RT for Colorectal Cancer

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CRC Radiation Therapy

- Review the role of radiotherapy (RT) in colorectal cancer
- Indications and clinical scenarios
- How you can support care before, during, and after RT

CRC Radiation Therapy

- 3rd most common cancer globally
- Divided into:
  - Colon cancer
  - Rectal cancer
- Treatment is multidisciplinary: surgery, chemotherapy, RT

Colon Cancer

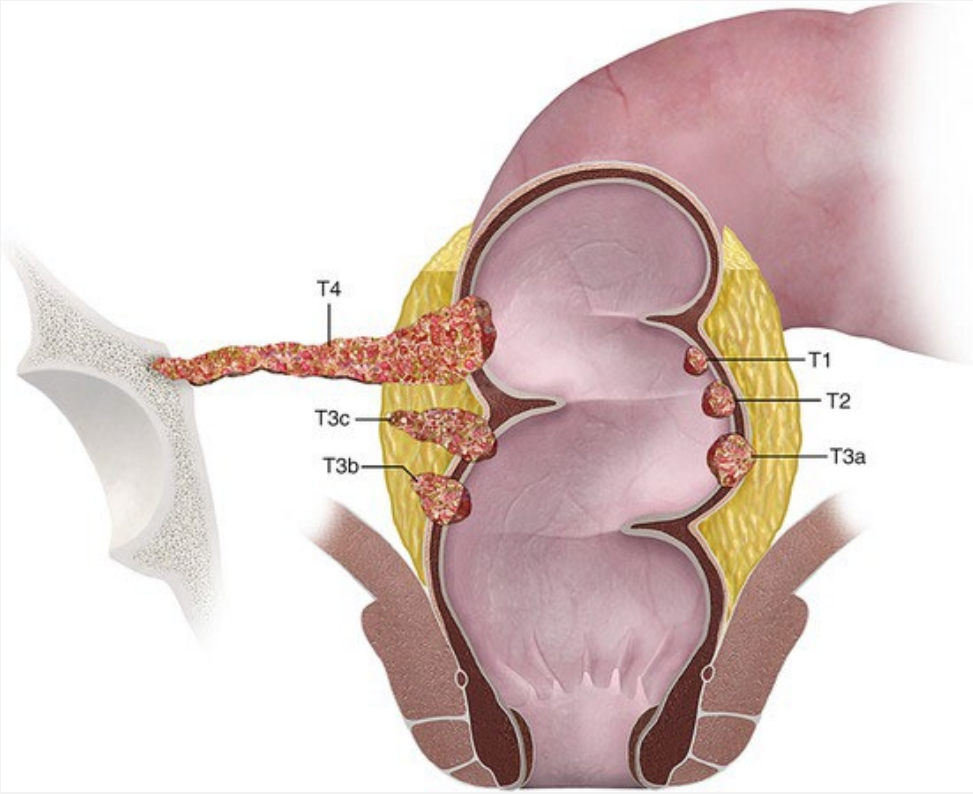
- Radiotherapy has a limited role
- Not standard, rarely used due to:
  - Mobile nature of the colon
  - Nearby radiosensitive organs
- Occasional use: palliation of bleeding or pain from unresectable disease

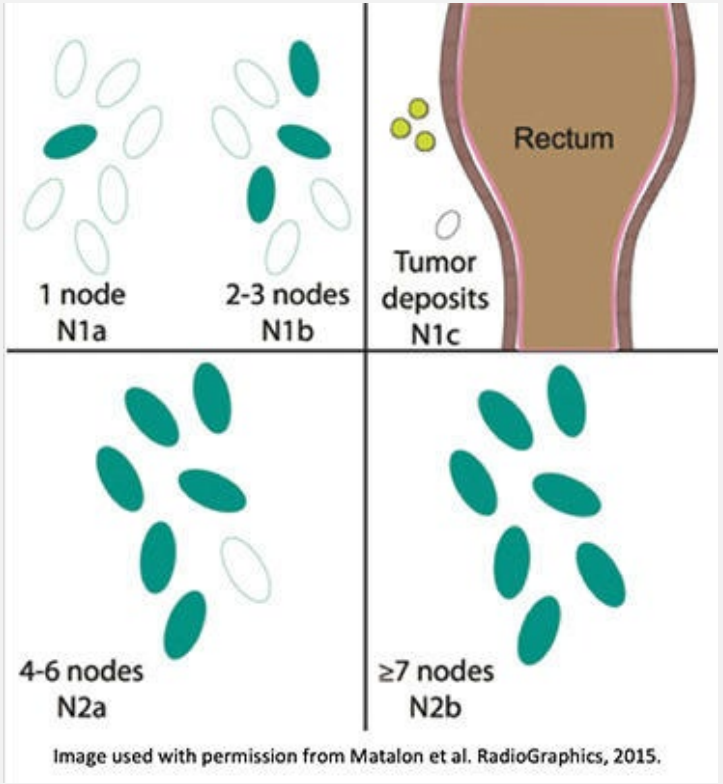
Rectal Cancer

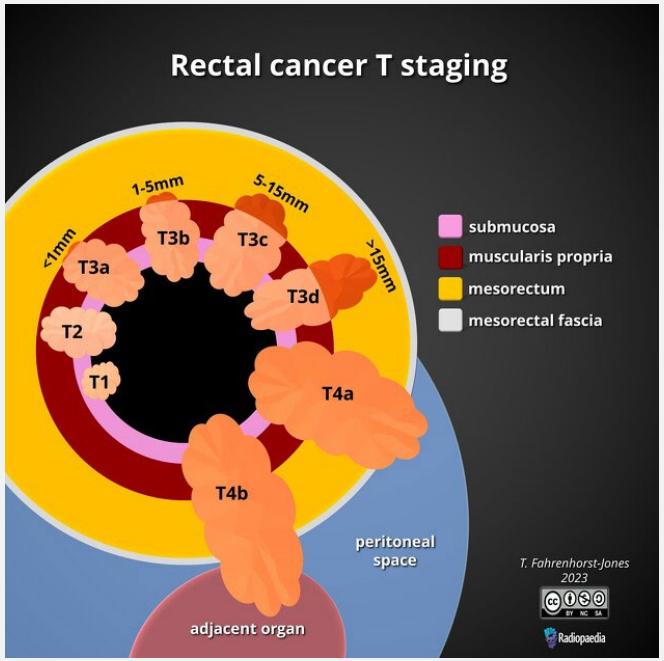
- RT is standard and important
- Neoadjuvant therapy (before surgery) is often used to:
  - Downstage tumors
  - Improve resectability
  - Reduce local recurrence
- Adjuvant therapy (after surgery): less common but may be used if no neoadjuvant given

Indications for RT

- T3/T4 tumors or node-positive disease

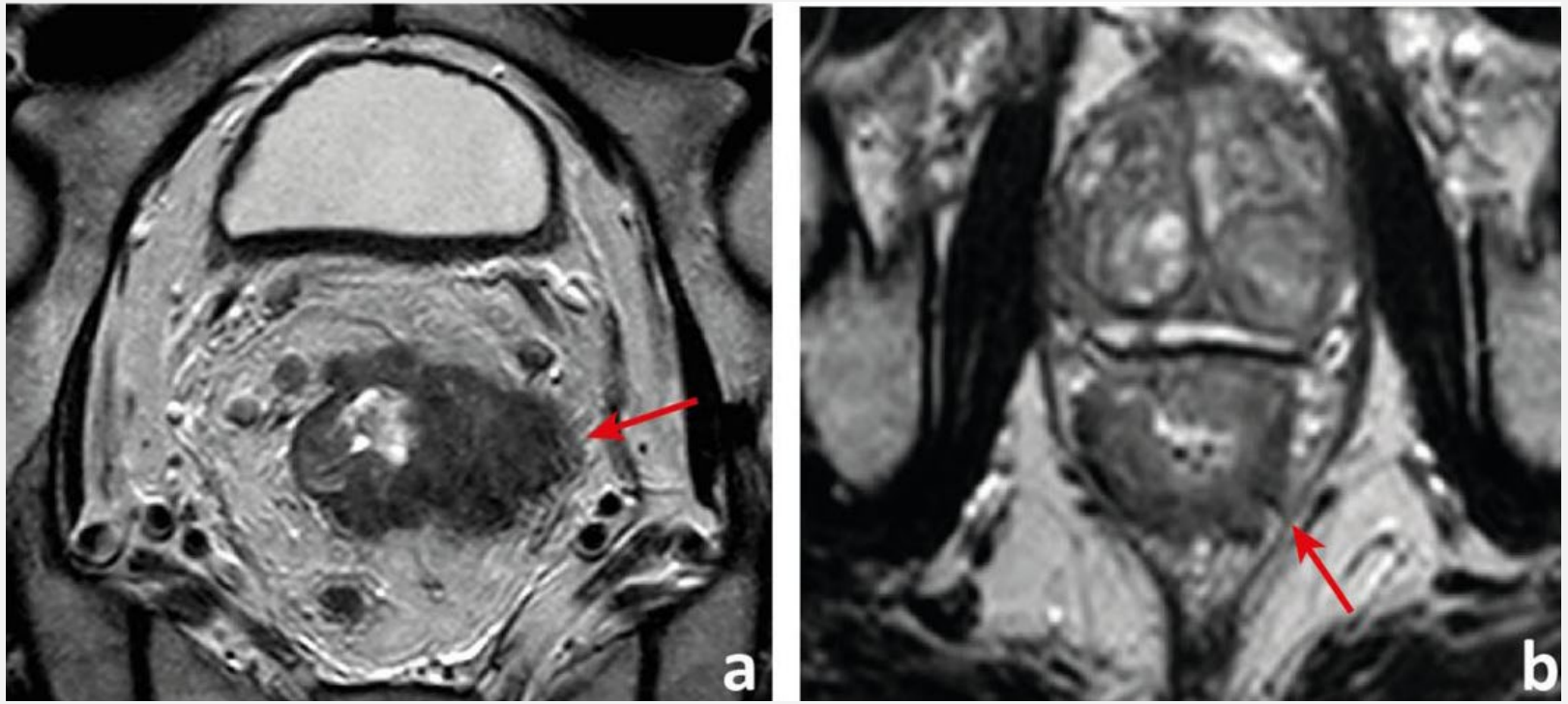






Indications for RT

- Threat to mesorectal fascia
- Tumors close to the sphincter (may help preserve it)

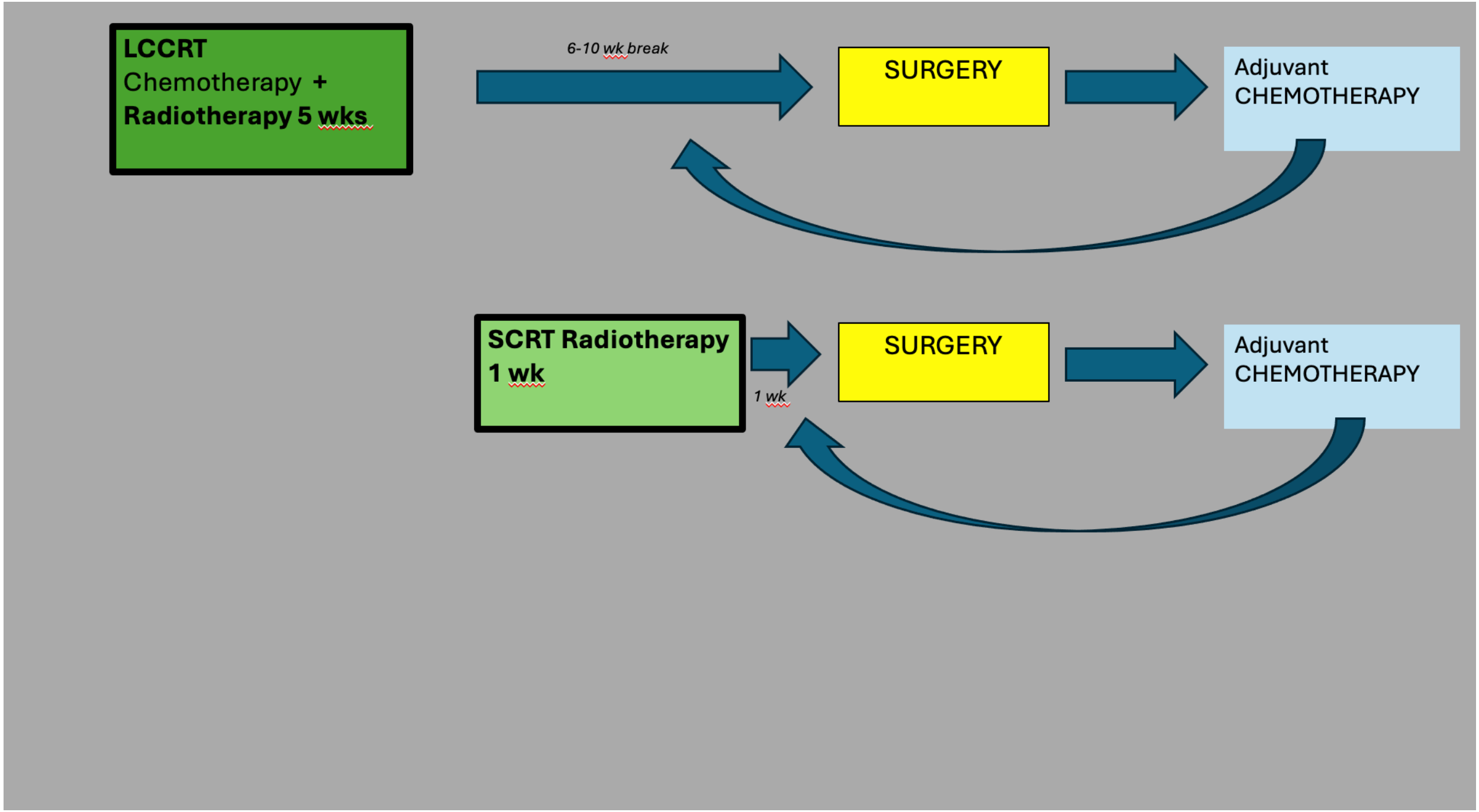


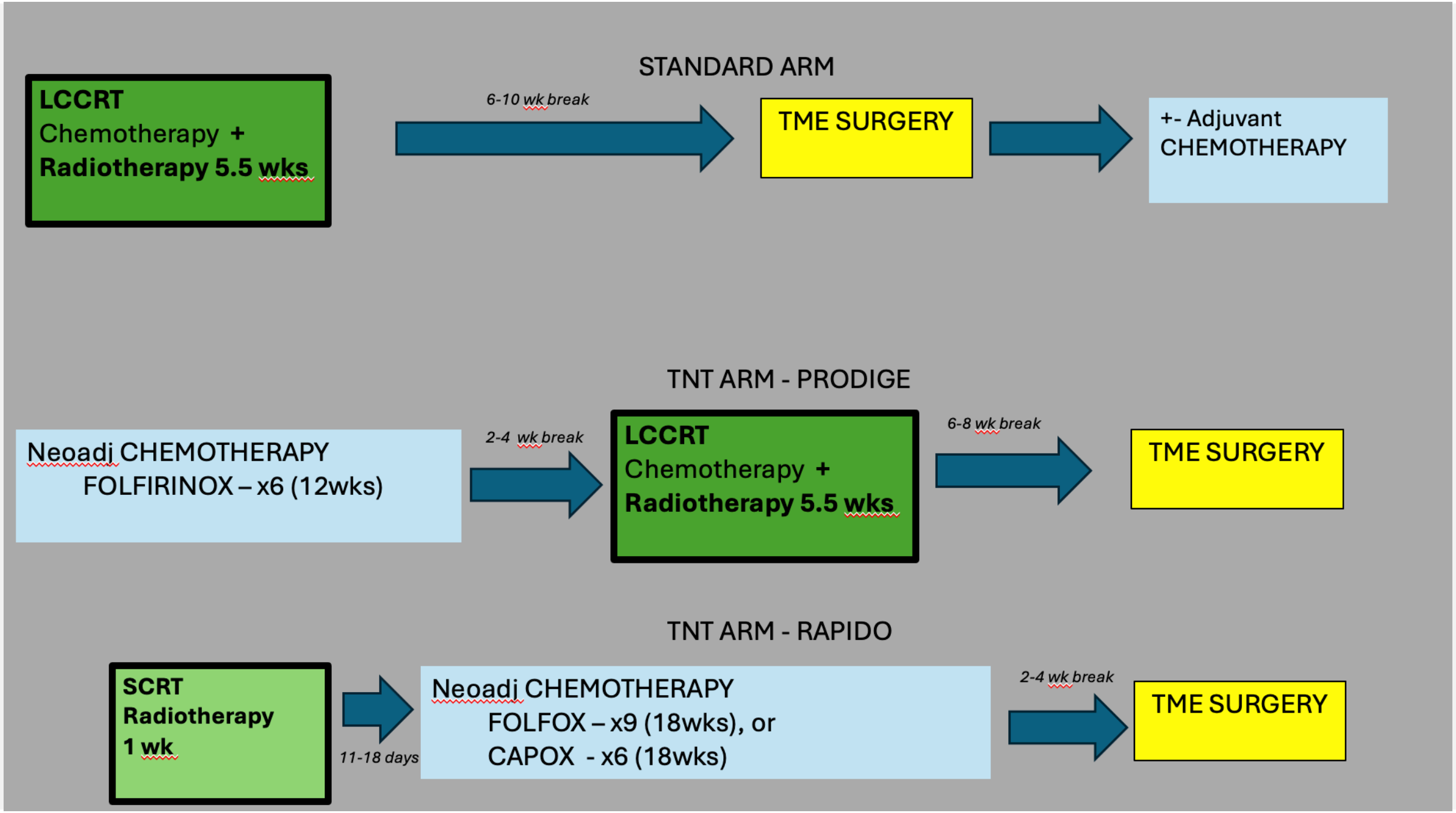
Indications for RT

- Recurrent rectal cancer
- Palliation (e.g. pain, bleeding)

Types of RT for RC

- Short-course RT (SCRT)
  - 5 Gy × 5 days
  - Surgery within a week or after delay (for downstaging)
- Long-course chemoradiotherapy (LCCRT)
  - 45–50.4 Gy over ~5 weeks
  - Combined with chemotherapy
  - Used for locally advanced tumors


LCCRT
Chemotherapy +
Radiotherapy 5 wks
6-10 wk break
SURGERY
Adjuvant
CHEMOTHERAPY
SCRT Radiotherapy
1 wk
1 wk
SURGERY
Adjuvant
CHEMOTHERAPY


STANDARD ARM
LCCRT
Chemotherapy +
Radiotherapy 5.5 wks
6-10 wk break
TME SURGERY
+- Adjuvant
CHEMOTHERAPY
TNT ARM - PRODIGE
Neoadj CHEMOTHERAPY
FOLFIRINOX – x6 (12wks)
2-4 wk break
LCCRT
Chemotherapy +
Radiotherapy 5.5 wks
6-8 wk break
TME SURGERY
TNT ARM - RAPIDO
SCRT
Radiotherapy
1 wk
11-18 days
Neoadj CHEMOTHERAPY
FOLFOX – x9 (18wks), or
CAPOX - x6 (18wks)
2-4 wk break
TME SURGERY

RAPIDO– Short-course RT/TNT

LRR
10.2% (TNT) vs 6.1% (p=0.027)
R0 – 7.2% (TNT) vs 3.9% (p=0.049)
R1 – 39% (TNT) vs 20% (p=0.06)

Breached mesorectum
11% (TNT) vs 6% (p=0.022)
In breached mesorectum patients more LRR
21% (TNT) vs 4% (p=0.053)

PRODIGE

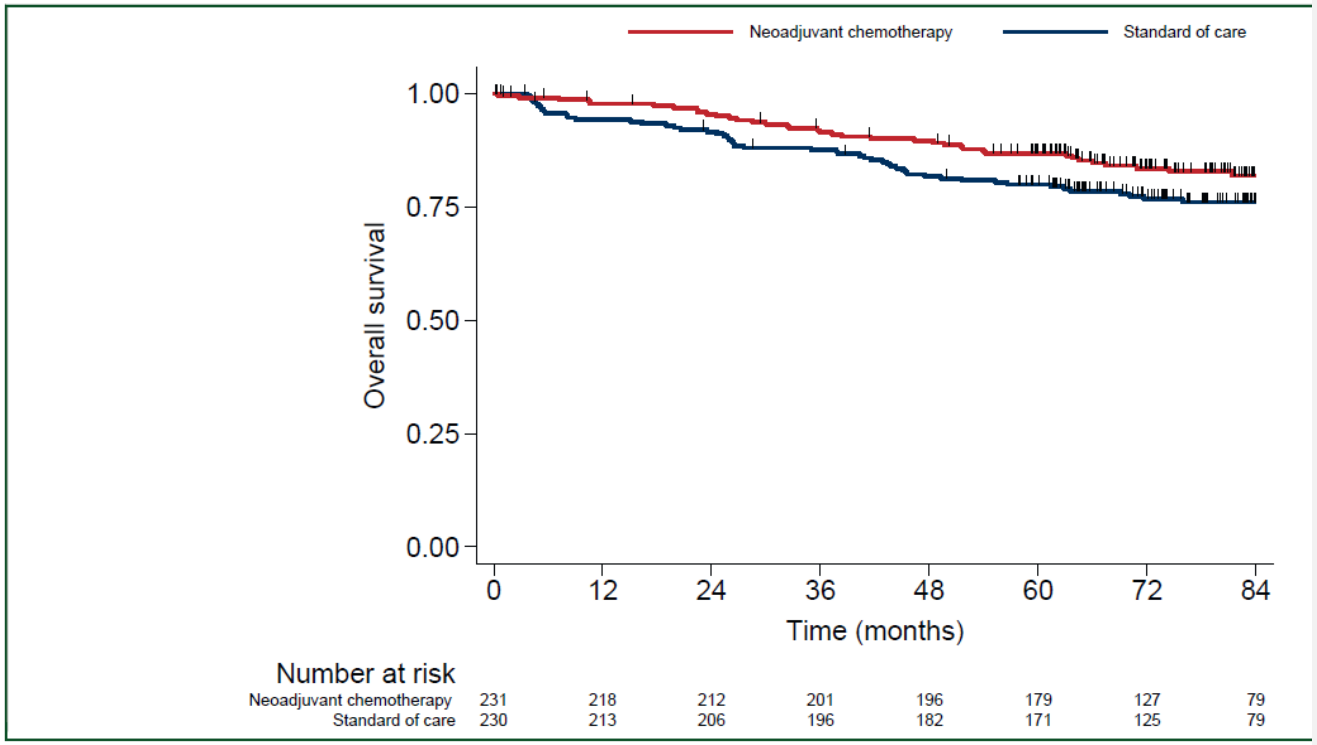


Figure 2. **Overall survival.**

7yr OS

76.1% - 81.9% (TNT)

7yr LRR

8.1% vs 5.3% (TNT)

7yr Distant met rate

27.7% vs 20.7% (TNT)

Organ Preservation for Distal Rectal Ca

Organ Preservation / Non-Operative Management (NOM) / Watchful Wait (WW)

OPRA – TNT then watch/wait.

Why?

- Elderly – not surgical candidates
- Not ideal candidates for stoma (or refuse)
- QOL of stoma
- Older CRT trials showing 10-15% pCR rates

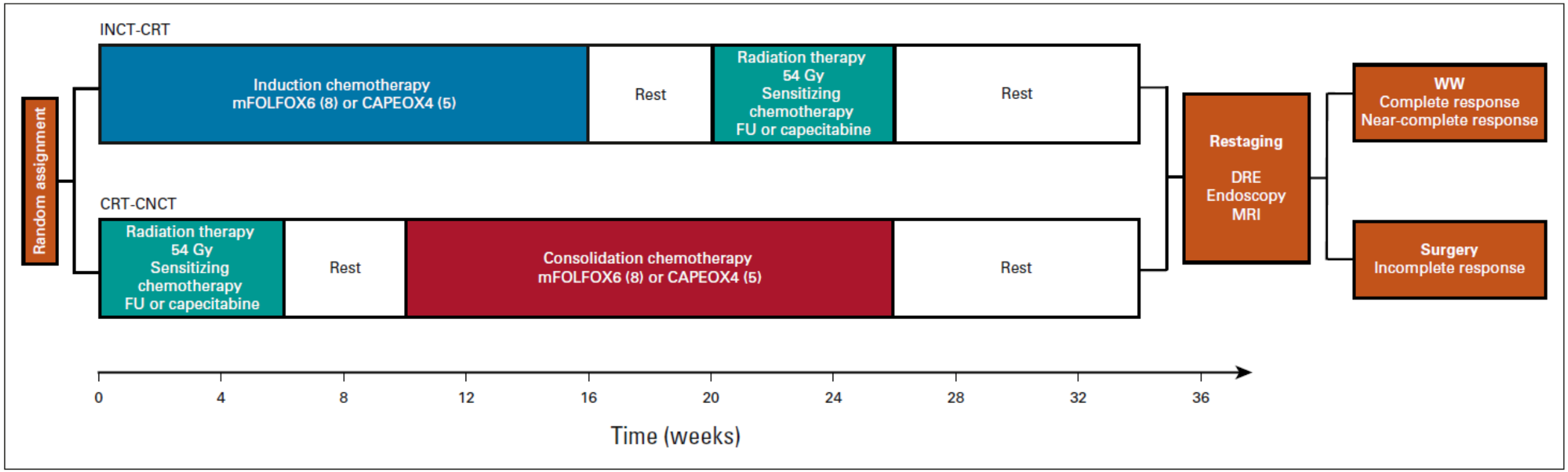
Long-Term Results of Organ Preservation in Patients With Rectal Adenocarcinoma Treated With Total Neoadjuvant Therapy: The Randomized Phase II OPRA Trial

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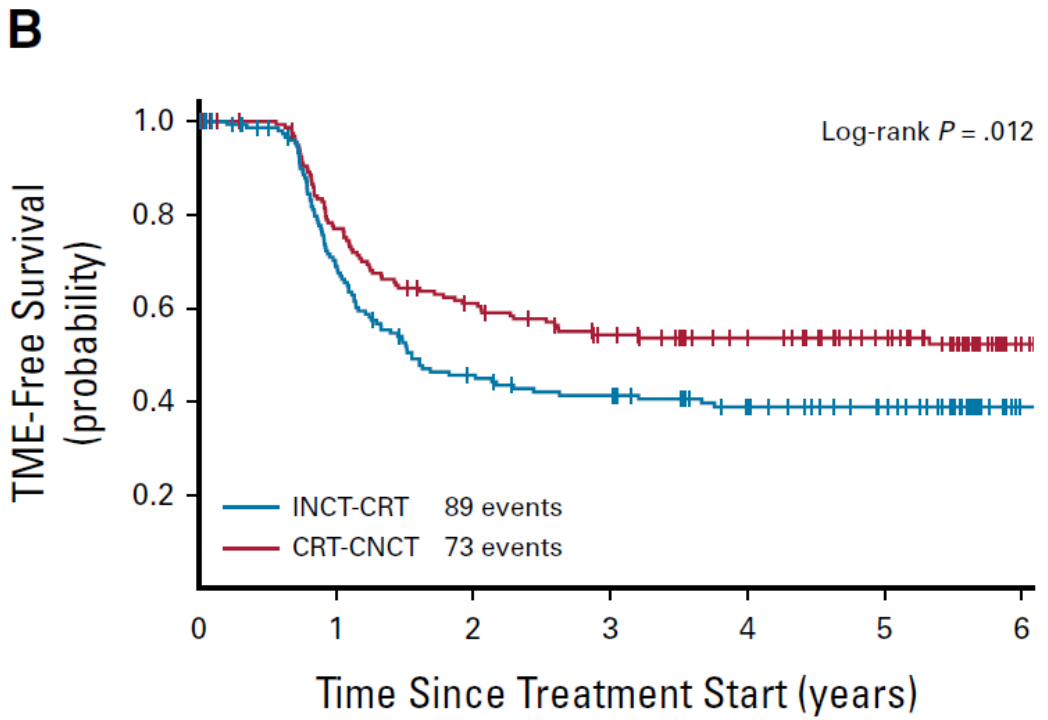
- Localised Rectal
- Stage II (T3-T4, N0),
- Stage III (any T, N1-2)
- Requires TME

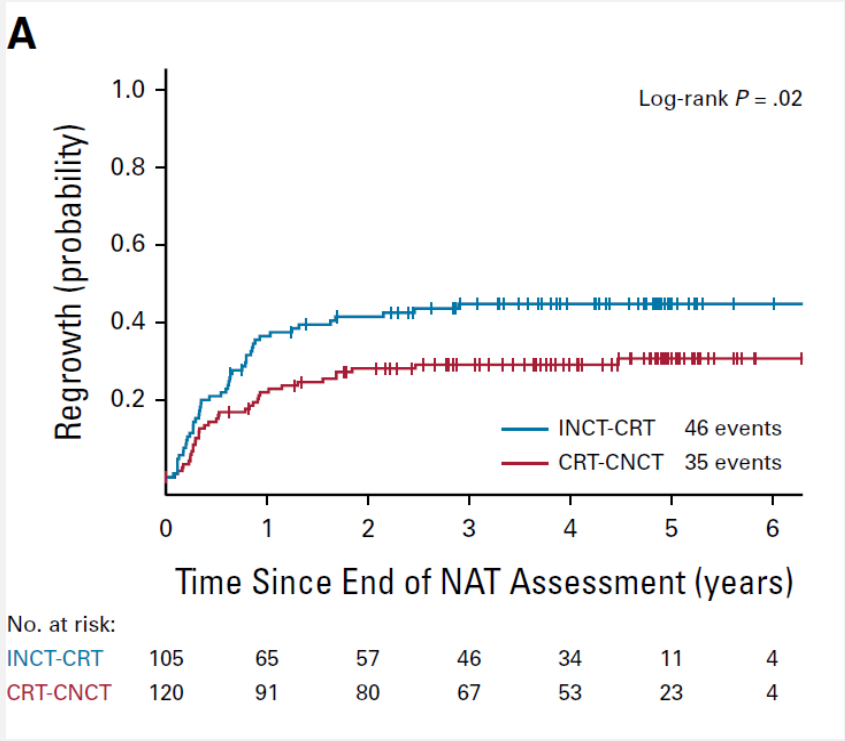
- Median height from AV – 4.0–4.3cm.


INCT-CRT
Induction chemotherapy
mFOLFOX6 (8) or CAPEOX4 (5)
Rest
Radiation therapy
54 Gy
Sensitizing
chemotherapy
FU or capecitabine
Rest
Random assignment
CRT-CNCT
Radiation therapy
54 Gy
Sensitizing
chemotherapy
FU or capecitabine
Rest
Consolidation chemotherapy
mFOLFOX6 (8) or CAPEOX4 (5)
Rest
Restaging
DRE
Endoscopy
MRI
WW
Complete response
Near-complete response
Surgery
Incomplete response
0
4
8
12
16
20
24
28
32
36
Time (weeks)

Comparing Induction CT vs consolidative CT

No SS difference in DFS / OS / LRFS / DMFS





Classify response to TNT – cCR, nCR, **iCR**

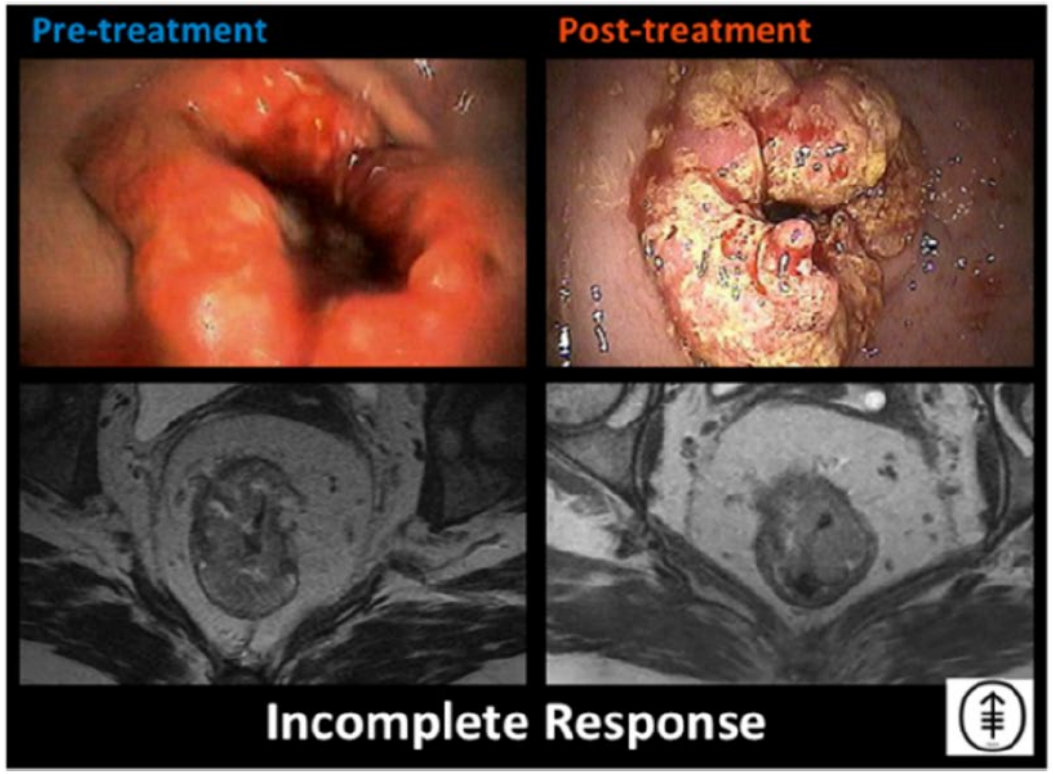


Fig. 5 . Incomplete response. Endoscopic and T2-weighted MRI images both pre- and post-treatment are shown for a patient who experienced no significant response to induction chemotherapy followed by CRT. This is a 45-year-old woman who underwent 8 cycles of induction FOLFOX followed by CRT with minimal or no response. The patient was therefore referred for TME

Smith *et al. BMC Cancer* (2015) 15:767

Classify response to TNT – cCR, **nCR**, iCR

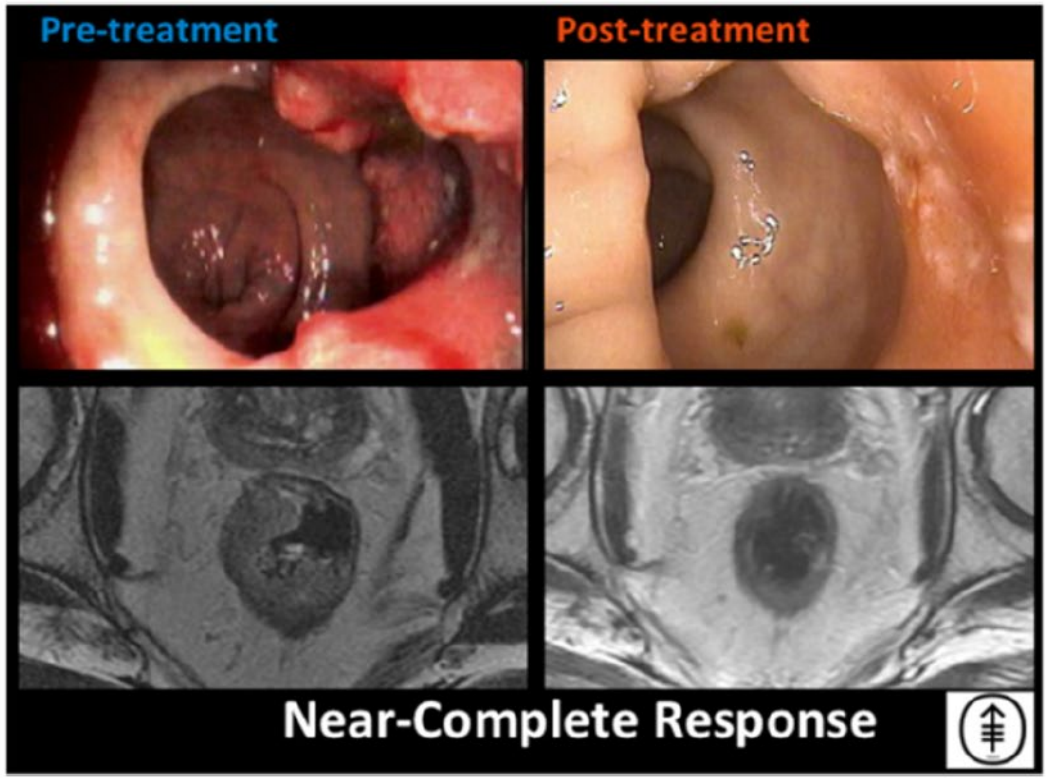


Fig. 4 Near-complete response. Endoscopic and T2-weighted MRI images both pre- and post-treatment are shown for a patient who has achieved a near complete response. This is a 74-year-old man who underwent 8 cycles of induction FOLFOX followed by CRT, and achieved a near-cCR. A biopsy obtained in surveillance was determined to contain residual cancer; therefore, the patient was referred for TME

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Classify response to TNT – **cCR**, nCR, iCR

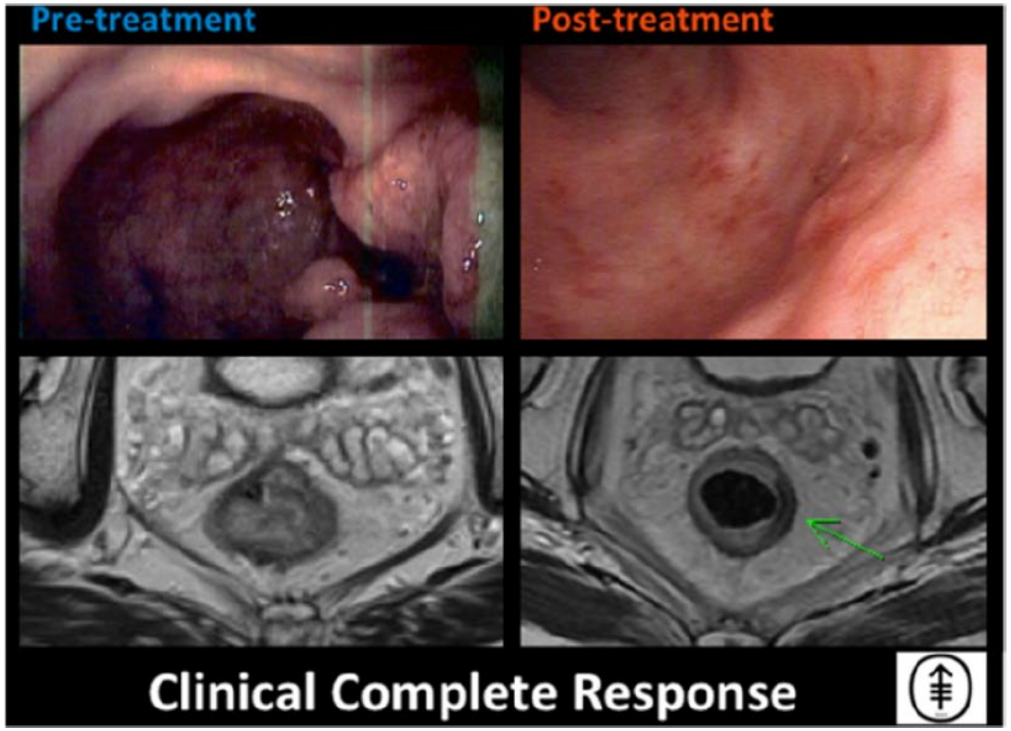


Fig. 3 Clinical complete response. Endoscopic and T2-weighted MRI images, both pre- and post-treatment, are shown for a patient who has achieved a clinical complete response. Images displayed were taken from endoscopic and MRI views of an 85 year-old man who underwent capecitabine CRT followed by consolidation chemotherapy with CapeOx and was determined to achieve cCR both clinically and radiologically. In the post-treatment T2-weighted MR

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Table 2 | **Consensus follow-up methods and intervals for organ preservation strategies**

Year	Serum carcino-embryonic antigen	DRE	Endoscopy	Pelvic MRI	Chest and/or abdominal CT
1	3 months	3–4 months	3–4 months	3–4 months	6–12 months
2	3 months	3–4 months	3–4 months	3–4 months	Annually
3	3 months	6 months	6 months	6 months	Annually
4	6 months	6 months	6 months	6 months	Annually
5	6 months	6 months	6 months	6 months	Annually

First follow-up assessments typically occur at 6–8 weeks following completion of preoperative or definitive treatment. DRE, digital rectal examination.

Ensuring compliant for follow up

Capability / resources of follow up

MRI access

?PET

What GPs Should Know & Do

- Before Radiotherapy
  - Support early diagnosis and staging
  - Refer to multidisciplinary team (MDT) promptly
  - Patient education and emotional support

What GPs Should Know & Do

- During Radiotherapy
  - Monitor for side effects:
    - Diarrhea
    - Proctitis
    - Fatigue
    - Skin reactions
  - Coordinate supportive care (e.g. anti-diarrheals, nutritional advice)

What GPs Should Know & Do

- After Radiotherapy
  - Long-term follow-up for:
    - Bowel function issues
    - Pelvic fibrosis
    - Sexual dysfunction
    - Second cancers
  - Monitor for recurrence
  - Psychological support

Take Home Messages

✅ Radiotherapy is **crucial in rectal**, not colon cancer
✅ GPs play a **key role** in early diagnosis, referral, and supportive care
✅ Know what side effects to monitor, and how to follow up
✅ Multidisciplinary coordination is vital

Barrigel

