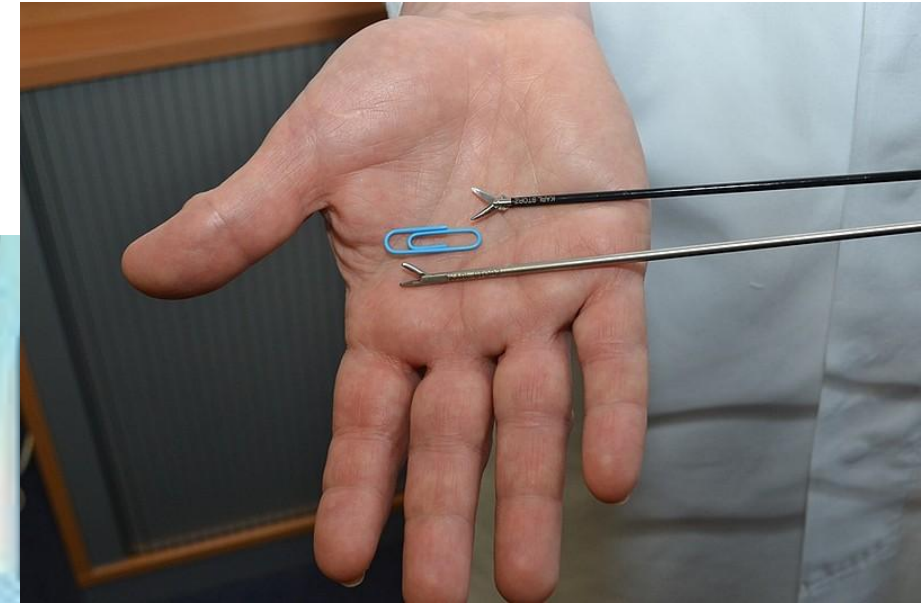


# Vorteile – Roboter – Entspannt



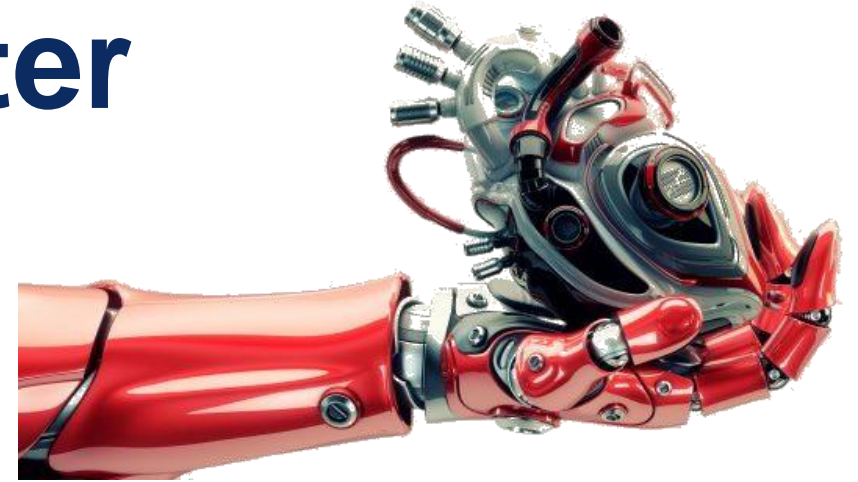
# Vorteile - Roboter

- Wenig Schmerzen durch „kleine“ Instrumente  
⇒ Kleinstmögliche Zugänge
- Kürzerer Krankenhausaufenthalt
- Minimale Narben



# Vorteile - Roboter

- Höchste Präzision
- Entspannte! Instrumentenführung
- Geringer Blutverlust
- Ziel: Geringst mögliche Komplikationen





# Nachteile - Roboter

- Längere Vorbereitungszeit
- Längere Anästhesiezeit
- Weniger OP's / Tag im Saal mgl.
- Teils aufwendige Sterilisation
- Zusätzliche Ausbildung



# Metaanalyse Roboter vs. Laparoskopie

Review

> [Cancers \(Basel\)](#). 2021 Dec 30;14(1):180. doi: 10.3390/cancers14010180.

## Robotic-Assisted vs. Standard Laparoscopic Surgery for Rectal Cancer Resection: A Systematic Review and Meta-Analysis of 19,731 Patients

Kamil Safiejko <sup>1</sup>, Radoslaw Tarkowski <sup>2</sup>, Maciej Koselak <sup>3 4</sup>, Marcin Juchimiuk <sup>1</sup>, Aleksander Tarasik <sup>1</sup>, Michal Pruc <sup>5</sup>, Jacek Smereka <sup>5 6</sup>, Lukasz Szarpak <sup>3 7 8</sup>

Affiliations + expand

PMID: 35008344 PMID: PMC8750860 DOI: 10.3390/cancers14010180

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# Metaanalyse Roboter vs. Laparoskopie

30 Tage Überlebensrate

Roboter

99,6 %

$p=0,05$

Laparoskopie

98,8%

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# Metaanalyse Roboter vs. Laparoskopie



Erster Flatus



2,5 + 1,4 Tage

$p=0,03$

2,9 + 2,0 Tage

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Affiliations [+ expand](#)

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# Metaanalyse Roboter vs. Laparoskopie

Harnverhalt

3,5 %

$p=0,02$

6,2%

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# Metaanalyse Roboter vs. Laparoskopie

OP-Zeit

297.4 ± 99.3 min

p>0,001

339.5 ± 359.2

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Affiliations + expand

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# Metaanalyse Roboter vs. Laparoskopie

## Krankenhausaufenthalt

8,0 + 5,3 Tage

$p < 0,001$

9,5 + 10,0 Tage

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Affiliations + expand

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# Metaanalyse Roboter vs. Laparoskopie

Kostaufbau und Darmtätigkeit

ohne Unterschied

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# Zusätzliche Ausbildung - Qualität

- Schulungen (Anästhesie, OP-Pflege, Chirurgie)
- Selbststudium !!!
- Sich darauf einlassen
- Daran Spaß haben
- Erfahrung in der Laparoskopie



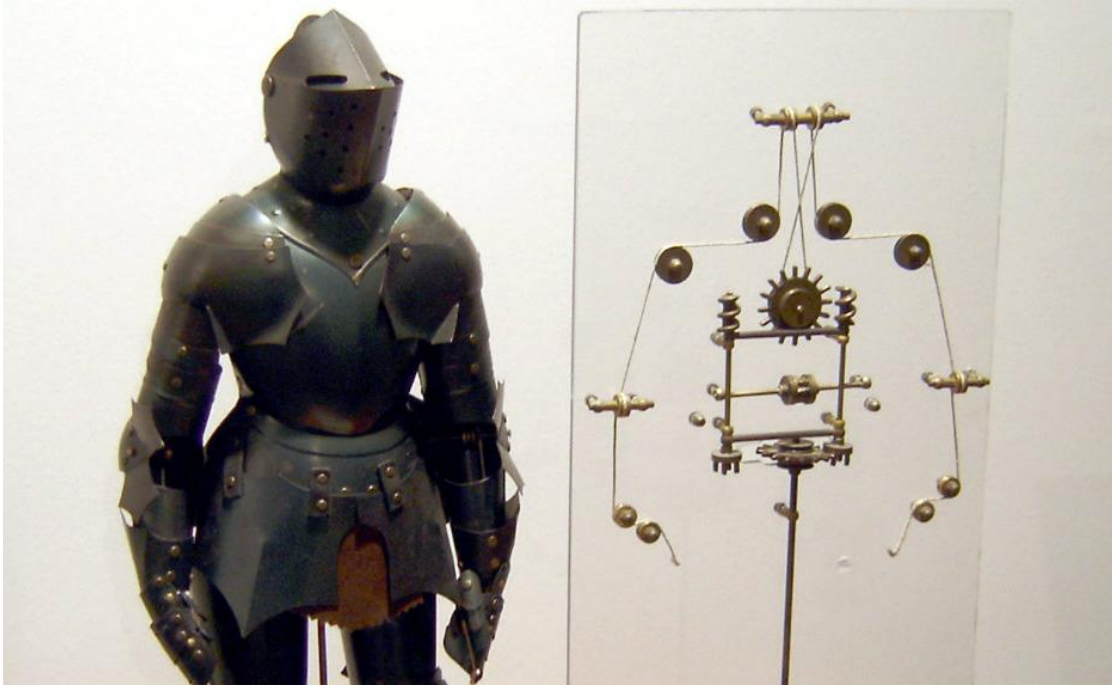
# Selbst - Studium



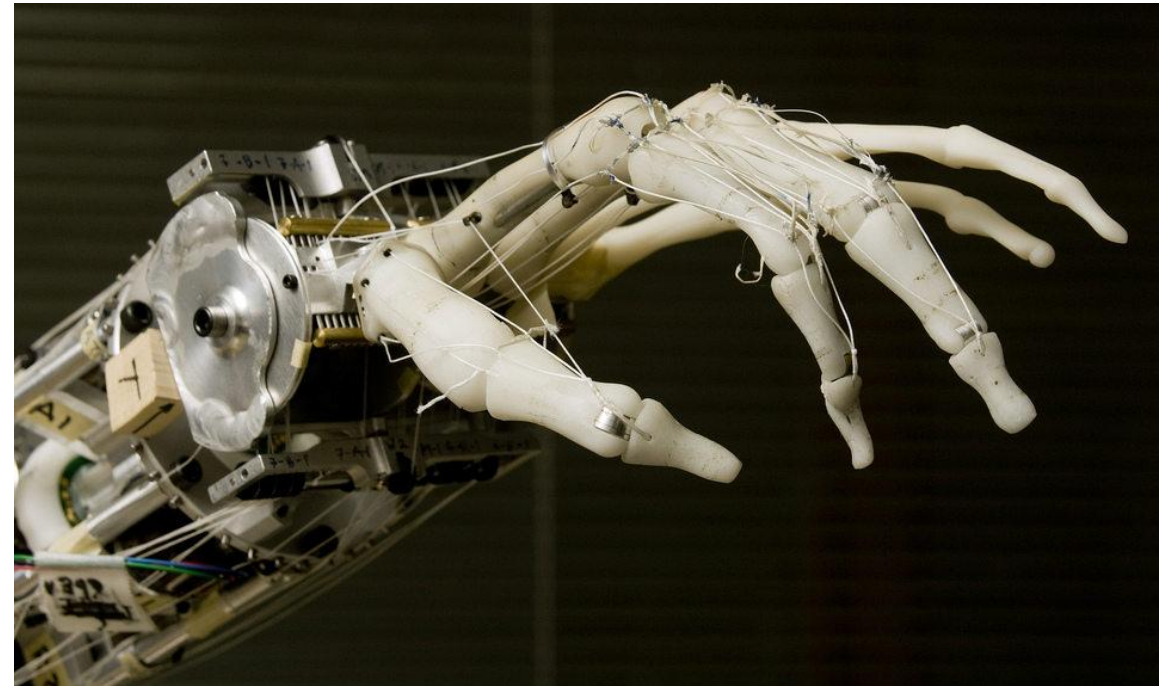
# Roboter – aktuell – unterstützend



# Roboter – aktuell – unterstützend



1500



2000

# Roboter – Zukunft

Unterstützung des Menschen durch Roboter



Unterstützung Supervision Roboter durch Mensch



Operation durch Roboter ohne Mensch

