

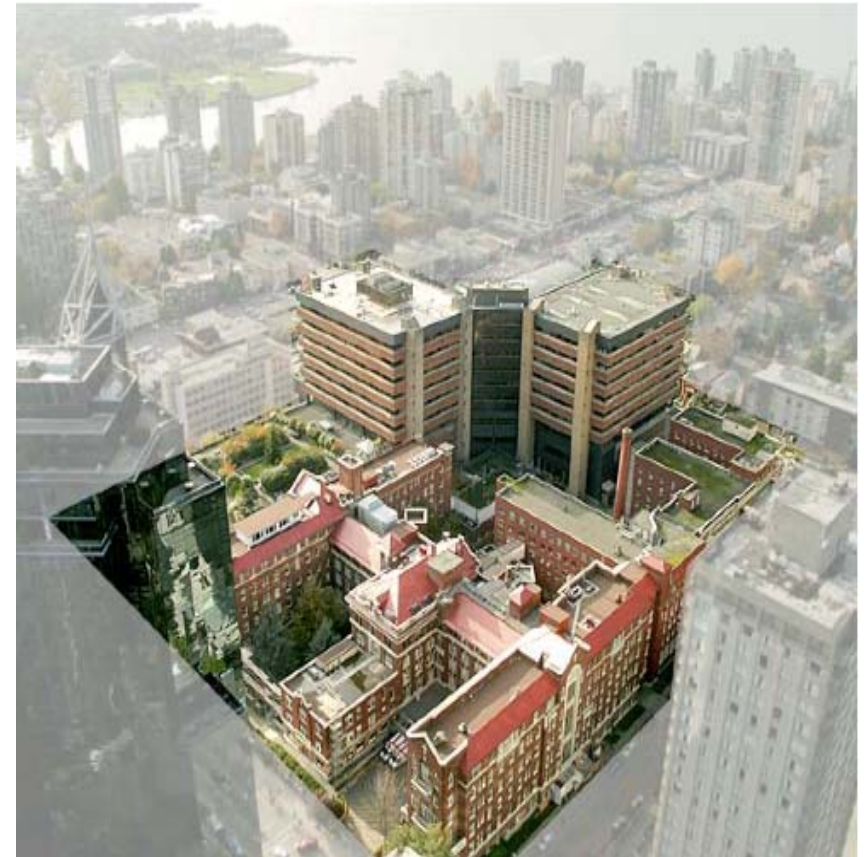
Rectal Cancer & Transanal Excision: Quandaries and Quagmires

Manoj J. Raval, MD MSc FRCSC

Carl J. Brown, MD MSc FRCSC

St. Paul's Hospital and UBC

SON Fall Update 2015



Disclosures



- No relevant disclosures
- No financial interests in any products being discussed in this presentation
 - No honoraria
 - No research grants
 - No speaking engagements
 - No industry donation of equipment



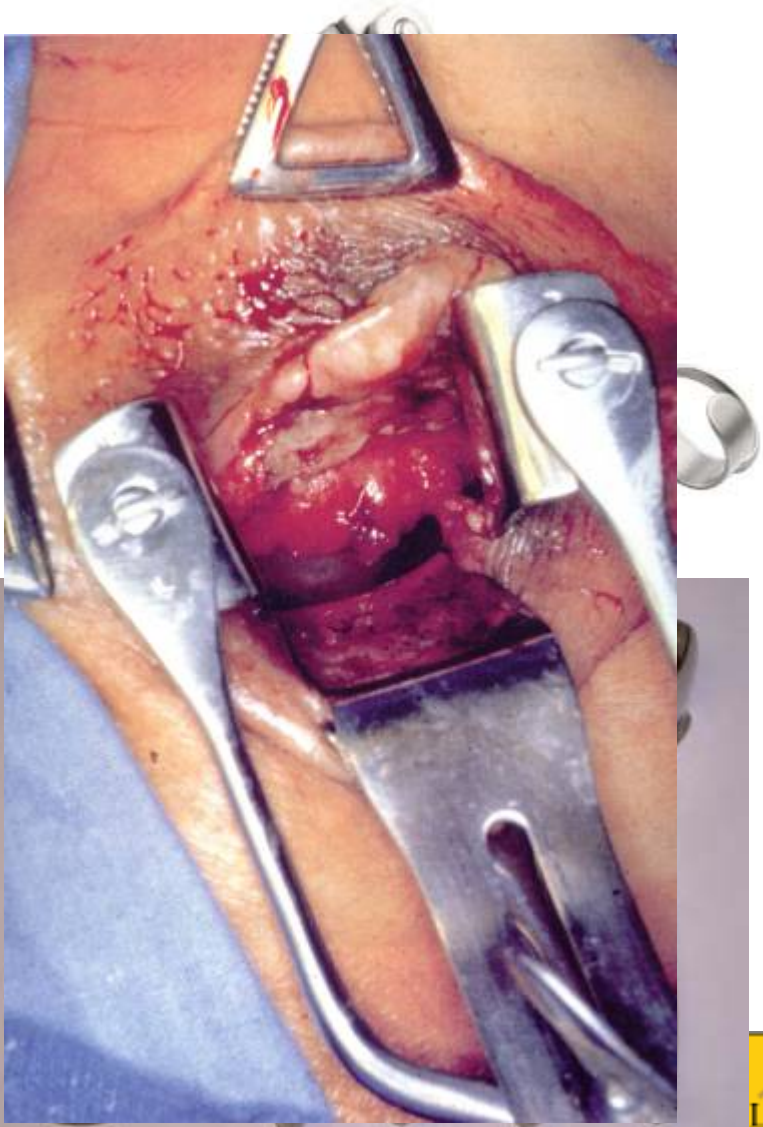
What will we cover?



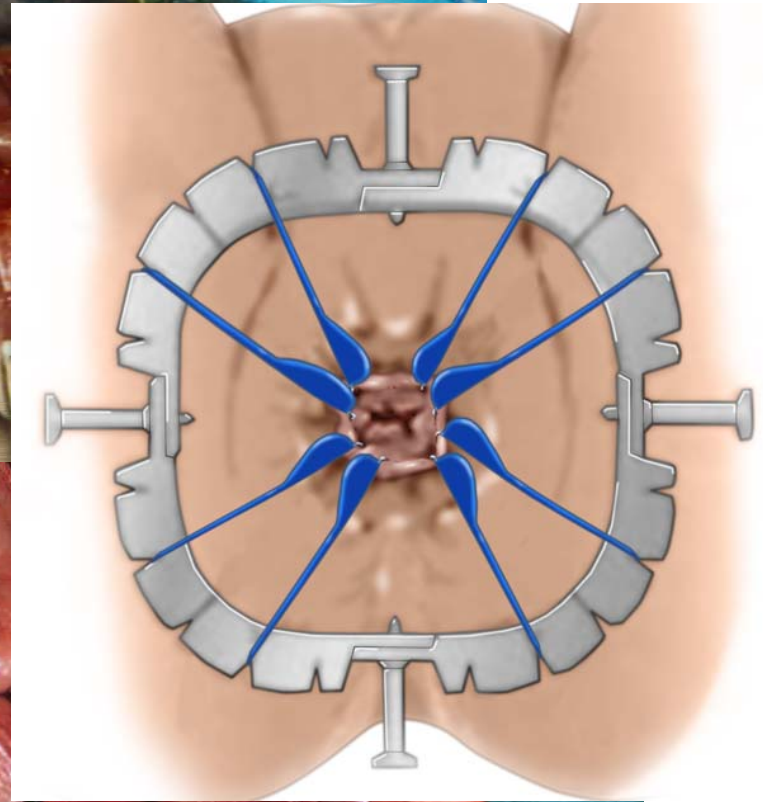
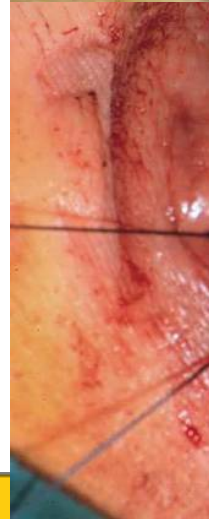
- How did we get to where we are?
- Techniques (brief)
- Where do these newer techniques fit in rectal cancer management?
 - Simple excision of a favourable T1 cancer and beyond
- What do the guidelines say?
- Followup after TEM resection of rectal cancer
- TEM in BC
- The Future
- *Not an exhaustive review*



Conventional transanal excision



A. B. C. D.



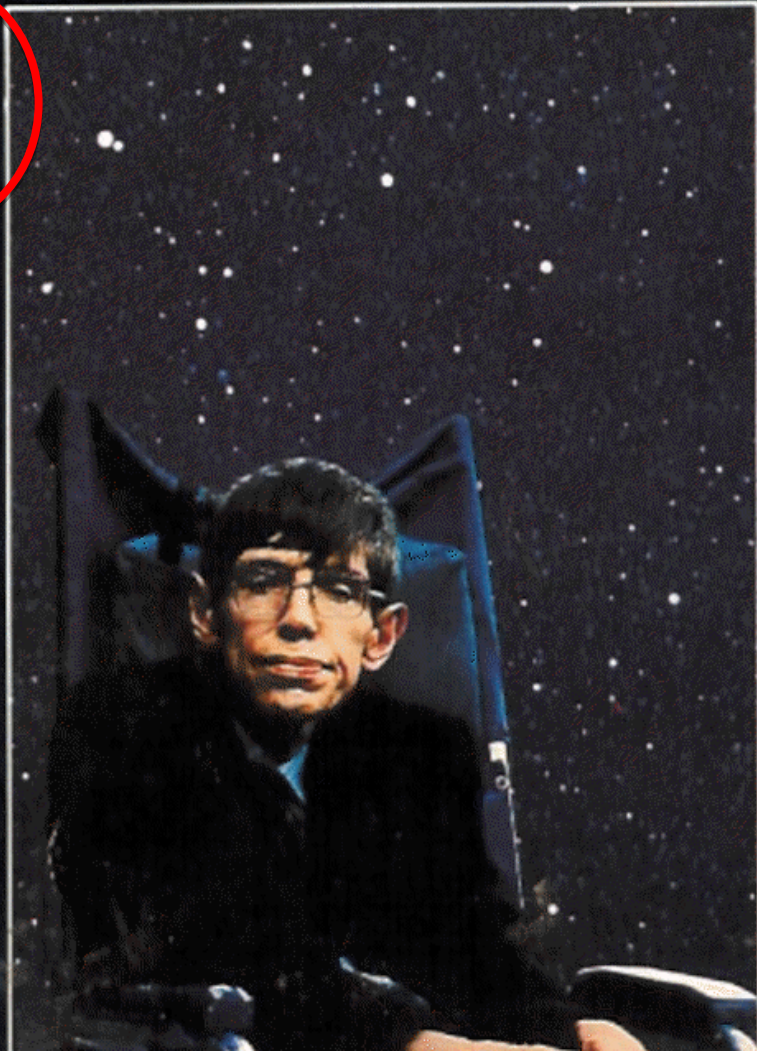
Difficulties with TAE

- Poor visibility
- Inconsistent deep and lateral margins
- Imprecise dissection
- High recurrence rate
 - Adenomas up to 34%
 - Adenocarcinoma up to 50%
- Limited lesion size
- Limited height

A BRIEF HISTORY OF

TIME

FROM
THE BIG
BANG TO
BLACK
HOLES



THE

HOSPITAL

HEALTH CARE

Beginnings of TEM



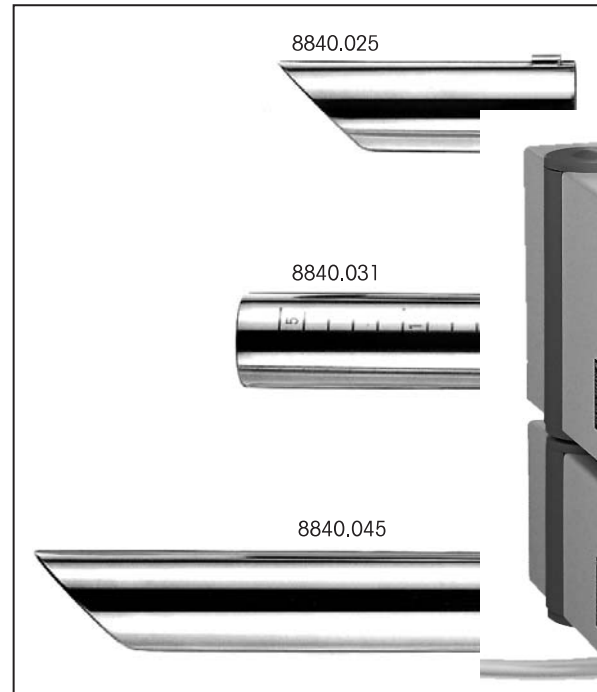
- Gerhard Buess
- adapted a gastroscope for transanal video-assisted resection 1981
- Introduced TEM apparatus 1983
- Trials 1983-1989
- 25 years, 100 sites worldwide
- +5 years, +100 sites



Transanal endoscopic surgery



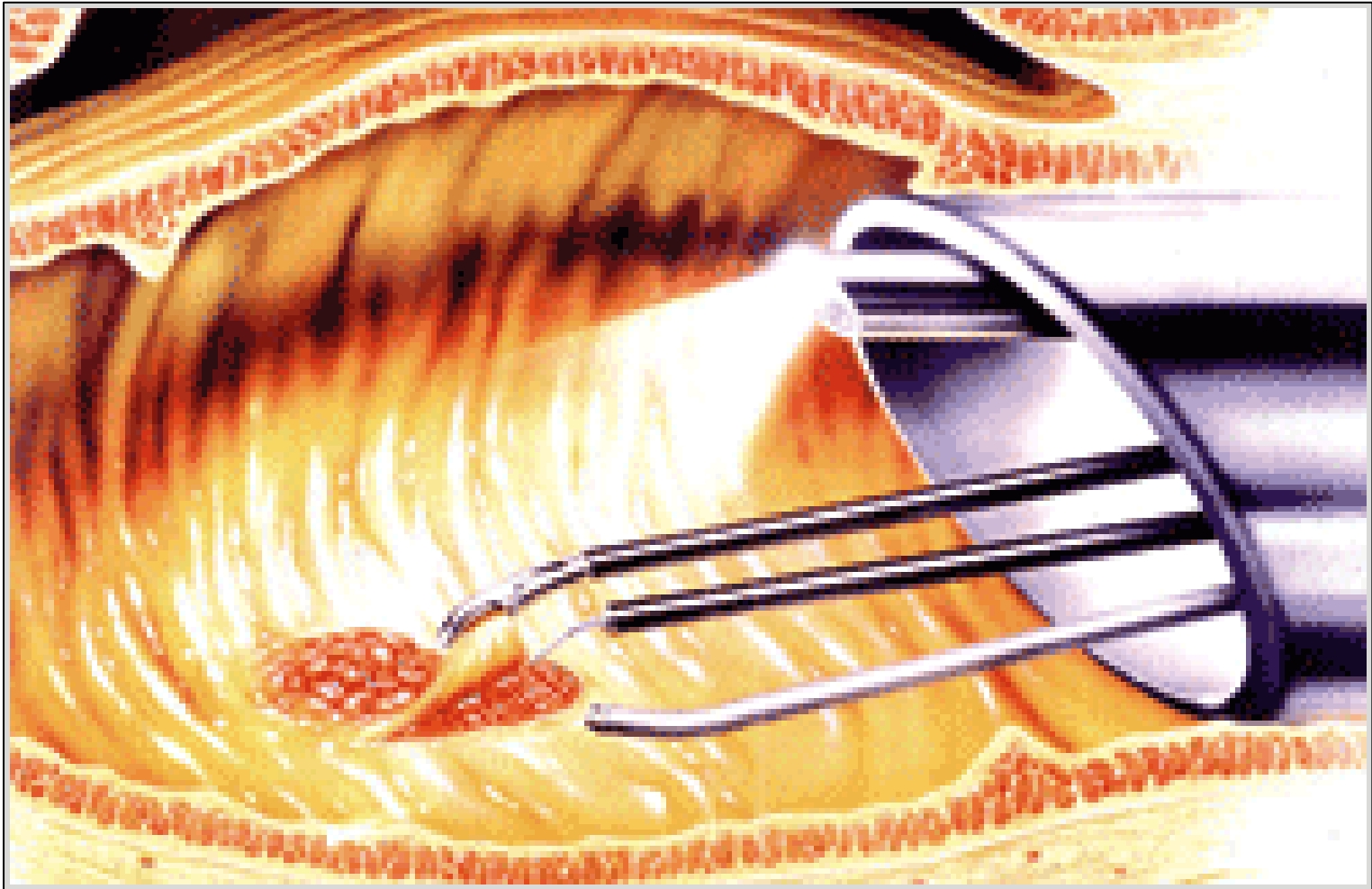
Rectoscope Tubes



Transanal access port



Transanal endoscopic surgery



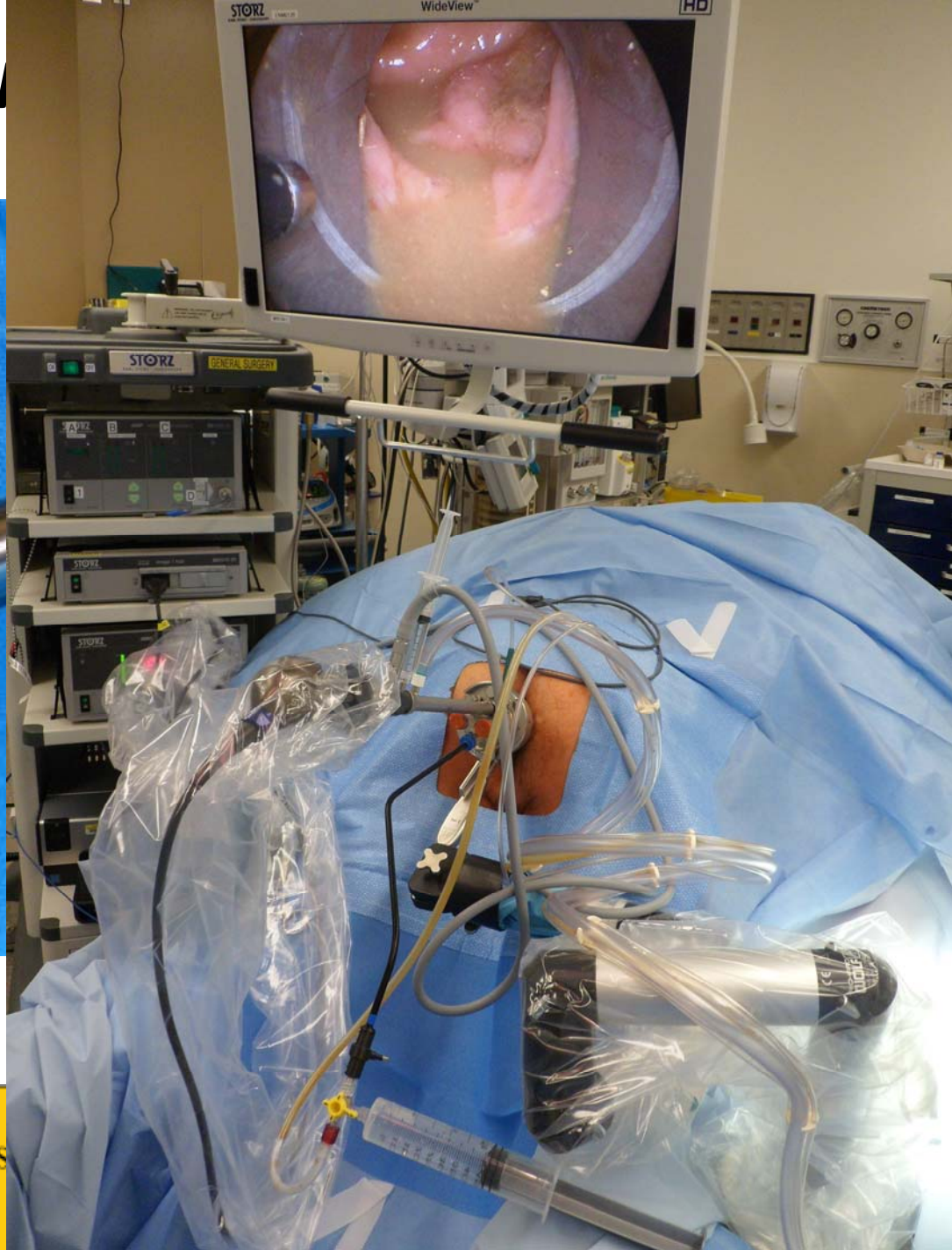
THE UNIVERSITY OF BRITISH COLUMBIA

surgery

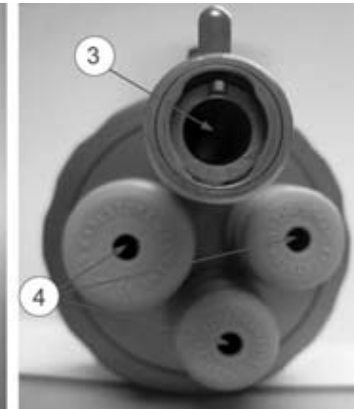
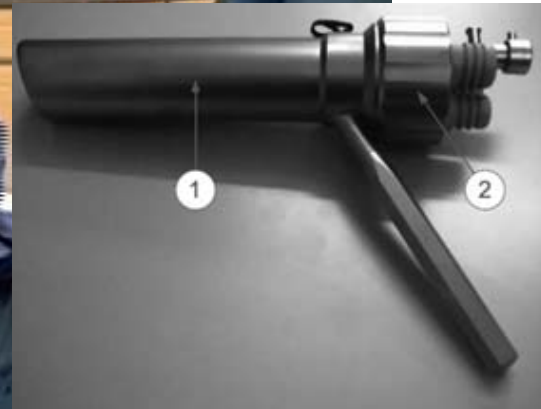


ST. PAUL'S HOSPITAL

PROVIDENCE HEALTH CARE



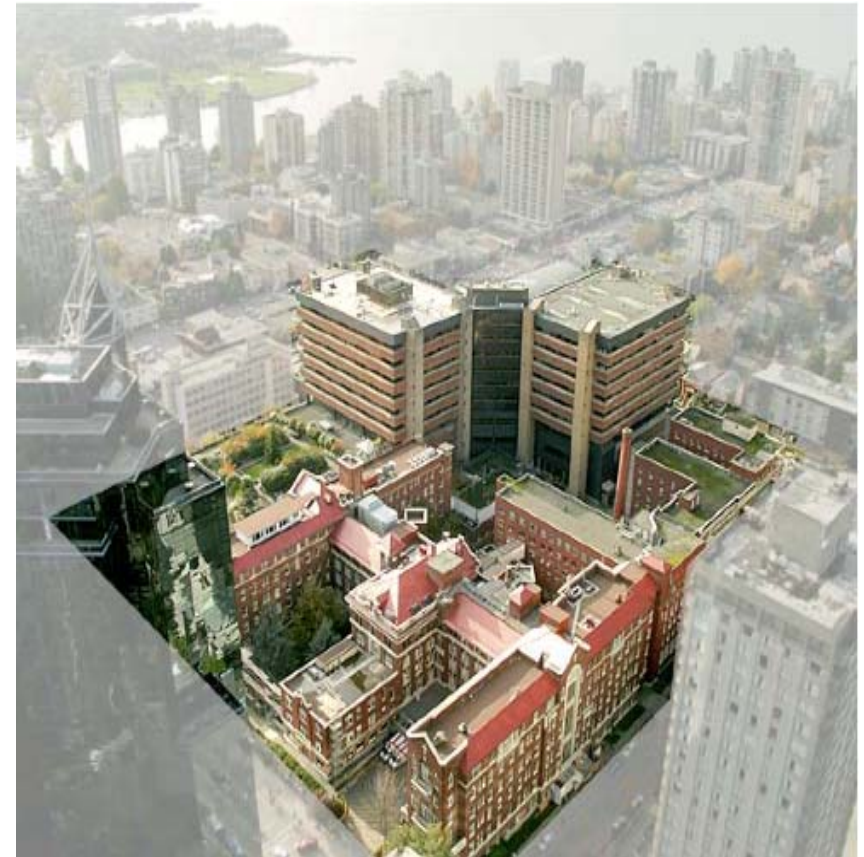
TEO Setup (Karl Storz)



TAMIS



WHERE DO THESE TECHNIQUES FIT IN RECTAL CANCER MANAGEMENT?



A BRIEF HISTORY OF

TIME

FROM
THE BIG
BANG TO
BLACK
HOLES



← LAR/APR

← TEM

Adenocarcinomas



- Gold standard = TME radical resection
 - <3% local recurrence for T1
- Potentially massive benefits of TEM
 - Avoidance permanent or temporary stoma
 - Avoidance of bladder, bowel, sexual dysfunction
 - No hospital stay
 - Lower complication rate
 - Better alternative in patients with major comorbidity? Oncologic risk vs. major surgery risk





Faith Versus Facts

ity

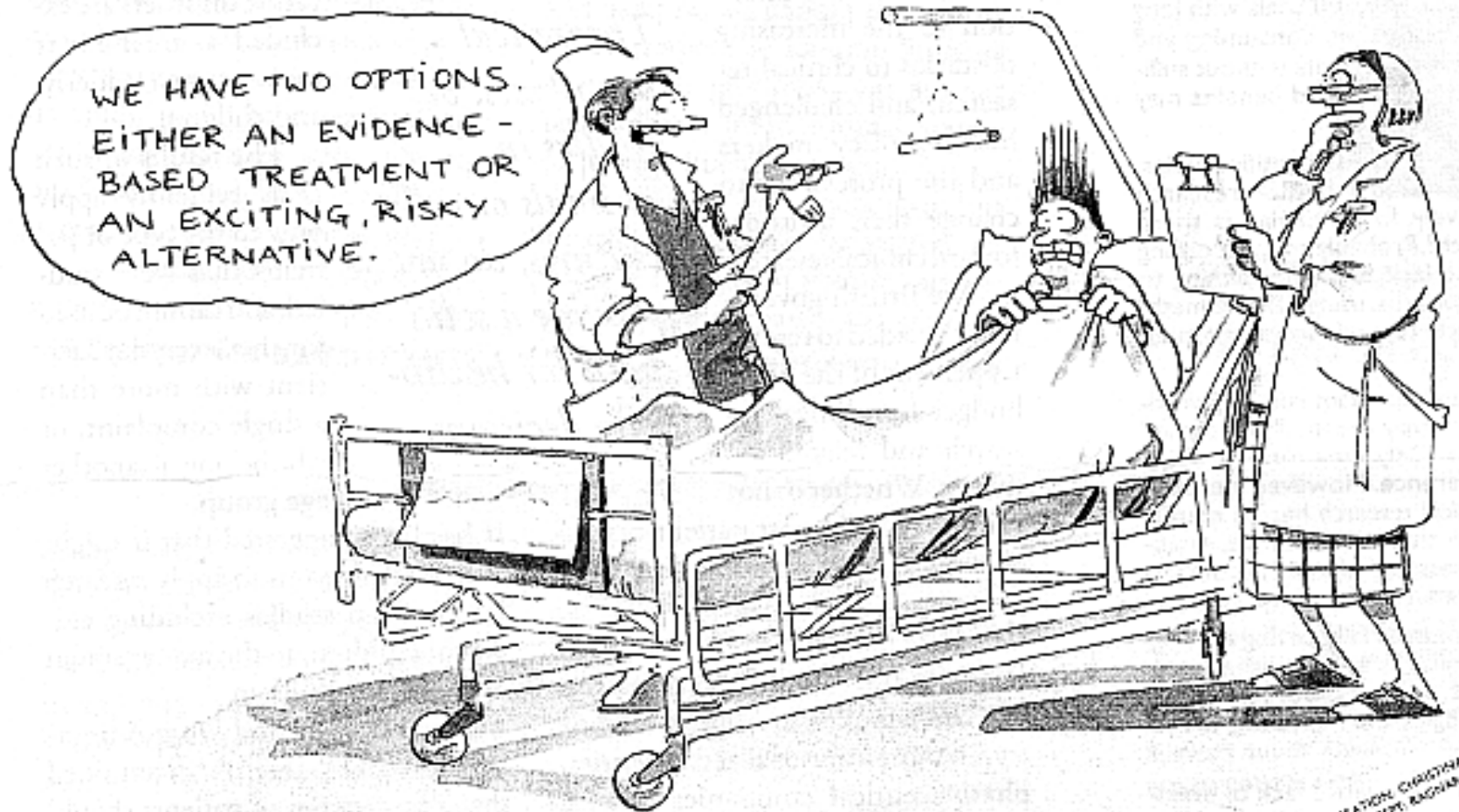


ILLUSTRATION: CHRISTINA ALVIER
CONCEPT: RAGHAV LEVI



THE UNIVERSITY OF BRITISH COLUMBIA



ST. PAUL'S HOSPITAL

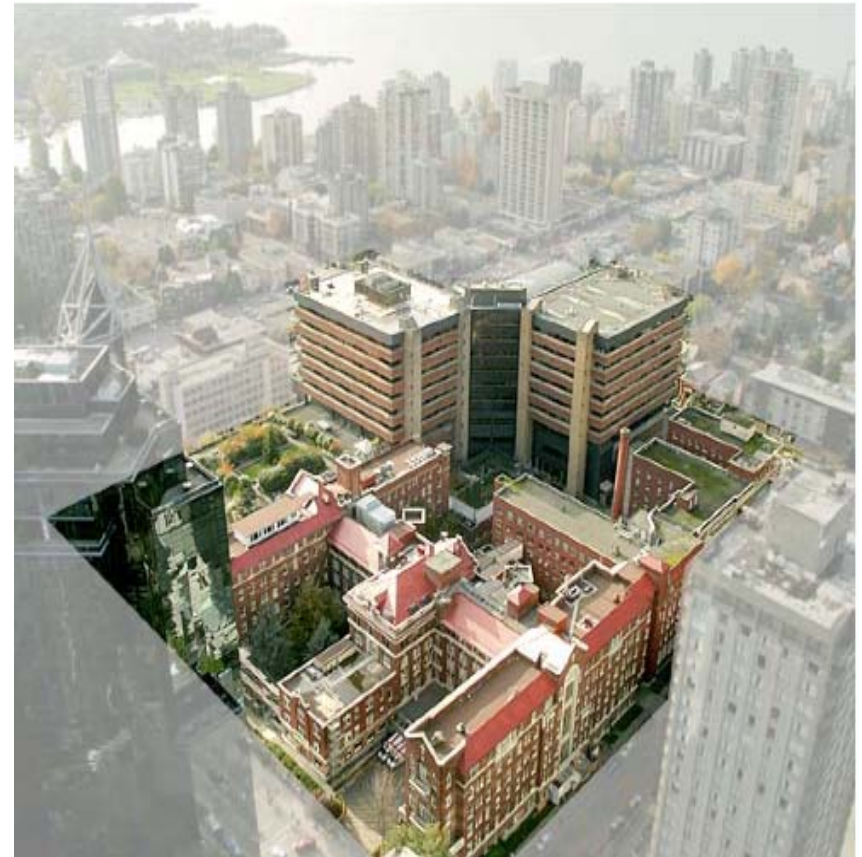
PROVIDENCE HEALTH CARE

What do we want to know?

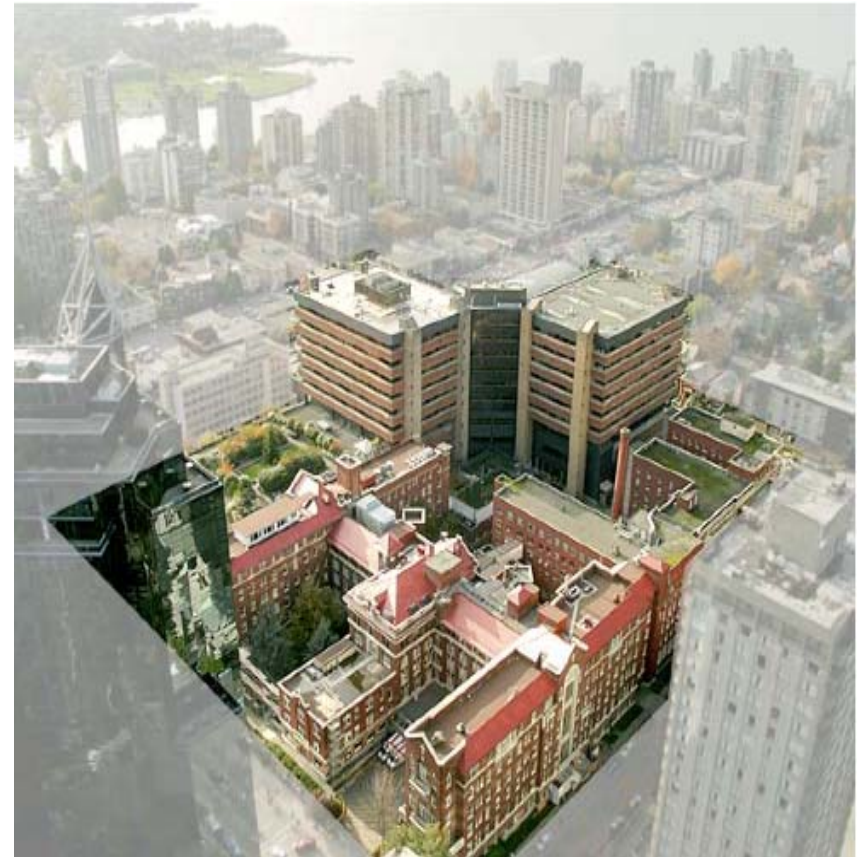
- Adenocarcinoma
 - Better than conventional TAE? - YES
 - Compared to gold standard TME for T1?
 - Are all T1's equal? subset more appropriate for TEM?
 - T1 vs T2+
 - Does neo/adjuvant therapy make it just as good as radical resection?
 - What about downstaged tumours post neoadj CRTx?
 - How good is salvage TME after TEM with unexpected bad cancers?
 - Can TEM techniques be better than open or MIS?



CASES



CASE 1



Case 1

- 65M FIT+ ordered by new GP
- BRBPR 5 yrs ago – hemorrhoids Dx – banded, no scope
- Currently asymptomatic
- Otherwise healthy
- Scope – 3 cm sessile polyp posterior rectal wall 10cm from dentate, tubulovillous adenoma on Bx

Case 1

- TEM resection
 - Full thickness, Primary closure
 - DC home POD 0
- Pathology
 - T1 cancer
 - Margins negative, well differentiated, LVI-
- CT
 - No metastatic disease

Case 1



- Is TEM oncologically definitive therapy?
 - What is the likelihood of lymph node mets?
 - What is the recurrence risk?
 - What are the patterns of recurrence?
 - How to followup if the answer is YES?



TEM for T1 Cancer



- Most series show acceptable local recurrence and overall survival
- What do the TEM vs. TME comparative studies show for T1 cancer?

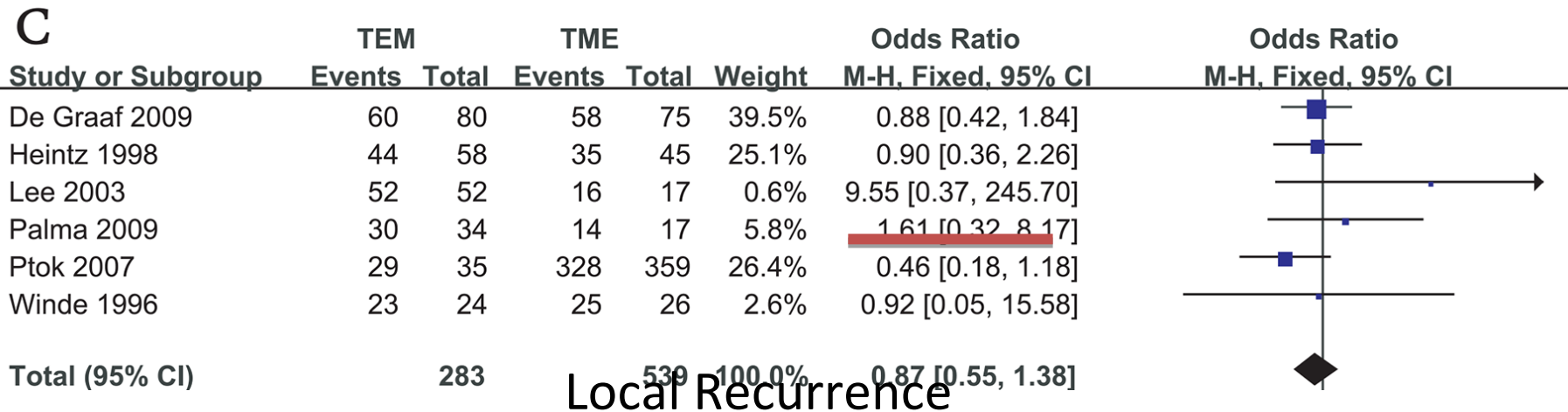
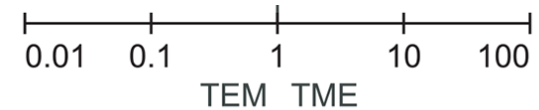


Comparison of Transanal Endoscopic Microsurgery and Total Mesorectal Excision in the Treatment of T1 Rectal Cancer: A Meta-Analysis

Jun-Yang Lu, Guo-Le Lin*, Hui-Zhong Qiu, Yi Xiao, Bin Wu, Jiao-Lin Zhou

PLOS ONE | DOI:10.1371/journal.pone.0141427 October 27, 2015

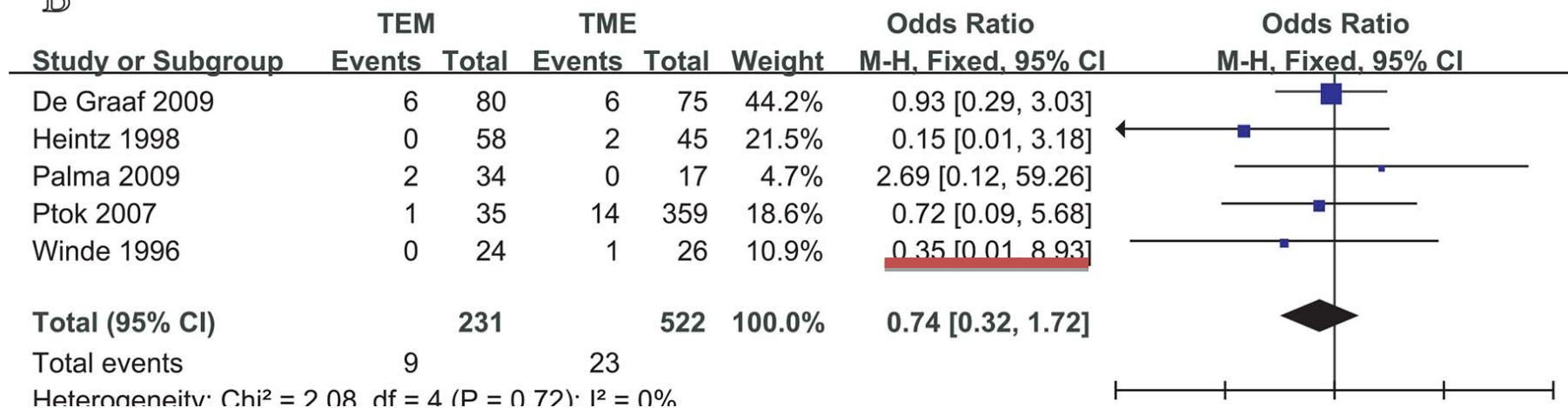
Heterogeneity: $\text{Chi}^2 = 2.08, \text{df} = 4 (P = 0.72); I^2 = 0\%$
 Test for overall effect: $Z = 0.69 (P = 0.49)$



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

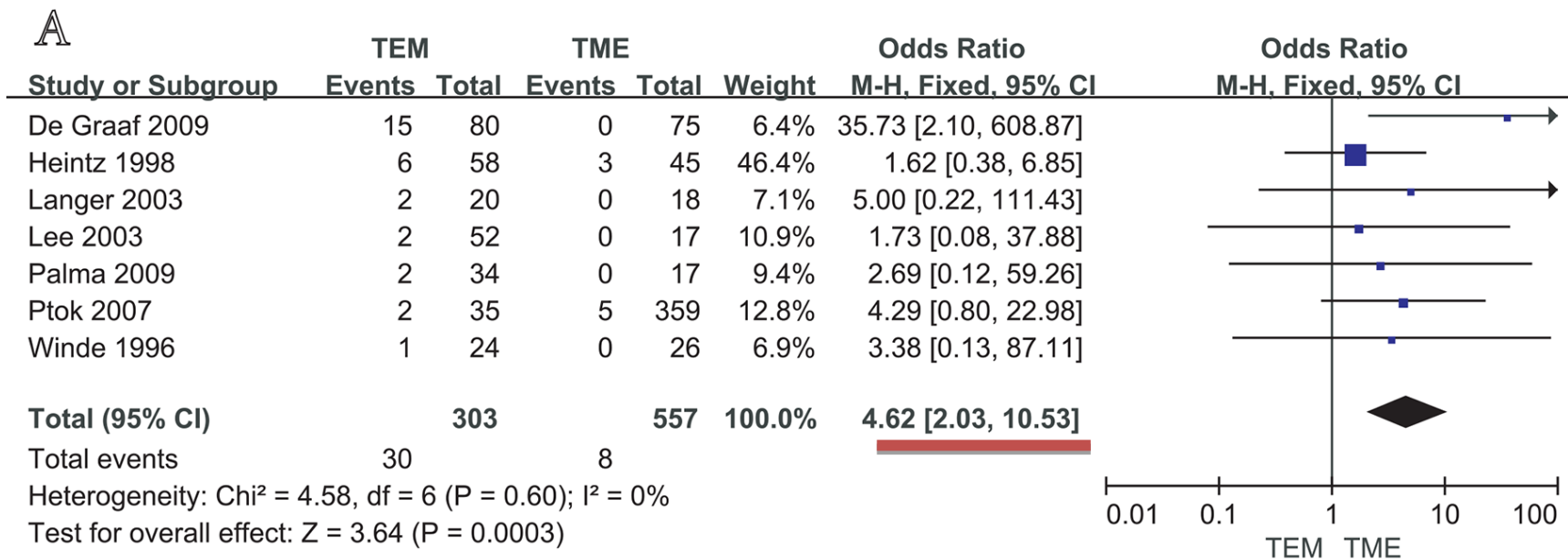
B



Distant Recurrence

Comparison of Transanal Endoscopic Microsurgery and Total Mesorectal Excision in the Treatment of T1 Rectal Cancer: A Meta-Analysis

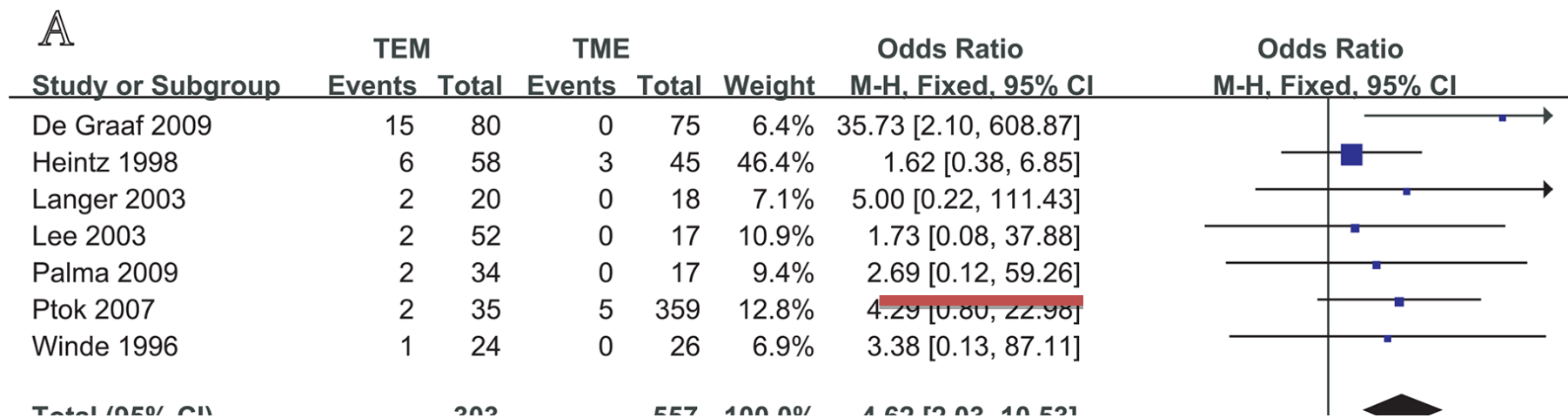
Jun-Yang Lu, Guo-Le Lin*, Hui-Zhong Qiu, Yi Xiao, Bin Wu, Jiao-Lin Zhou



Overall Survival

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



Disease-free Survival

Selecting the 'right' T1 patients?

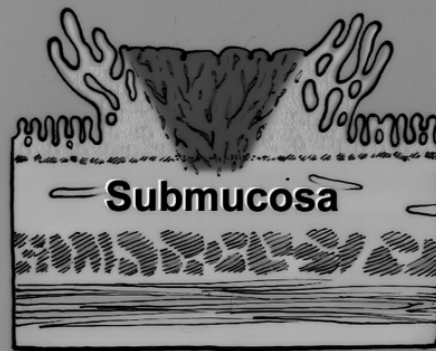


- What are 'low risk' T1 patients?
 - Lowest risk of recurring and lymph node metastases
- Low/moderate grade
- No lymphovascular invasion
- Size?
- Sm1 vs. sm2/3?



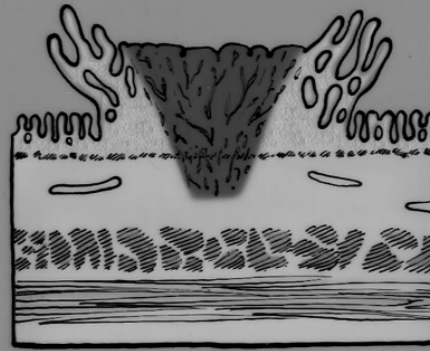
Sm1 vs. Sm 2/3

Risk of Lymph Node Metastases



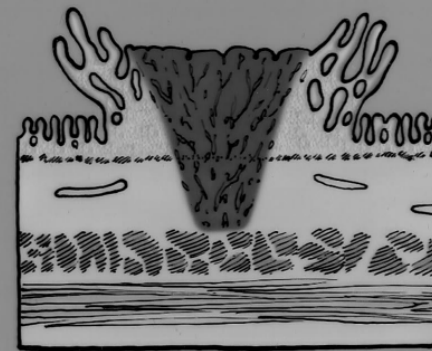
Sm1

1-3%



Sm2

8-15%



Sm3

20-25%

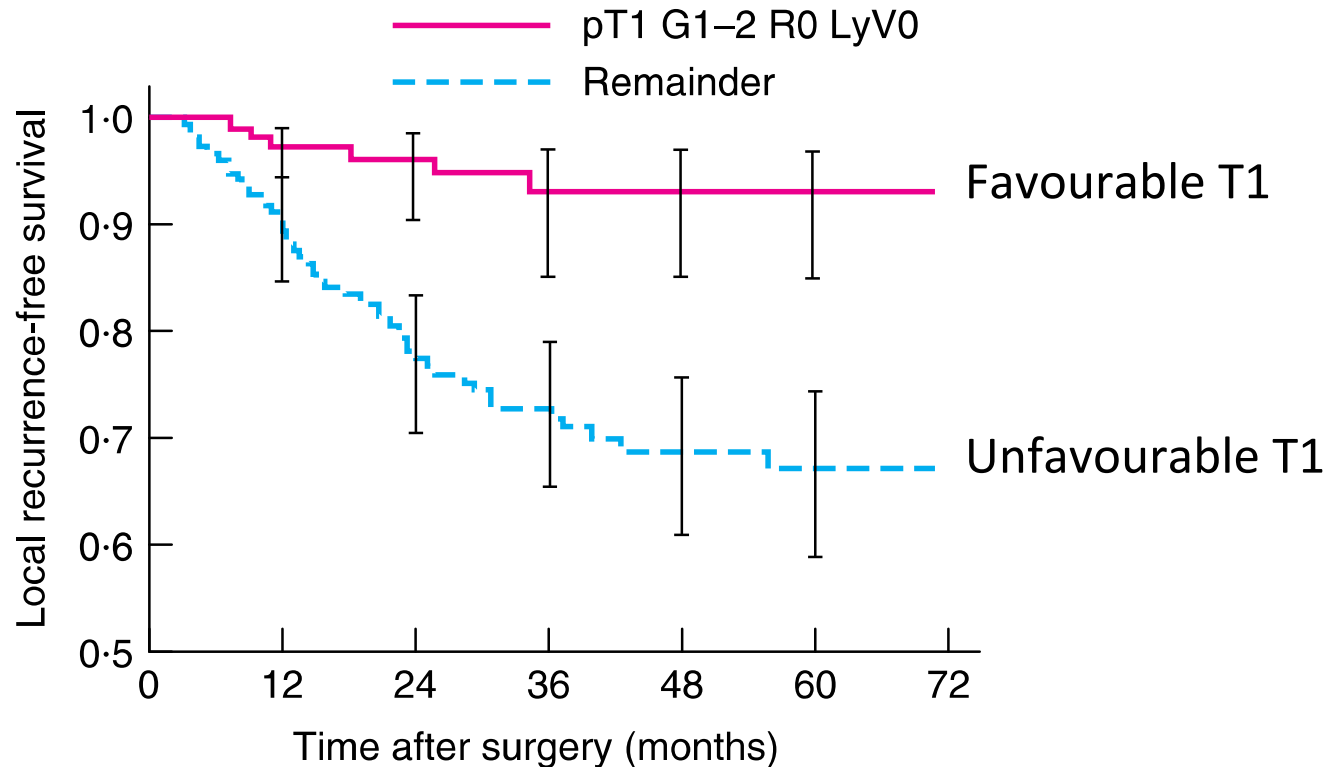
G.F.
© MAYO
1998

DCS793231-001-0

How to stratify T1's?

A predictive model for local recurrence after transanal endoscopic microsurgery for rectal cancer *British Journal of Surgery* 2009; 96: 280–290

S. P. Bach¹, J. Hill², J. R. T. Monson³, J. N. L. Simson⁴, L. Lane⁵, A. Merrie⁷, B. Warren⁶ and N. J. McC. Mortensen⁵, on behalf of the Association of Coloproctology of Great Britain and Ireland Transanal Endoscopic Microsurgery (TEM) Collaboration



How to stratify T1's?

A predictive model for local recurrence after transanal endoscopic microsurgery for rectal cancer *British Journal of Surgery* 2009; 96: 280–290

S. P. Bach¹, J. Hill², J. R. T. Monson³, J. N. L. Simson⁴, L. Lane⁵, A. Merrie⁷, B. Warren⁶ and N. J. McC. Mortensen⁵, on behalf of the Association of Coloproctology of Great Britain and Ireland Transanal Endoscopic Microsurgery (TEM) Collaboration

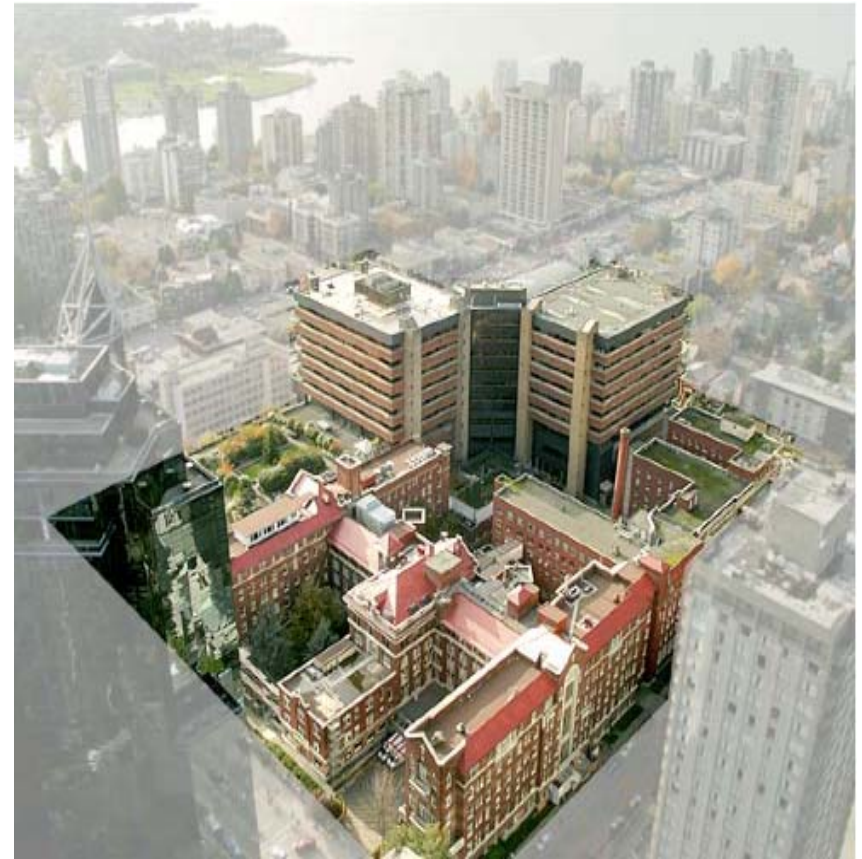
Depth of invasion	Lymphatic invasion	Maximum tumour diameter (cm)					
		≤ 1	1.1–2	2.1–3	3.1–4	4.1–5	≥ 5.1
pT1 sm1	No	3.0	3.6	4.4	5.4	6.6	8.1
	Yes	5.2	6.4	7.7	9.4	11.4	13.7
pT1 sm2–3	No	10.5	12.7	15.3	18.5	22.1	26.4
	Yes	17.8	21.4	25.5	30.3	35.7	41.8
pT2	No	9.8	11.9	14.3	17.3	20.7	24.7
	Yes	16.7	20.0	23.9	28.5	33.7	39.5
pT3	No	19.7	23.6	28.0	33.2	39.0	45.4
	Yes	32.2	37.9	44.1	51.0	58.3	65.7

Local recurrence @
36 months with TEM

Well-mod diff

**Take Home:
APPROPRIATE &
CAREFUL Selection**

ST. PAUL'S HOSPITAL



St. Paul's Experience



- 488 to January 27, 2015

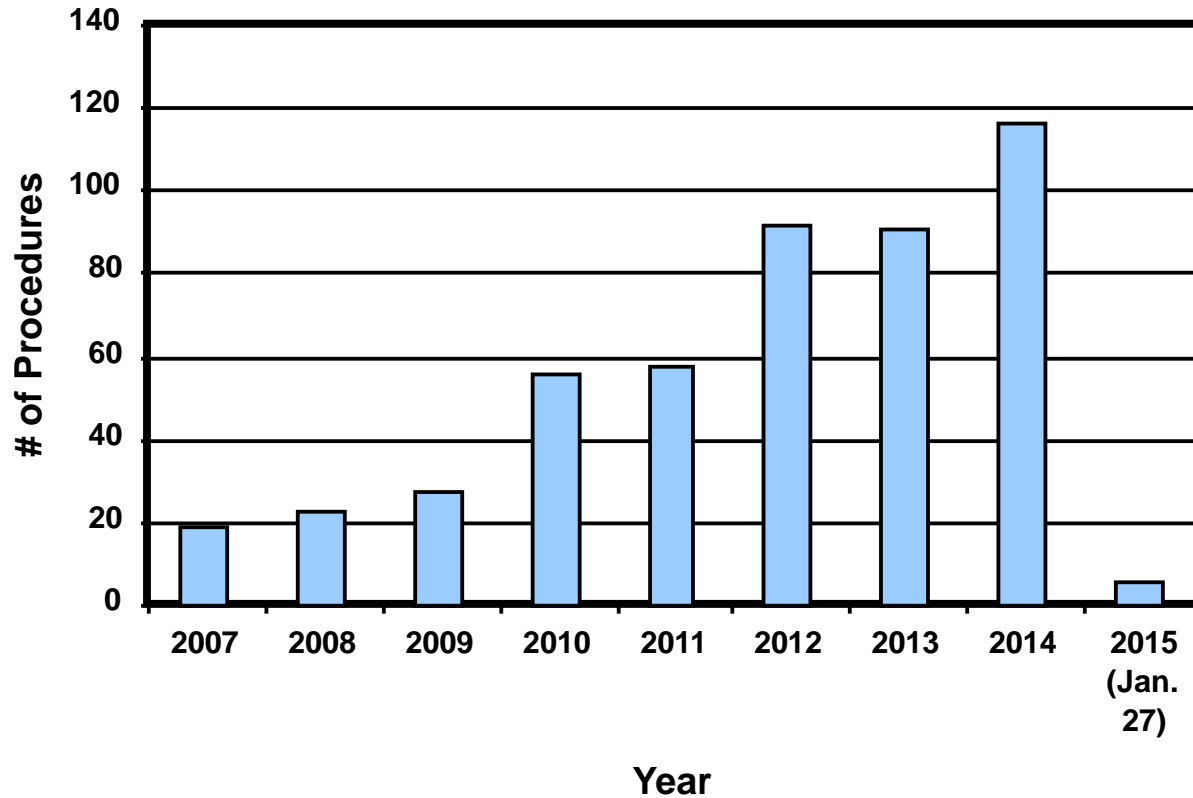
Age	67 years (17-99)
Gender (M:F)	293:195
Surgeon: XXXXXX Brown	295
Raval	155
Phang	36
Karimuddin	2
Tumor Height	7.86 cm (1-20)
Adenoma: Carcinoma: Other	281:135:72
Median Hospital Stay	0 days



St. Paul's Experience



TEM Procedures (2007-Jan 2015)

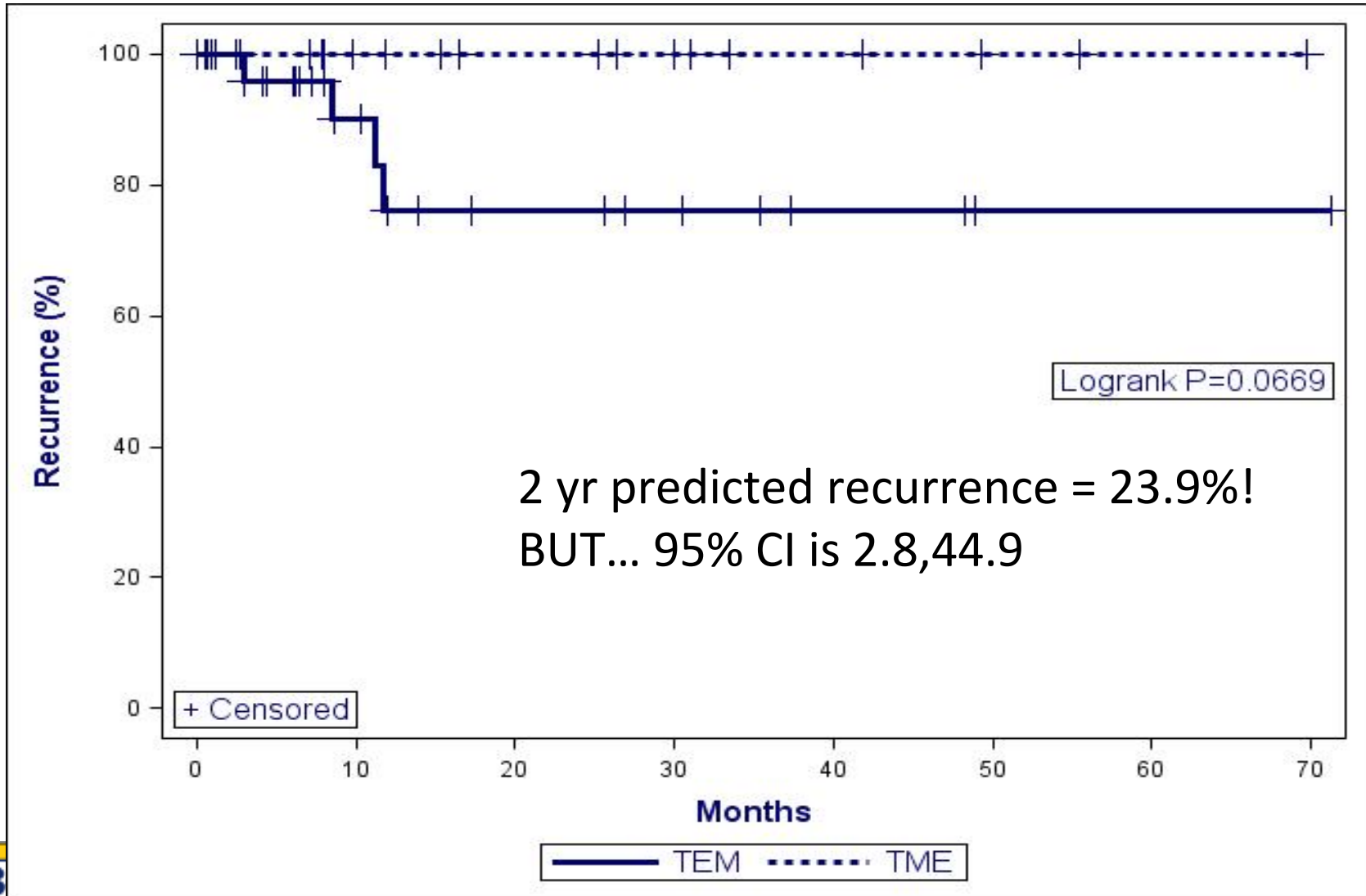


St. Paul's Experience

- T1 Cancers – TEM vs. TME (RR)

Recsky et al., 2014	TEM	TME	p
n	32	19	
Length of Stay	0.5	7.2	<0.001
OR Time (mins)	56	180	<0.001
Post-op Bleeding	2 (6.2%)	0 (0%)	0.52
Readmission	1 (3.1%)	0 (0%)	0.63
Cancer Recurrence	4 (12.5%)	0 (0%)	0.28
Overall Survival	31 (97%)	19 (100%)	0.63

St. Paul's Experience



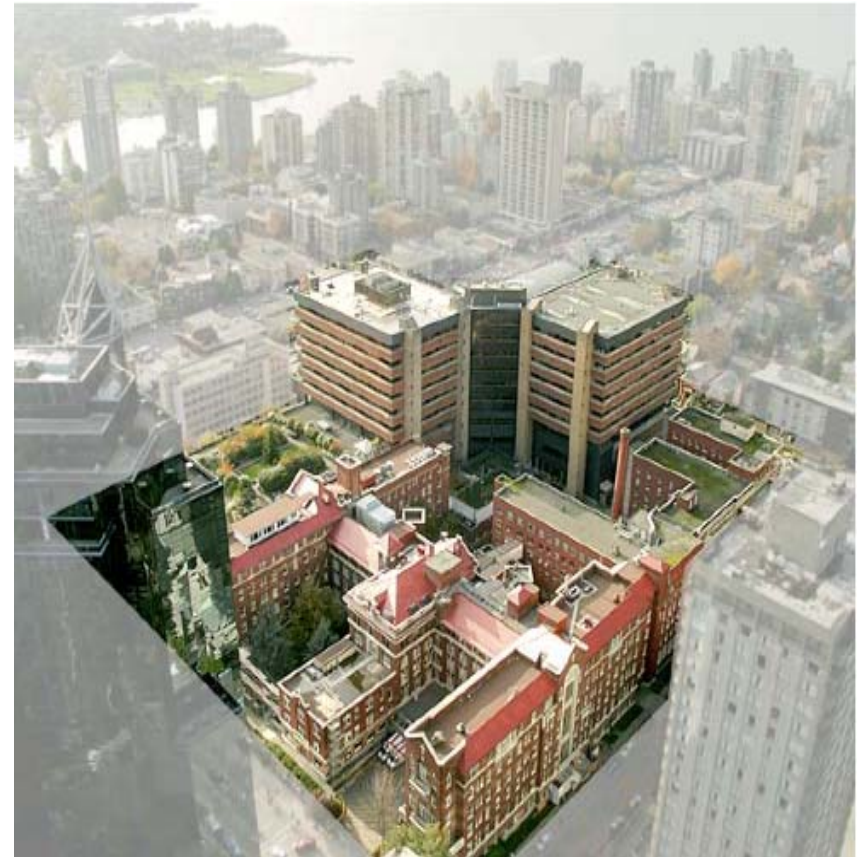
St. Paul's Indications



- Adenomas not amenable to endoscopic removal
- T1 Cancer
 - Low risk
 - Patients who accept higher local recurrence
- Other Cancers
 - Patients unfit for radical resection



GUIDELINES



Transanal Excision Criteria (NCCN)



- <30% circumference
- <3 cm in size
- Margin clear (>3 mm)
- Mobile, nonfixed
- Within 8 cm of anal verge
- T1 only
- Endoscopically removed polyp with cancer or indeterminate pathology
- No lymphovascular invasion
- Well to moderately differentiated
- No evidence of lymphadenopathy on pretreatment imaging
- **When the lesion can be adequately identified in the rectum, transanal endoscopic microsurgery (TEM) may be used. TEM for more proximal lesions may be technically feasible.**



NCCN Guidelines



- If pathologic examination reveals adverse features such as positive margins, LVI, poor differentiation, or invasion into the lower third of the submucosa (sm3 level), a more radical resection is recommended.

- Problem: TAE and TEM are lumped together!



(2013)

Practice Parameters for the Management of Rectal Cancer (Revised)

A. Surgical Techniques and Operative Considerations

Local Excision

1. Local excision is an appropriate treatment modality for carefully selected T1 rectal cancers without high-risk features. Grade of Recommendation: Weak recommendation based on moderate quality evidence, 2B.

No distinction between TAE and TEM!

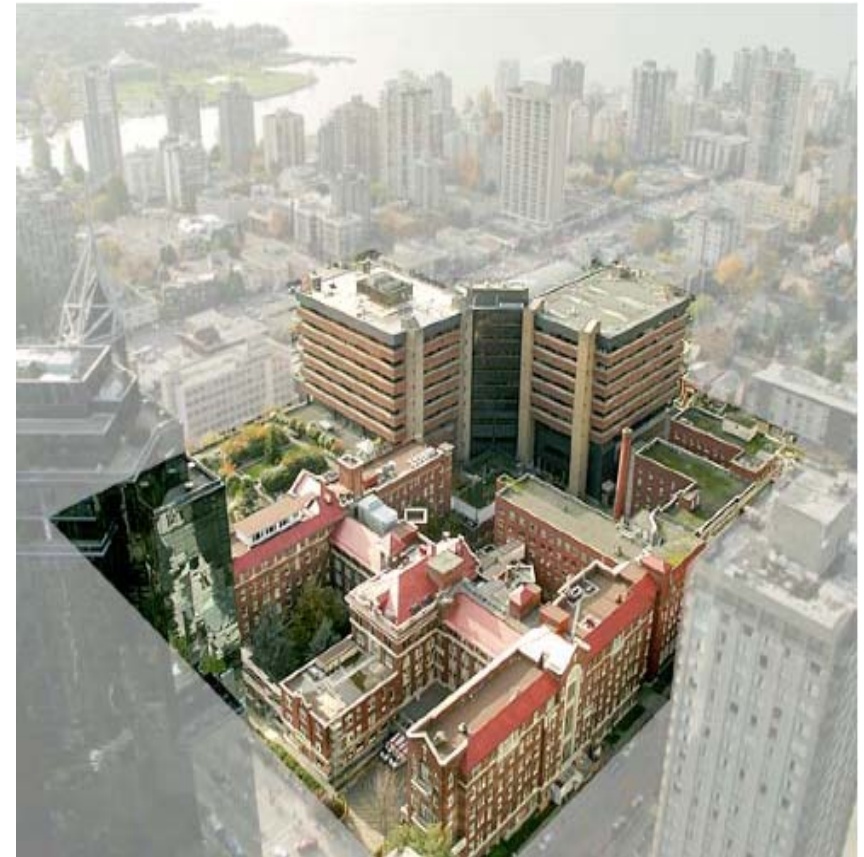
Quandaries...Quagmires...



- Getting back to our patient (T1, well diff, LVI-), what if....
 - T1sm3, margins negative, poorly differentiated, LVI+
 - T1sm2, margins negative, well differentiated, in a patient with CAD and COPD
 - T1sm3, margins negative, well differentiated, healthy patient, **2cm from dentate line**
- Comparative studies re addition of RT?



FOLLOWUP AFTER TEM FOR CANCER



Followup after TEM for Cancer



- Without radical resection, **patient** and **surgeon** must commit to rigorous surveillance.
- What are the patterns of recurrence?
 - Temporal
 - Anatomic – Luminal, nodal, distant
- How often to do surveillance?
- What modalities to use?



Followup after TEM for Cancer



- The problem: pT1Nx
- <100% ability to identify N+ disease on MRI & ERUS preop
- Use surrogate markers for risk of N+ disease and recurrence
 - Grade
 - LVI
 - Tumour budding
 - Sm1 vs. Sm2/3
- Poor features favour proceeding to TME
- More patients, in more communities, who have NOT had TME for Stage I rectal cancer
 - Higher recurrence risk = Need surveillance



Recurrence Risk Post-TEM for T1

Table 2
Characteristics of local and distant recurrences after TEM or TME for T1 rectal cancer.

Primary surgery	LR	Interval (months)	Salvage therapy	TNM	Margins	Distant recurrences	Interval (months)	Follow-up (months)	Survival status
TEM	Yes	5	LAR	pT3N0	R0	—	—	16	A
TEM	Yes	5	APR	pT2N0	R0	—	—	34	DNCR
TEM	Yes	6	APR	pT2N0	R0	—	—	33	DNCR
TEM	Yes	7	LAR	pT2N0	R0	—	—	69	A
TEM	Yes	10	APR	pT3N0	R0	—	—	69	A
TEM	Yes	10	LAR	pT3N0	R0	—	—	16	A
TEM	Yes	11	LAR	pT3N1	R0	—	—	19	A
TEM	Yes	12	LAR	pT3N0	R0	—	—	20	A
TEM	Yes	40	CTh,APR	pT0N0	R0	—	—	49	A
TEM	Yes	5	LAR	pT3N0	R0	Liver, lung	5	13	DCR
TEM	Yes	12	LAR, CTh	pT3N2	R1	Liver	27	39	DCR
TEM	Yes	19	Hp	pT2N0	R0	Liver	19	40	DCR
TEM	Yes	5	None	cT3	—	Liver	5	15	DCR
TEM	Yes	20	CTh	cT4	—	Liver	22	30	DCR
TEM	Yes	50	CTh	cT4	—	Lung	50	52	A
TME	No	—	—	—	—	Skin	5	7	DCR
TME	No	—	—	—	—	Peritonitis carcin	0	20	DCR
TME	No	—	—	—	—	Liver, bone	28	29	DCR
TME	No	—	—	—	—	Liver, lung, brain	29	34	DCR
TME	No	—	—	—	—	Liver	23	39	DCR
TME	No	—	—	—	—	Lung	16	57	DCR

APR = abdomino-perineal resection; AR = anterior resection; CTh = chemotherapy; Hp = Hartmann's procedure; — = not applicable; p = pathological; c = clinical; R0 = microscopically radical; R1 = microscopically irradical; A = Alive; DCR = died cancer-related; DNCR = died not cancer-related.

Protocols – What Can Guide Us?



- Largest series have frequent followup
- Most recurrences are luminal
- Recurrence “events” can happen early or late
 - Start following early, frequently, and for a long time
- Isolated distant recurrences can occur
- Nodal recurrences rarely specified in series or occur rarely
- “Guidelines” vs “advice” – evidence to guide surveillance is low level



Practice Guideline for the Surveillance of Patients After Curative Treatment of Colon and Rectal Cancer

Prepared by The Clinical Practice Guidelines Committee of the American Society of Colon and Rectal Surgeons

8. Surveillance proctosigmoidoscopy with or without endorectal ultrasound is recommended every 6 months for 3 to 5 years for all patients who have undergone transanal local excision of rectal cancer. Grade of Recommendation: Strong recommendation based on low-quality evidence, 1C.

Unfortunately, there are also no randomized trials of surveillance protocols for patients treated with transanal local excision, whether by traditional local excision, transanal endoscopic microsurgery, or transanal minimally invasive surgery.

Proposed Surveillance Protocol



- *Endorsed by BC Network of Colorectal Surgeons, BCCA GI Tumour Group, BCCA Surgical Oncology Network*
- Hx, PE, rigid/flex sig, CEA
 - Q4-6months x2 years, then Q6months x3 years
- MRI or ERUS for nodal recurrence
 - Not needed
- CT CAP
 - Q6-12months x2 years, then annually x3 years
 - CXR & liver US instead?
 - Not preferred option – no assessment of perirectal tissues
- Full Colonoscopy
 - As per usual guidelines
- Should surveillance be longer for TEM than for TME?



Issues in Intensive Followup



- Will patients adhere?
- Will we and our colleagues adhere?
- Will everyone with adverse path features be offered TME post-TEM?
- Costs and resources increasing over time?
- How do we monitor how we are doing?
- Should patients in communities where intensive followup is unavailable even be offered TEM? Or get TME only?



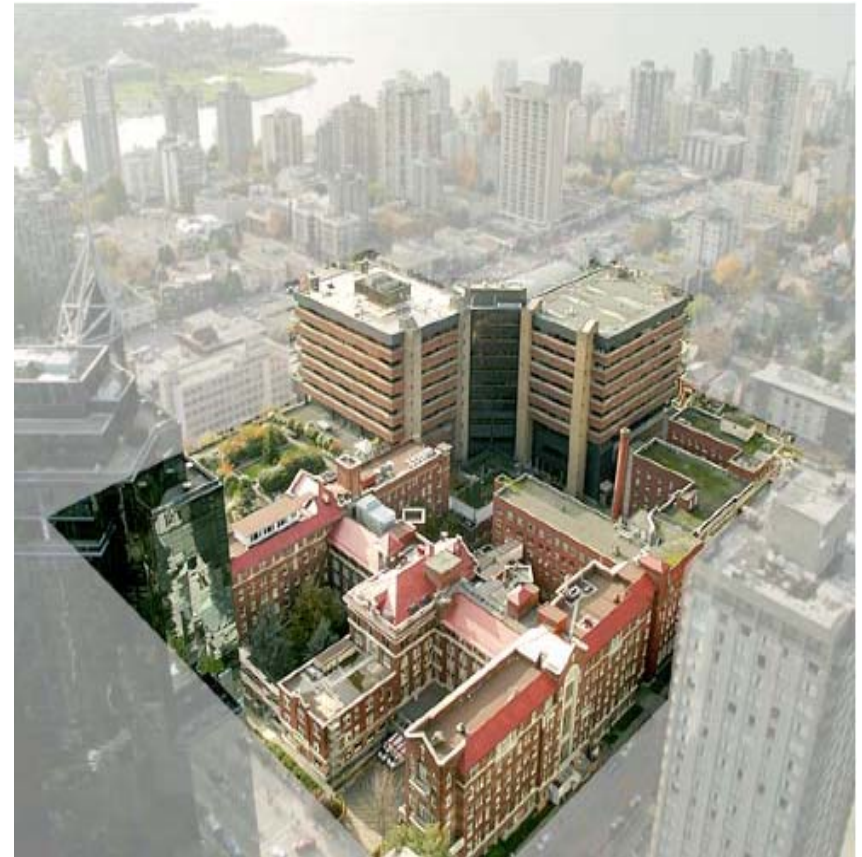
Salvage after Recurrence



- Stay tuned...Case 3



CASE 2



Case 2

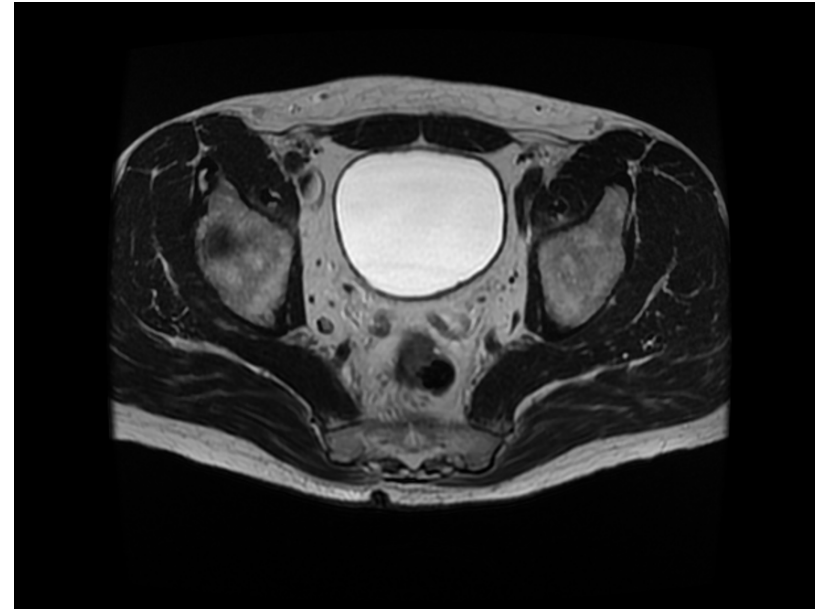


- 67M presents with mucous discharge with BM
 - No BRBPR
 - BM 2/day – no changes
 - No wt loss, no abd pain, no perineal pain
 - PMHx – healthy Meds – None All – None

- Colonoscopy – large villous adenoma – 1/3 circ
 - Multiple biopsies - adenoma

Case 2

- June 2015 - TEM Procedure
 - Path – T2 adenocarcinoma – mod diff
- CT
 - no metastatic disease
- MRI
 - defect from TEM seen
 - no other abn



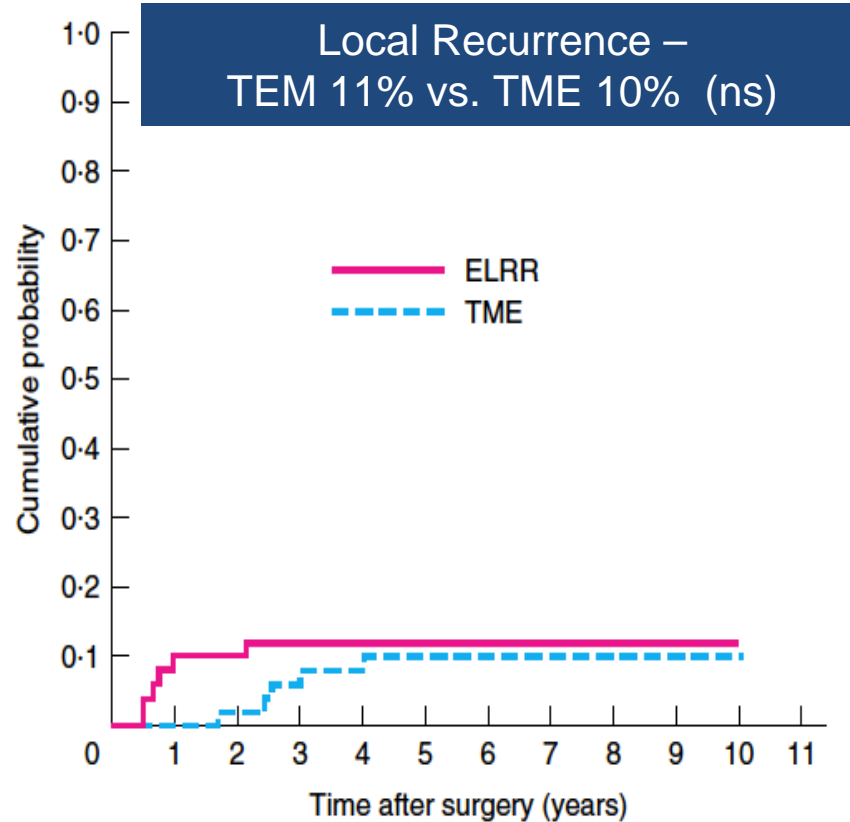
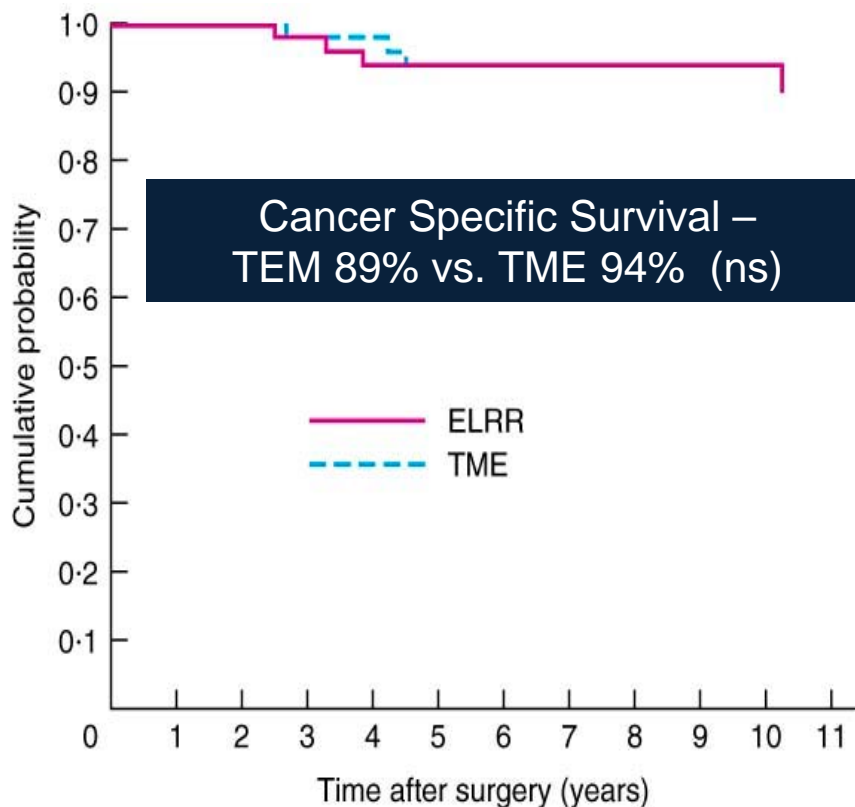
TEM for T2 Rectal Cancer?



- Lezoche et al, Br J Surg 2012
 - April 1997 – April 2004, 2 Hospitals in Italy
 - Low rectal tumours limited to T2N0M0
 - All received neoadjuvant long-course chemo (5-FU) and radiotherapy (four-field, 50.4Gy over 5 weeks)
 - Restaged post-chemoradiation
 - Randomized to TEM vs laparoscopic TME



TEM for T2 Rectal CA?



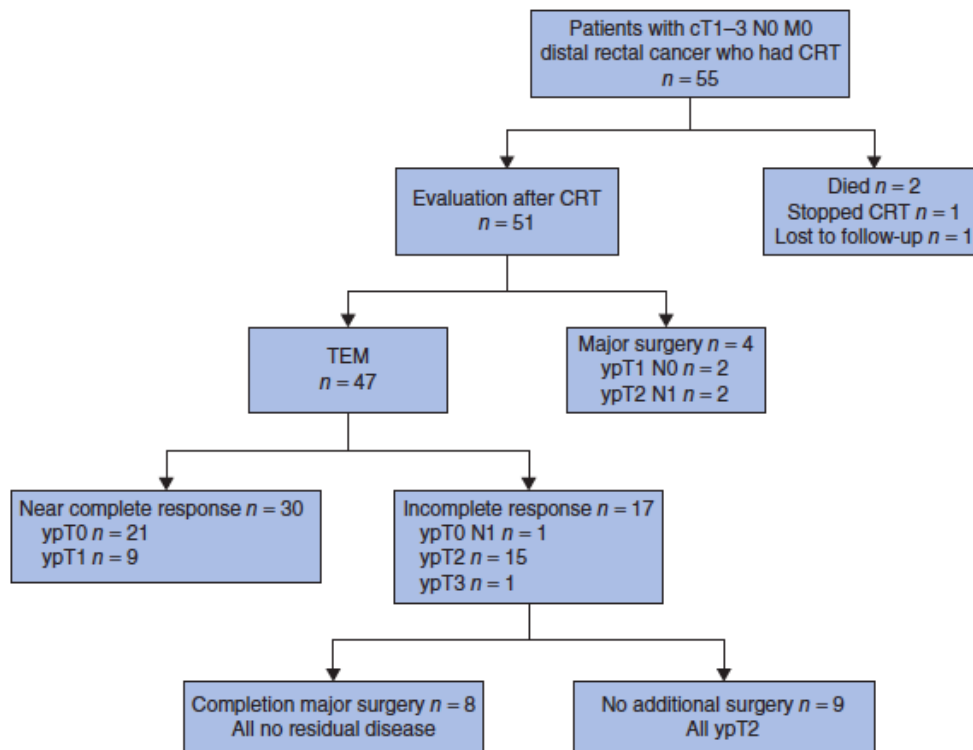
	No. at risk												
	0	1	2	3	4	5	6	7	8	9	10	11	
ELRR	50	50	50	48	45	45	41	38	35	31	19	risk	
TME	50	50	50	49	48	44	39	36	32	29	22	...E	

ELRR	50	45	45	44	43	43	40	37	34	30	19
TME	50	50	49	46	44	43	39	36	32	29	22

Lezoche, BJS, 2012

Chemoradiation therapy for rectal cancer in the distal rectum followed by organ-sparing transanal endoscopic microsurgery (CARTS study)

M. Verseveld^{1,2}, E. J. R. de Graaf¹, C. Verhoef², E. van Meerten³, C. J. A. Punt⁵, I. H. J. T. de Hingh⁶, I. D. Nagtegaal⁷, J. J. M. E. Nuyttens⁴, C. A. M. Marijnen⁹ and J. H. W. de Wilt⁸, on behalf of the CARTS study group*



- Multicentre phase II trial of neoCRT + TEM for T1-3N0M0 lesions
- Select patients who respond
- Early outcomes favourable
 - 21 ypT0 - no recurrence at 1 year
 - 9 ypT1 – 1 recurrence at 1 year (salvage APE)



TEM for T2 Cancer?

Series	Surgery performed	N	High grade (%)	LR (%)	DR (%)	OS (%)	DFS (%)	Median F/U (mo)
Local excision								
Garcia-Aguilar <i>et al.</i> , 1999	TAE	27	0	30.0	7.0	63	55	58
Paty <i>et al.</i> , 2002	TAE	51	-	28.0	-	75	-	120
Gopaul <i>et al.</i> , 2004	TAE	25	-	24.0	-	-	-	37
You <i>et al.</i> , 2007	LE-ANS	164	13.4	13.0	5.0	68	90	60
Radical resection								
You <i>et al.</i> , 2007	RR-NOS	866	7.9	7.2	7.7	77	92	60



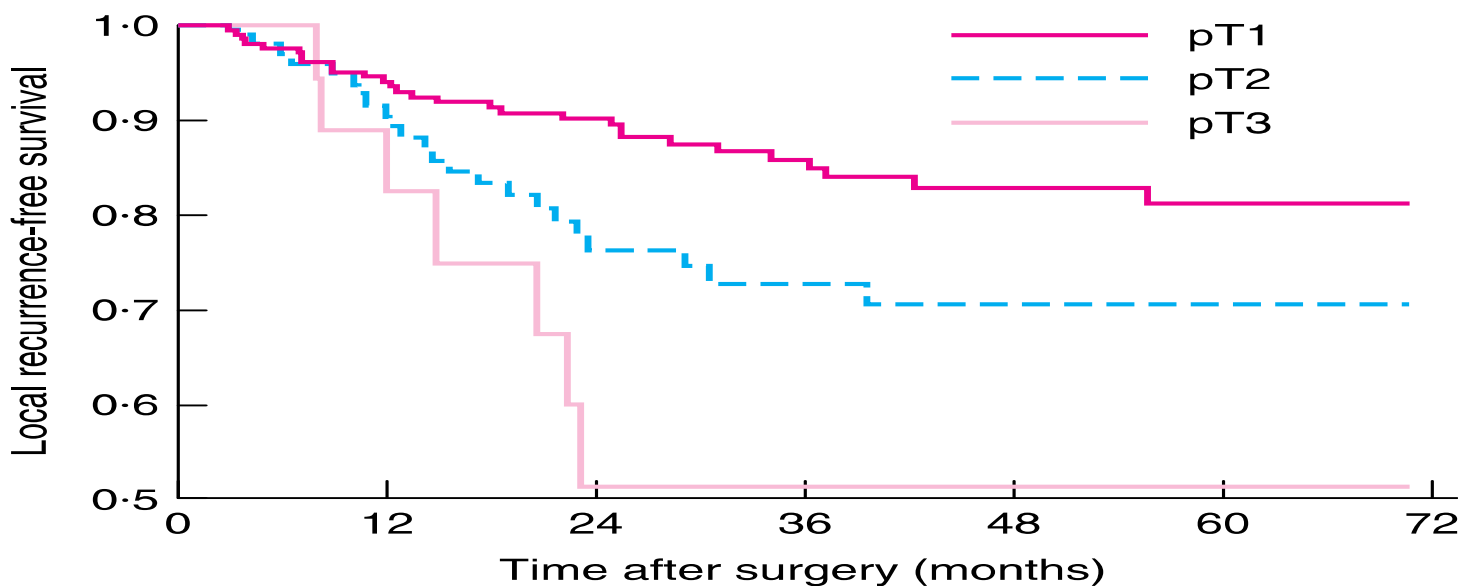
Heaffner, J GI Onc, 2014

TEM for T2 Rectal CA?

A predictive model for local recurrence after transanal endoscopic microsurgery for rectal cancer

British Journal of Surgery 2009; **96**: 280–290

S. P. Bach¹, J. Hill², J. R. T. Monson³, J. N. L. Simson⁴, L. Lane⁵, A. Merrie⁷, B. Warren⁶ and N. J. McC. Mortensen⁵, on behalf of the Association of Coloproctology of Great Britain and Ireland Transanal Endoscopic Microsurgery (TEM) Collaboration



No. at risk

pT1	230	180	142	94	65	50
pT2	107	84	49	34	25	17
pT3	24	15	6	4	3	0

Case 2

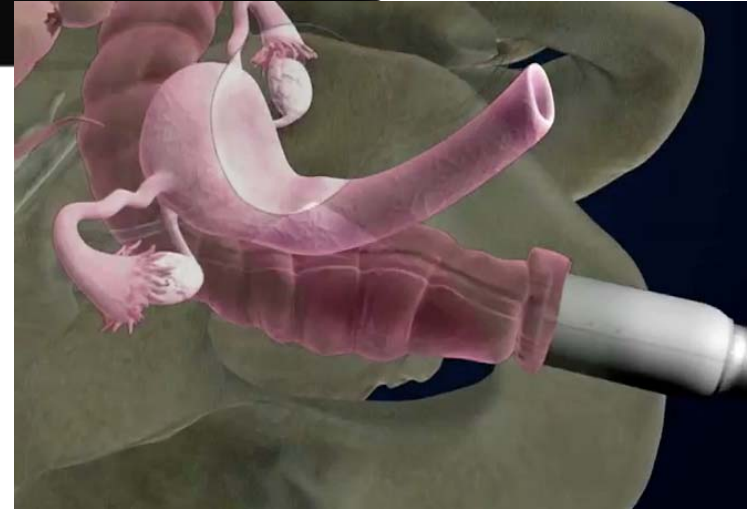
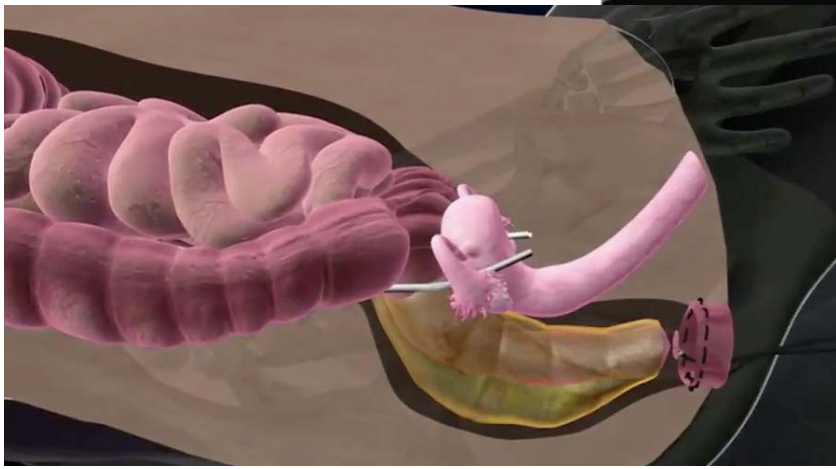
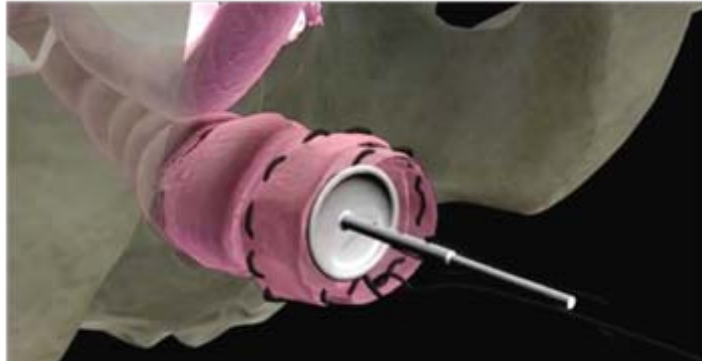
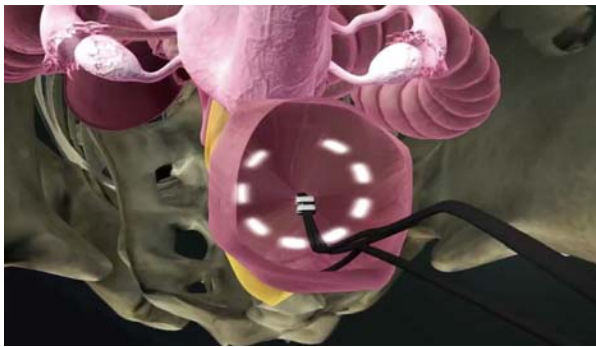


- Discussion with pt
- Agreed to radical resection

- Challenge
 - TEM – lesion just above anorectal jxn
 - Scarring
 - ? Bowel wall integrity for stapler



Transanal Total Mesorectal Excision (TaTME)



Mod from AIS Channel

- Similes, Colorect Dis 2015
 - Systematic review of TaTME
 - 510 cases reported in the literature since 2010
 - Mean OR time – 143-450 minutes
 - Anast leak – 6.1%
 - CRM +ve – 5%
 - 3 Urethral injuries reported in entire cohort

- Video



THE UNIVERSITY OF BRITISH COLUMBIA

surgery



ST. PAUL'S HOSPITAL

PROVIDENCE HEALTH CARE

Case 2

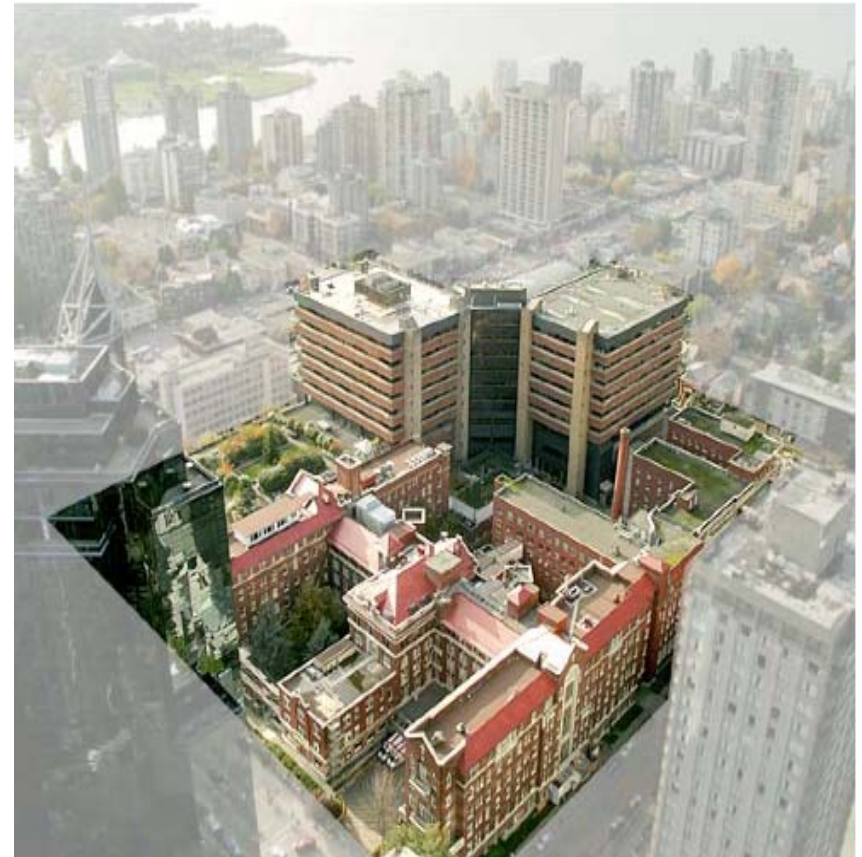


- Uneventful recovery
 - LOS – 8 days
- Pathology
 - TME grade – good
 - 0/17 LN+ve

 - T2N0M0



CASE 3



Case 3



- 46 woman with family hx colon cancer
 - Colonoscopy
 - Multiple adenoma – removed
 - Large rectal adenoma – biopsies show adenoma
 - Healthy
 - Dec 2012 – TEM
 - Path
 - T1 cancer
 - Margins – widely clear
 - Perineural/Lymphovascular Invasion - negative



Case 3

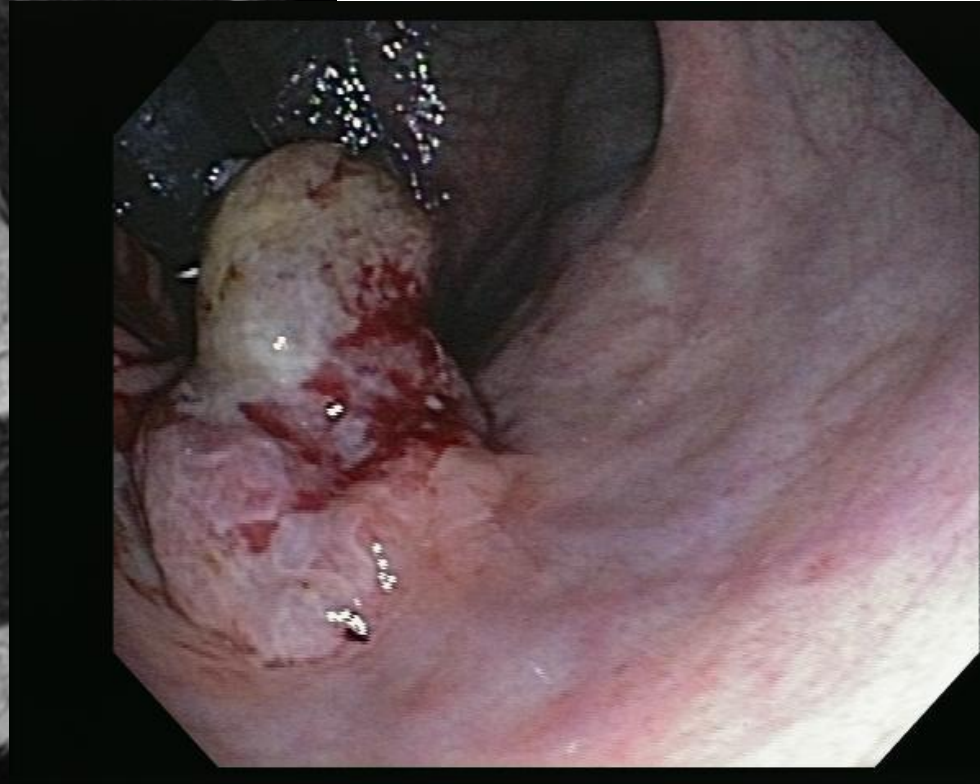
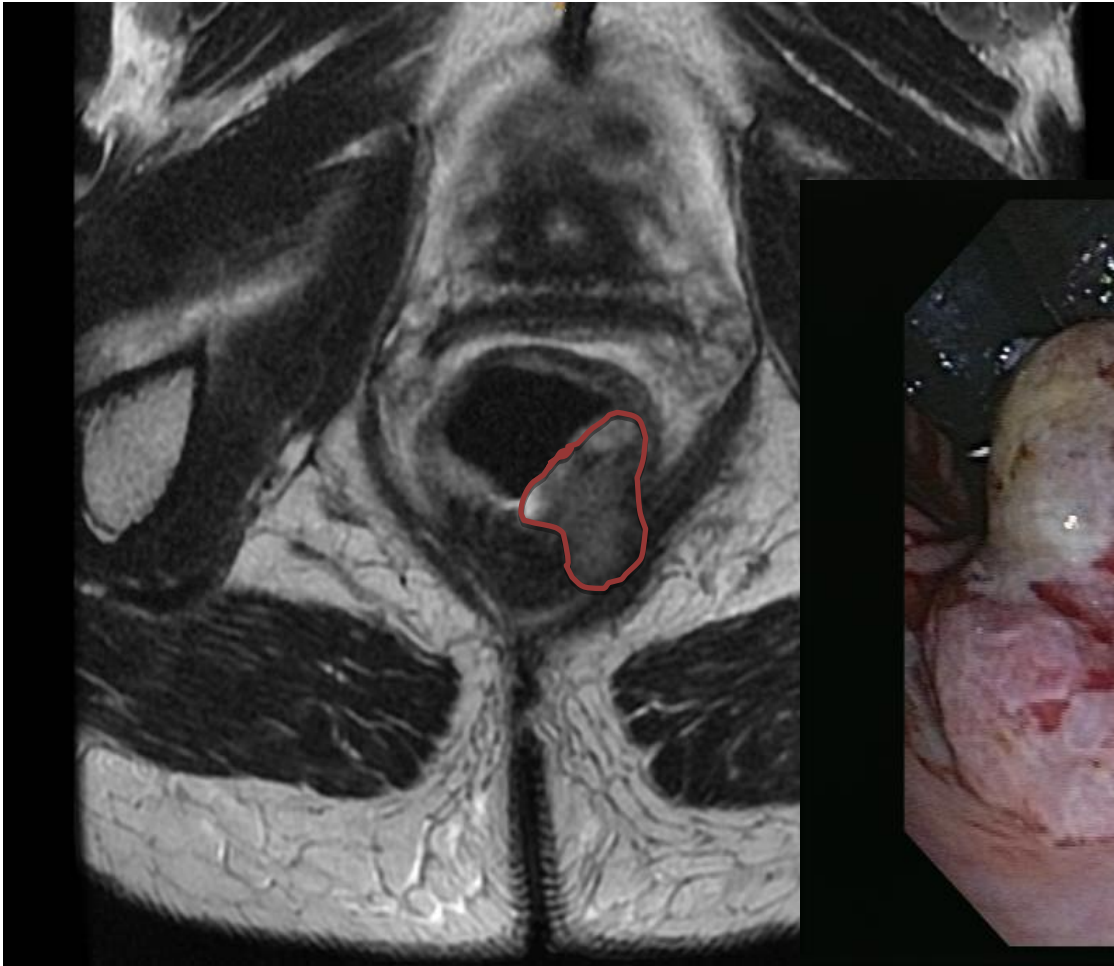


- Office discussion
 - CT Chest/Abd/Pelvis - normal
- Referral to BCCA – recommended APR
 - Pt opted for close follow up

- November 2013
 - CT Chest Abd Pelvis – Normal
 - Cscope – suspicious for recurrent CA



Recurrence Post TEM



Surgical Salvage of Recurrent Rectal Cancer After Transanal Excision



BC Cancer Agency

CARE & RESEARCH

An agency of the Provincial Health Services Authority

Martin R. Weiser, M.D.,¹ Ron G. Landmann, M.D.,¹ W. Douglas Wong, M.D.,¹
Jinru Shia, M.D.,² José G. Guillem, M.D., M.P.H.,¹ Larissa K. Temple, M.D.,¹
Bruce D. Minsky, M.D.,³ Alfred M. Cohen, M.D.,⁴ Philip B. Paty, M.D.¹

¹ Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York, New York

² Department of Pathology, Memorial Sloan-Kettering Cancer Center, New York, New York

³ Department of Radiation Oncology, Memorial Sloan-Kettering Cancer Center, New York, New York

⁴ Department of Surgery, Lucille Markey Cancer Center, University of Kentucky, Lexington, Kentucky

Diseases of the
Colon & Rectum

- 1970-2003
- 50 pts with recurrent CA after TAE for T1 or T2 CA
 - 31 APR
 - 11 LAR
 - 4 Pelvic exseunt
 - 3 repeat TAE
 - 1 Palliative diversion
- 47 R0 resection



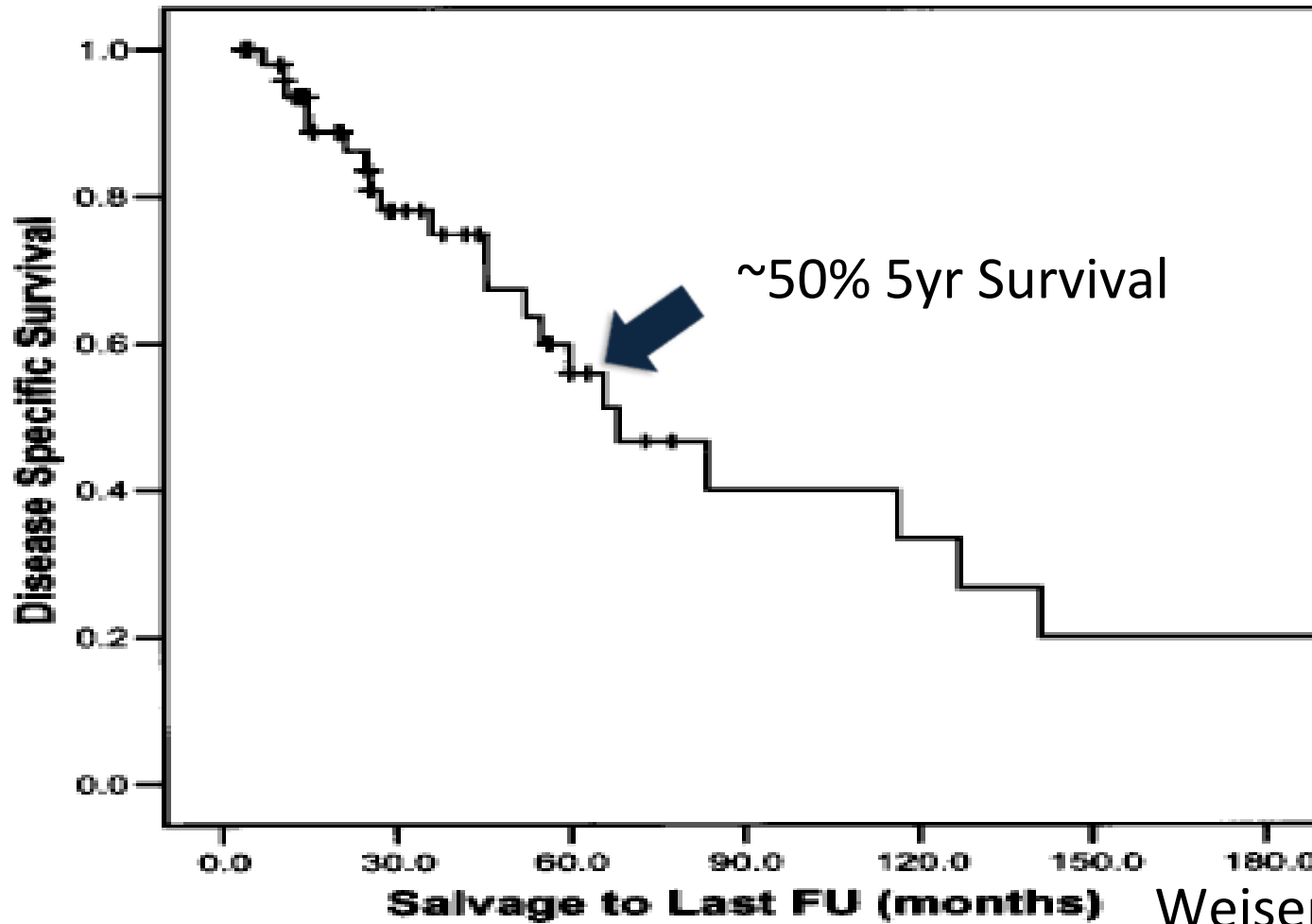
THE UNIVERSITY OF BRITISH COLUMBIA



ST. PAUL'S HOSPITAL

PROVIDENCE HEALTH CARE

Salvage after local recurrence



Weiser, DCR, 2005

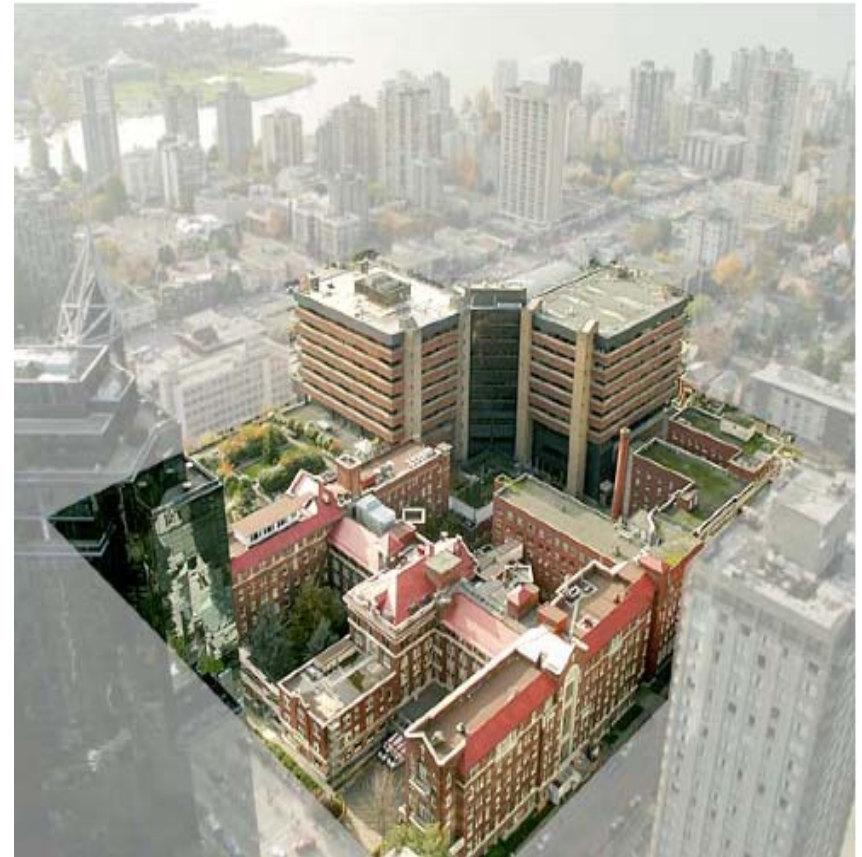
Case 3



- Preop Chemoradtx
- MIS assisted APR
 - Path – T3N0, 0/17 LN +ve, CRM 5mm
- 6 months postop – Recurrence free



CASE 4



Case 4

- 63M obese male, cirrhosis Child's C
- Change in bowel habit
- C scope – bulky rectal cancer 4 cm from dentate line, anterior
- CT – no mets
- MRI cT3N0

- Long course chemoradiation

Case 4



- Death in family overseas 7 weeks after completing chemorads – patient postpones followup & possible surgery
- Flex sig at 11 weeks post chemorads
 - Ulcer only anteriorly – Bx query adenoca
- Restaging MRI possible ycT1N0
- Patient refuses LAR/APR
- Accepts TEM
 - ypT1N0, no LVI, clear margins, well diff

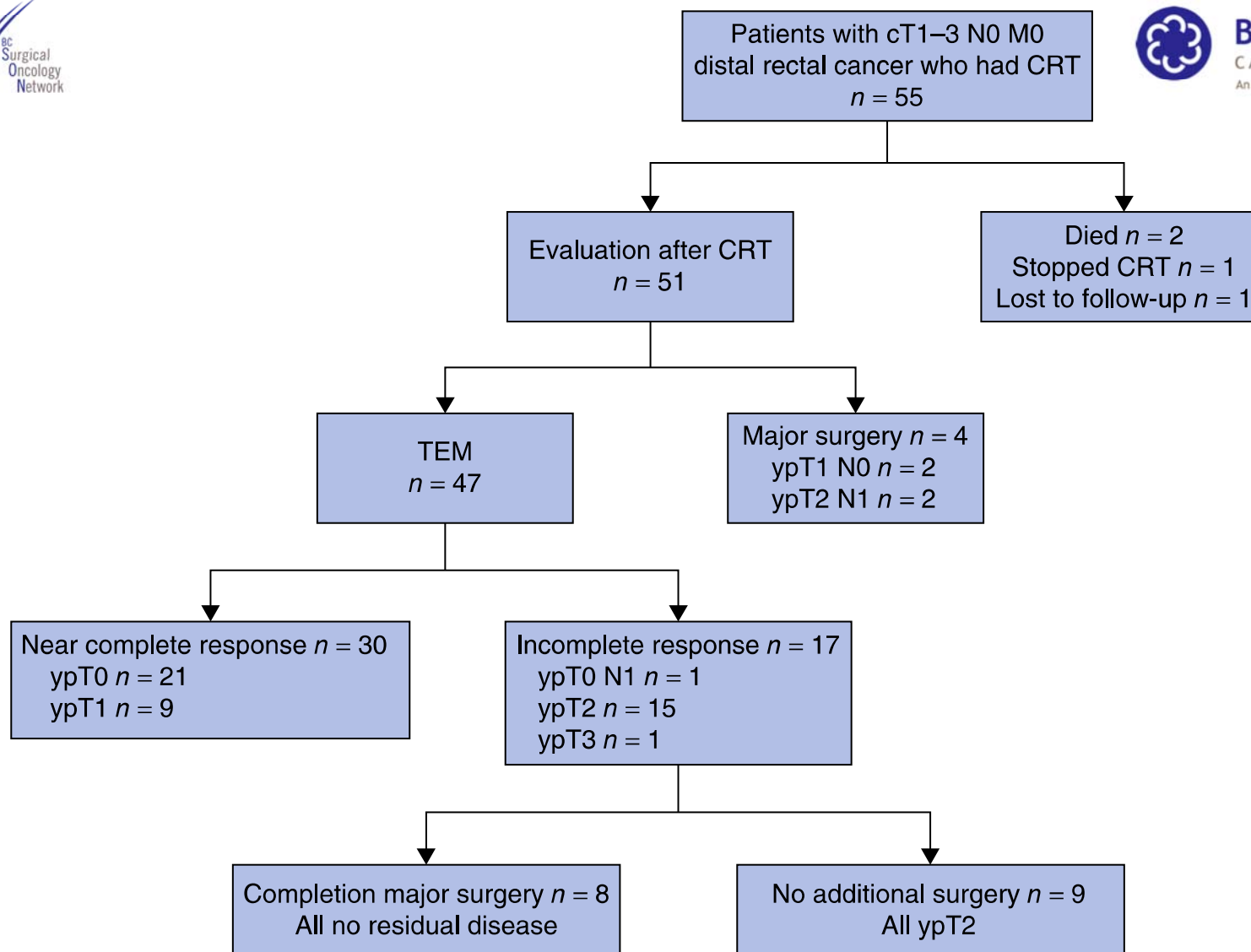


Chemoradiation therapy for rectal cancer in the distal rectum followed by organ-sparing transanal endoscopic microsurgery (CARTS study)

M. Verseveld^{1,2}, E. J. R. de Graaf¹, C. Verhoef², E. van Meerten³, C. J. A. Punt⁵, I. H. J. T. de Hingh⁶, I. D. Nagtegaal⁷, J. J. M. E. Nuyttens⁴, C. A. M. Marijnen⁹ and J. H. W. de Wilt⁸, on behalf of the CARTS Study Group*

BJS 2015; 102: 853–860

- TEM used for accurate pathological response in complete clinical response post-CRTx



Oncologic Outcomes



- Median followup 17 mos (Early only)
- No local recurrence in ypT0 patients (n=22)
- 4 local recurrence
 - 3 ypT2 (1 also liver mets) after TEM – refused radical resection initially
 - 2 APR after recurrence
 - 1 ypT1 after TEM – APR, NED at 22 mos



Table 2 Adverse events during chemoradiotherapy

	Grade 3	Grade 4	Grade 5
Cardiac (arrhythmia)	2	0	0
Constitutional	6	0	0
Dermatological	1	0	0
Gastrointestinal	19	1	1
Genitourinary	2	0	0
Infectious	1	0	1
Pain	5	0	0
Total	36	1	2

5% mortality

Complications (Surgery)

Table 4 Postoperative complications according to the Dindo–Demartines–Clavien classification

	TEM (n = 47)	Major surgery (n = 4)	Completion surgery (n = 8)
Grade I	4	0	2
Grade II	4	2	0
Grade IIIa	1	0	0
Grade IIIb	4*	0	1
Grade IV–V	0	0	0
Total	13	2	3

*One rectovaginal fistula requiring colostomy, one haemorrhage requiring reoperation, two presacral abscesses requiring stoma. TEM, transanal endoscopic microsurgery.

TEM Complications 28% (5-15% without CRT)

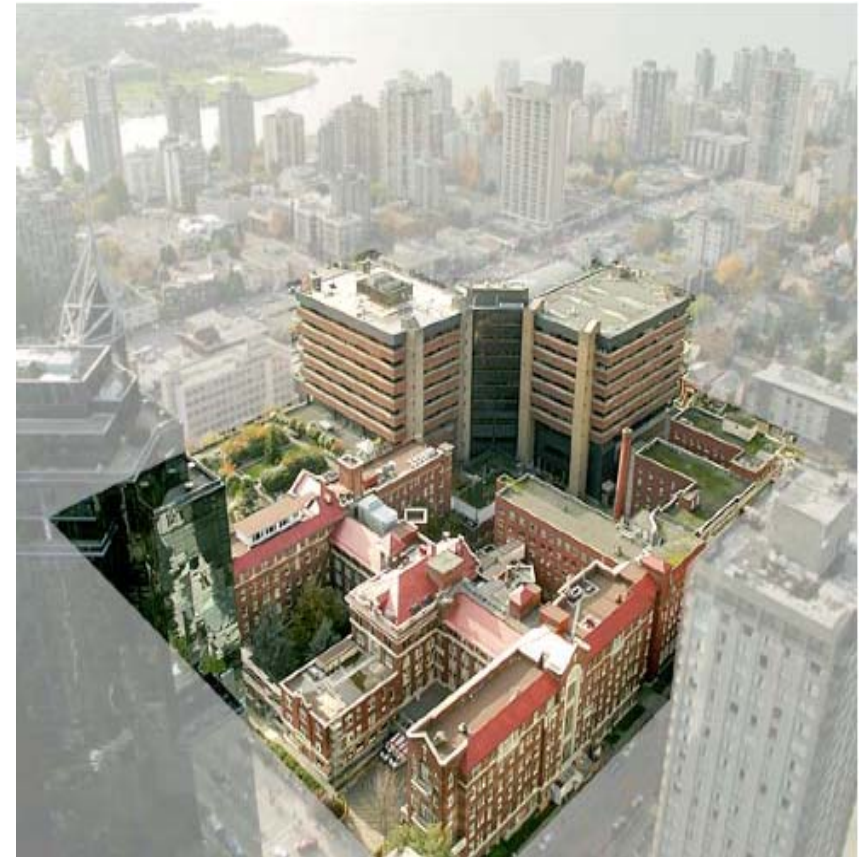
Conclusions (CARTS Study)



- Organ preservation occurred in 55%
- TEM after CRTx *“may be a worthy equivalent to mesorectal excision in selected patients with early distal rectal cancer.”*
- Complications to be weighed against those of radical resection (including functional)



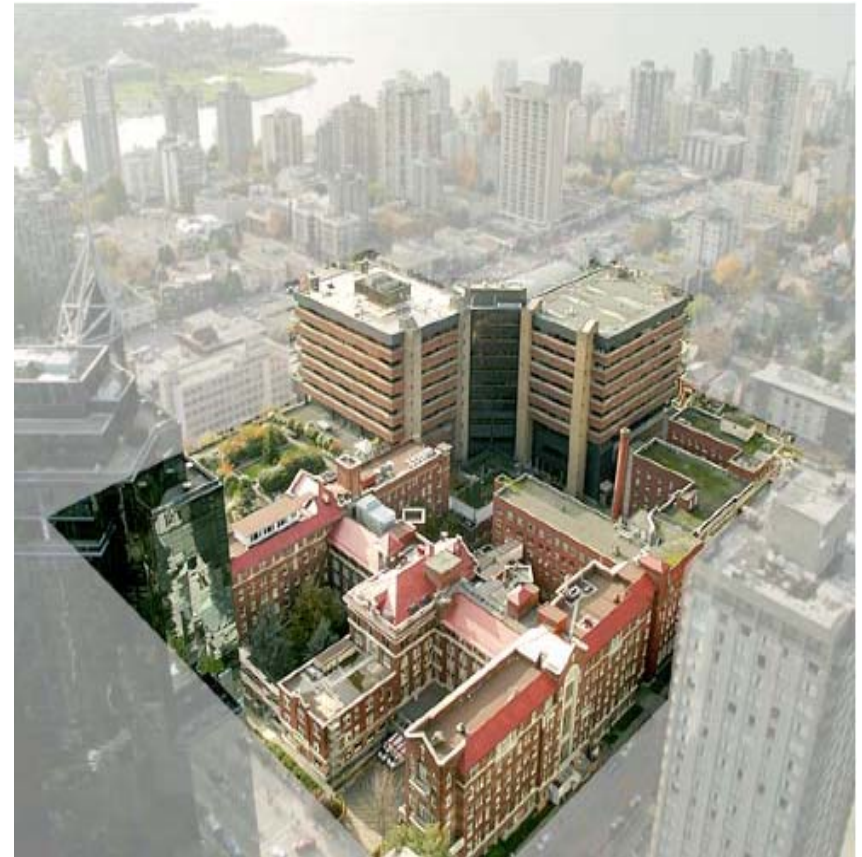
TEM IN BC



- Development of regional expertise
 - There is a learning curve
 - 3 papers published
 - 26-40 cases to establish technical expertise
 - 20/year to maintain
 - Study at SPH (n=500)
 - Significant \$\$\$
- St. Paul's Hospital (C. Brown, M. Raval)
- Royal Columbian Hospital (E. Vikis)
- Kelowna General Hospital (M. Recsky)

- St. Paul's Hospital
 - Acquisition of equipment
 - Dedicated nursing teams
 - Interested pathologists & radiologists
 - Familiarity of TEM amongst local rad onc, med onc
 - Streamlined process for out-of-town patients
 - Review and triage of referral
 - Consult, flex sig, OR all in one visit
 - D/C from hospital POD-0, suggest hotel stay 1-2 days

PARTING THOUGHTS



TEM for Rectal Cancer

- Careful, informed consent
- Choose patients carefully
- Weigh oncologic risk vs. operative/functional risks
- Prepare patient early (if cancer) that immediate post-TEM radical resection may be recommended (poor prognostic features)
- Careful followup post-TEM

- There is a standard of care (TME)
 - Everything else is (semi) experimental

TEM for Rectal Cancer



Just because you can...
...doesn't mean you **should**.



THE UNIVERSITY OF BRITISH COLUMBIA

surgery



ST. PAUL'S HOSPITAL

PROVIDENCE HEALTH CARE

The Future



- Rectal cancer treatment is in flux
 - More radiation for more complete response?
 - More selective radiation?
- Radiation + TEM = TME?



Search for studies:

Example: "Heart attack" AND "Los Angeles"

Search

[Advanced Search](#) | [Help](#) | [Studies by Topic](#) | [Glossary](#)

[Find Studies](#) ▾

[About Clinical Studies](#) ▾

[Submit Studies](#) ▾

[Resources](#) ▾

[About This Site](#) ▾

Search for studies:

Example: "Heart attack" AND "Los Angeles"

Search

[Advanced Search](#) | [Help](#) | [Studies by Topic](#) | [Glossary](#)

Search for studies:

Example: "Heart attack" AND "Los Angeles"

Search

[Advanced Search](#) | [Help](#) | [Studies by Topic](#) | [Glossary](#)

[Find Studies](#) ▾

[About Clinical Studies](#) ▾

[Submit Studies](#) ▾

[Resources](#) ▾

[About This Site](#) ▾

[Home](#) > [Find Studies](#) > [Search Results](#) > [Study Record Detail](#)

[Text Size](#) ▾

Trial record **6 of 38** for: [transanal excision](#)

[◀ Previous Study](#) | [Return to List](#) | [Next Study ▶](#)

Neoadjuvant Radiotherapy Followed by **Transanal** Endoscopic Microsurgery for T1-T2 Extraperitoneal Rectal Cancer (NERATEM)

This study is currently recruiting participants. (see [Contacts and Locations](#))

Verified April 2014 by European Association for Endoscopic Surgery

Sponsor:

European Association for Endoscopic Surgery

Information provided by (Responsible Party):

Alberto Arezzo, European Association for Endoscopic Surgery

ClinicalTrials.gov Identifier:

NCT02127645

First received: April 26, 2014

Last updated: April 28, 2014

Last verified: April 2014

[History of Changes](#)

The Future

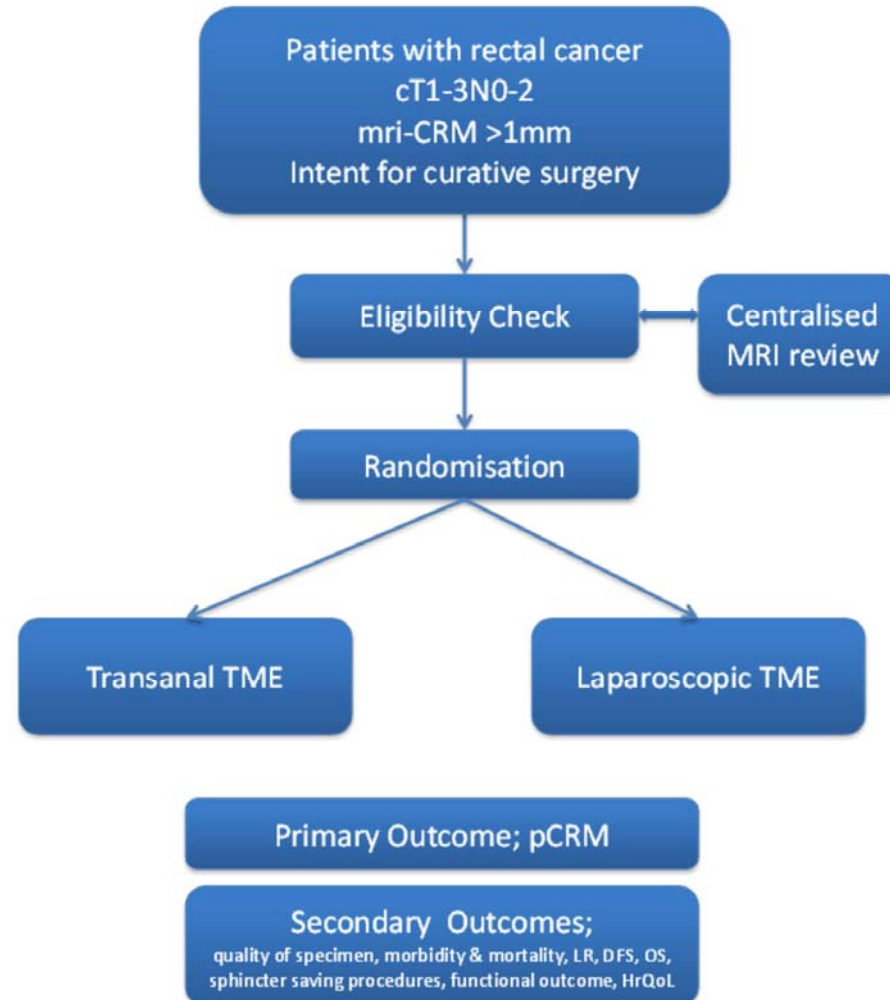


- Rectal cancer treatment is in flux
 - More radiation for more complete response?
 - More selective radiation?
- Radiation + TEM = TME?
- TEM as a bridge to NOTES/NOSE
- **Transanal TEM (taTME) combined with MIS LAR**



COLOR III Trial

COLOR III Trial: A randomized clinical trial comparing transanal and traditional laparoscopic TME for rectal cancer.

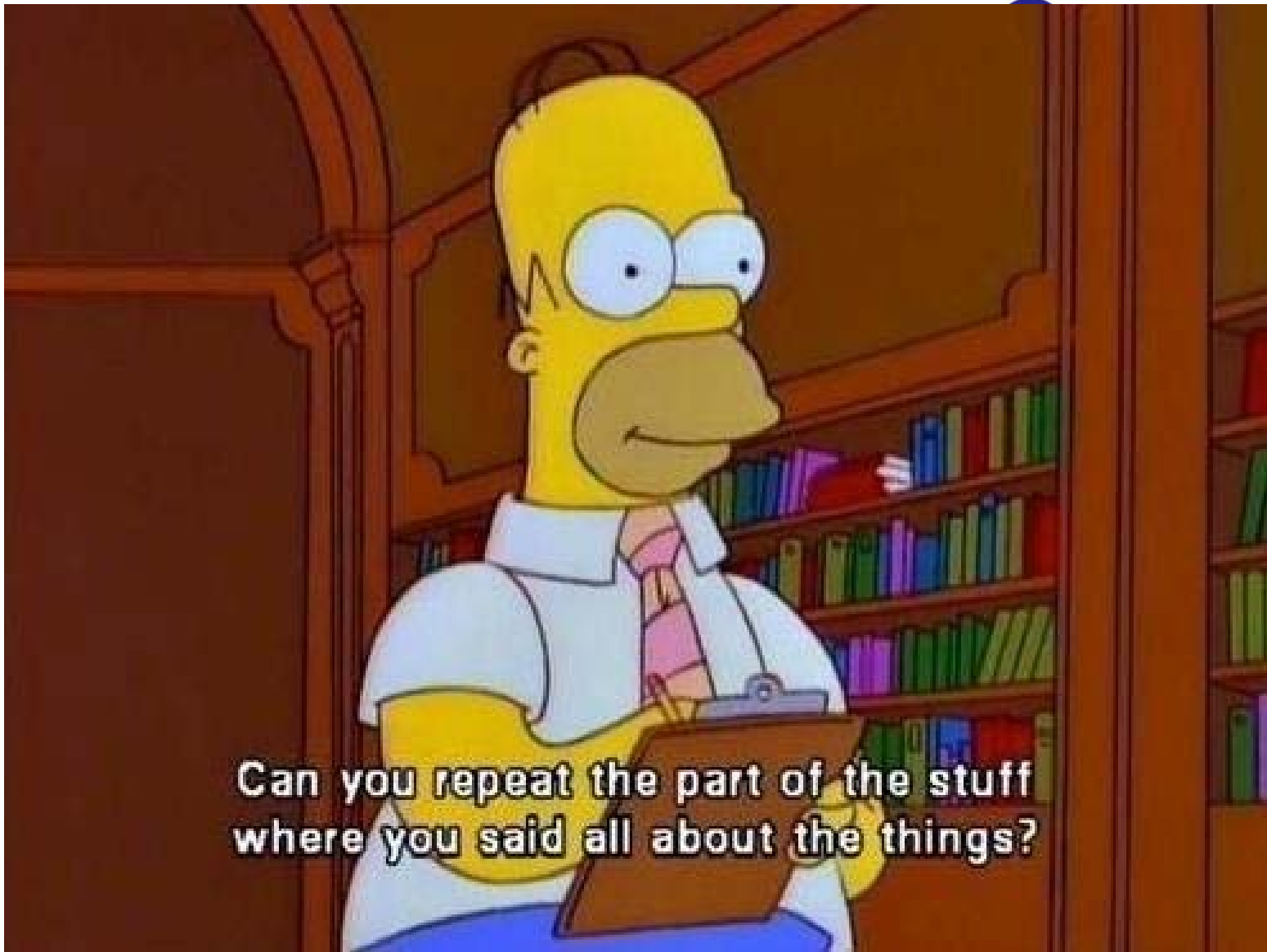


Acknowledgements

- Jacek Murawski
- Ada Lo
- Jennifer Lee
- Jaclyn Lam
- Irene Schornagel
- Magda Recsky
- Devang Raval
- Juliana Kowal
- Sina Kalikias
- Behrouz Heidary
- Anneke Planting
- Palak Bawa
- Phoebe Ng
- Hong Li
- Chad Brown
- OR Nurses
- **General Surgeons of BC (and beyond)**



*Generous Donors: Cullen, Carrier,
Pedersen, Price families*



THE UNIVERSITY OF BRITISH COLUMBIA

surgery



ST. PAUL'S HOSPITAL

PROVIDENCE HEALTH CARE