



Role of staging laparoscopy in case selection

Andreas Brandl

Department of Surgery
Campus Charité Mitte | Campus Virchow-Klinikum
Charité – Universitätsmedizin Berlin
Head: Univ.-Prof. Dr. med. J. Pratschke



Disclosures

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Introduction - History

- diagnostic laparoscopy -

- **1901** **Georg Kelling – Dresden, Germany**
first laparoscopy (dog)
- **1910** **Hans Christian Jacobaeus – Stockholm, Sweden**
first laparoscopy (human)
- **1981** **Kurt Semm – Lübeck, Germany**
first laparoscopic appendectomy



Introduction

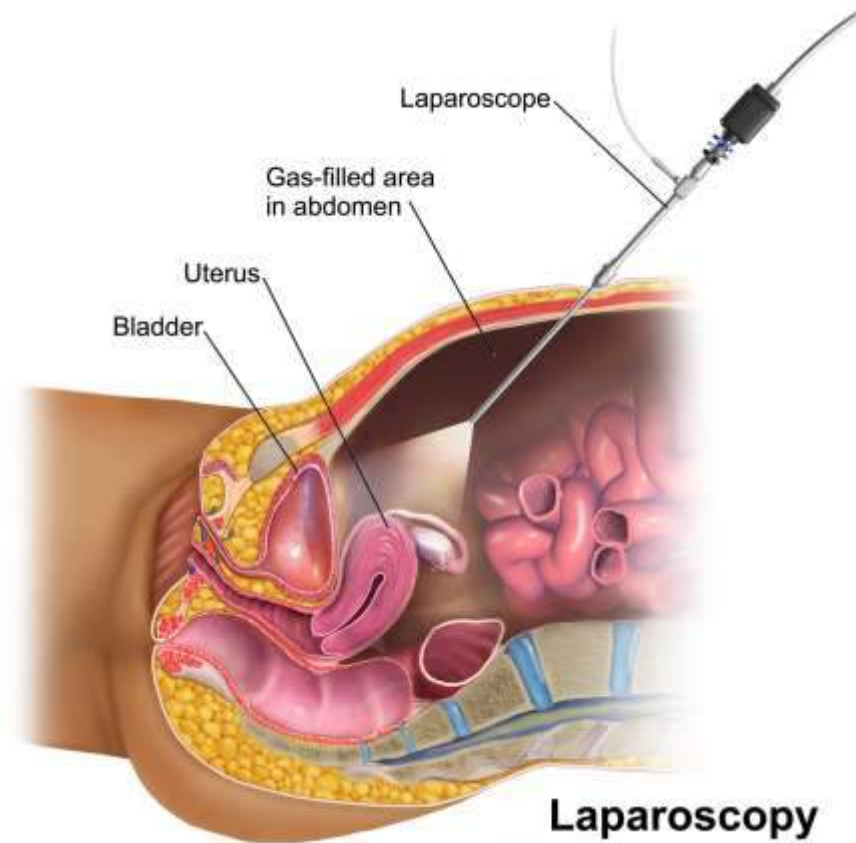
- *diagnostic laparoscopy* -

- Operative procedure
- Requiring general anaesthesia
- Insufflation of CO₂ up to 12mmHg
- Gold standard for detection of peritoneal metastases



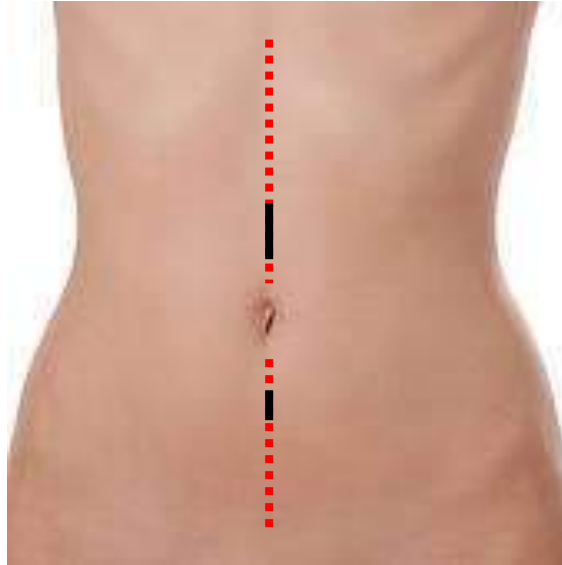
Introduction

- *diagnostic laparoscopy* -



Trocar placement

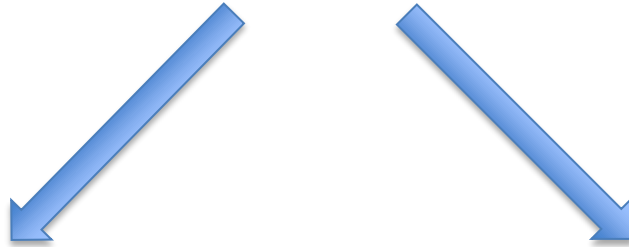
- *diagnostic laparoscopy* -



Evaluation – Peritoneal Surface Malignancies

- diagnostic laparoscopy -

Diagnostic laparoscopy

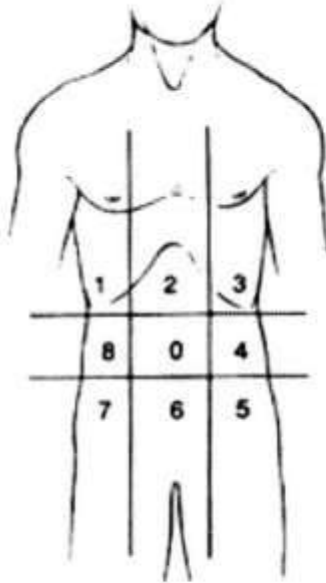


Peritoneal Cancer Index

Complete Cytoreduction

Peritoneal Cancer Index

- Evaluation -



Regions

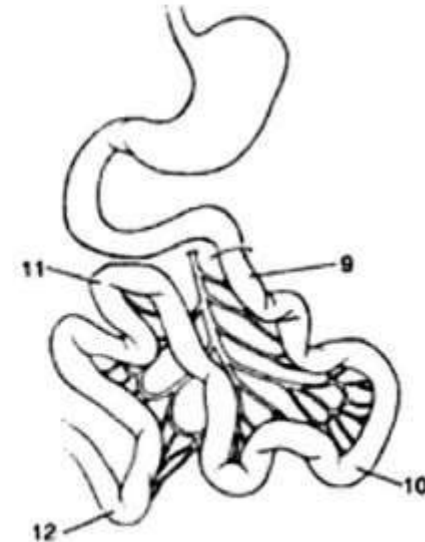
- 0 Central
- 1 Right Upper
- 2 Epigastrium
- 3 Left Upper
- 4 Left Flank
- 5 Left Lower
- 6 Pelvis
- 7 Right Lower
- 8 Right Flank
- 9 Upper Jejunum
- 10 Lower Jejunum
- 11 Upper Ileum
- 12 Lower Ileum

Lesion Size

Lesion Size Score

- LS 0 No tumor seen
- LS 1 Tumor up to 0.5 cm
- LS 2 Tumor up to 5.0 cm
- LS 3 Tumor > 5.0 cm or confluence

PCI



Peritoneal Cancer Index

- Lesion Size Score-



LS 1 : < 5mm



LS 2 : 5mm – 5cm



LS 3 : >5cm or confluent

Patient Selection

- Predictive ability of PCI -

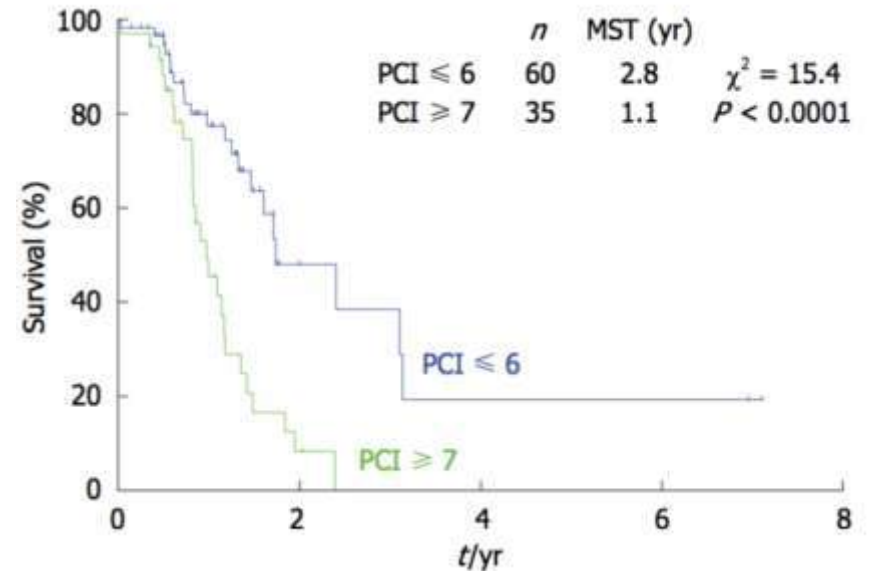
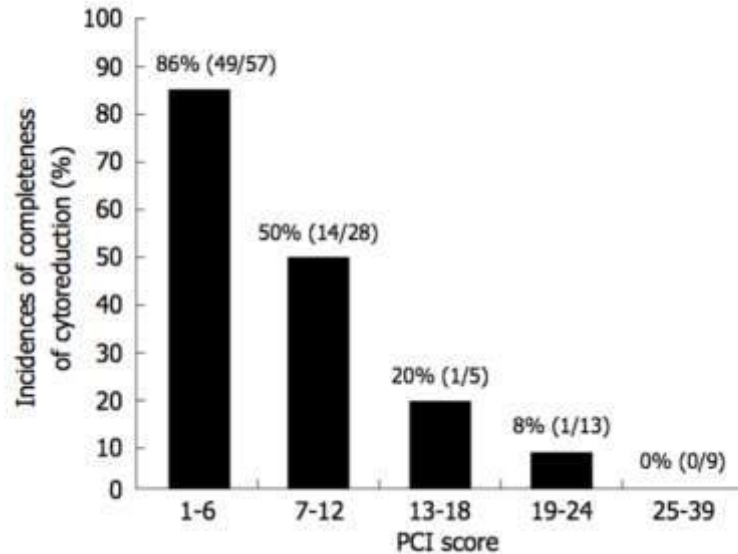
- Gastric Cancer**

PCI	1 year	2 years	3 years	5 years
0 – 6	56%	36%	33%	30%
7 – 12	65%	25%	18%	0%
13 – 19	35%	22%	0%	0%
>19	0%	0%	0%	0%

Patient Selection

- Predictive ability of PCI -

- Gastric Cancer

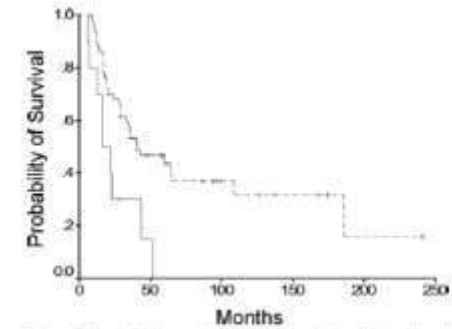
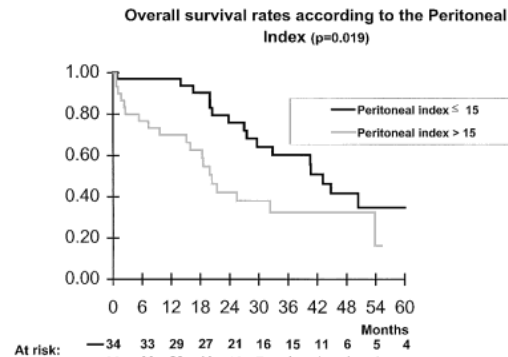
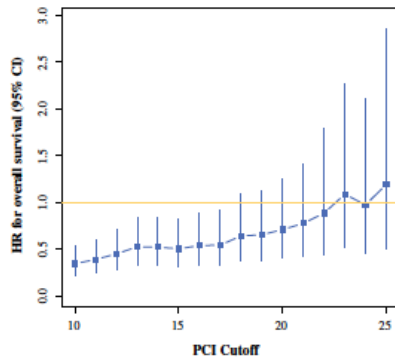


Patient Selection

- Predictive ability of PCI -

- Colorectal Cancer

Investigator	n	PCI cut-off	significance
Goéré D et. al. (2015)	180	17	HR: 0.64; range 0.38–1.09
Elias D et. al. (2001)	64	15	3-year OS: 60.3% vs. 32.5% P-value: 0.019
Gomes da Silva RG et. al. (2006)	156	20	Med. survival: 41 vs. 16 months P-Value: 0.004



Goéré D et. al., *Ann Surg Oncol* 2015; 22: 2958–2964

Elias D et. al., *Cancer* 2001;92:71–76

Gomes da Silva RG et. al., *J Am Coll Surg* 2006;203:878–886

Diagnostic Laparoscopy

- *Disadvantages* -

- **Disadvantages:**
 - **Adhaesions limit exploration**
 - **Adhaesiolysis -> risk of injury, especially small bowel**
 - **No evaluation of retroperitoneal lymph nodes**
 - **Trocar site metastasis**



Evaluation

- PCI Score -



Evaluation

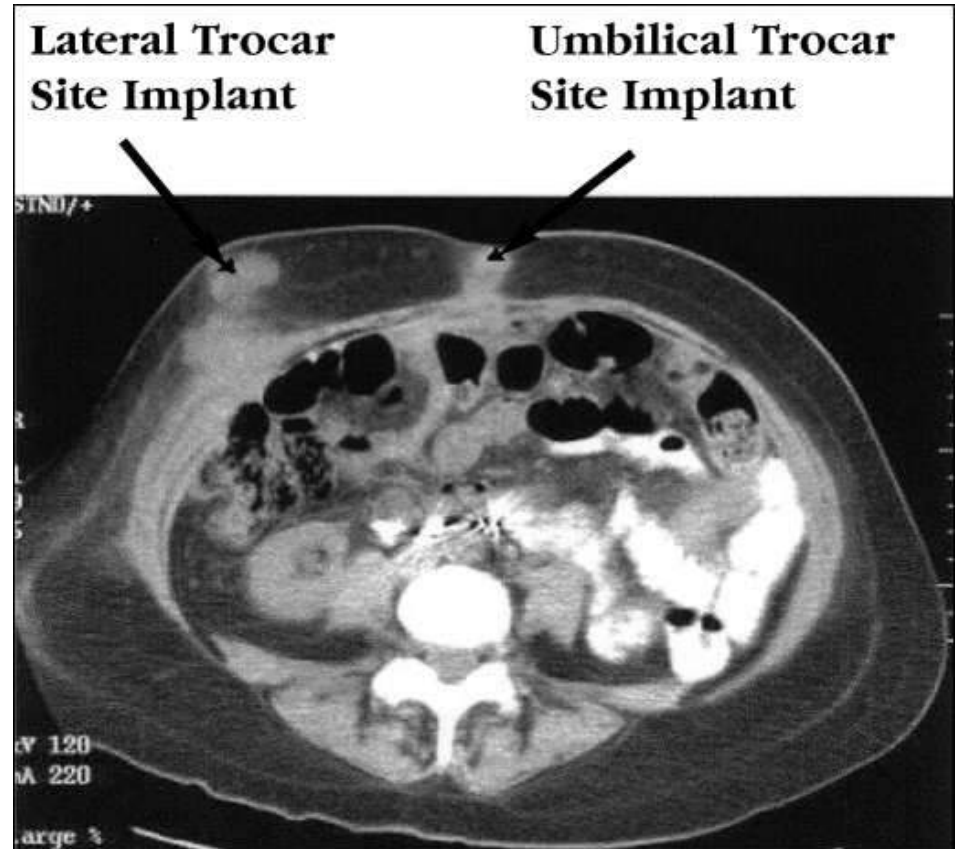
- PCI Score -



Port site metastasis

- *Appearance* -

- Incidence 20-30%
- Predictor for worse survival
- Direct tumor seeding
- Chimney effect
- Indirect tumor seeding
- Effect of tissue injury



Port site metastasis

- Recommended techniques -

- **Balloon Port**
 - avoid accidental removal
 - avoid CO₂ leakage
- **Avoid backstream of tumor cells**
 - Complete suction of ascites before trocar removal
 - Immediate closure of port site after trocar removal
 - Complete removal of CO₂ before trocar removal
- **Reduction of trauma**
 - Placement of trocar in correct angle
 - Use of existing trocar sites



CT scan vs. Diagnostic Laparoscopy

- Comparison in patients with Gastric Cancer -

M staging	AUS	CT	PET	Laparoscopy
Overall accuracy	64.7 ± 21.0	81.2 ± 3.4	88.2 ± 5.8	85 – 98.9

- Detection of Peritoneal Metastasis in up to 59.6% of patients with CT or PET negative result

Conclusions

- diagnostic laparoscopy -

- **Diagnostic laparoscopy safe and effective tool to detect peritoneal metastasis and evaluation of complete cytoreduction**
- **Highest accuracy for peritoneal metastasis compared to AUS, CT, PET**
- **Adds information to CT or MRI staging**



Thank you for your attention